AN OPERATIONS-BASED APPROACH FOR INTRODUCING A VALUE CHAIN FRAMEWORK IN FOREIGN TRADE ORIENTED MARKETING OF BANGLADESH AGRICULTURAL COMMODITIES AND SERVICES

PhD Dissertation
(With Commentaries from the External Examiner Incorporated)

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PhD Dissertation
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Submitted to:

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Tuesday, 07 August 2018

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DECLARATION OF ORIGINALITY

I declare herewith, that this thesis, titled, "An Operations-Based Approach for Introducing a Value Chain Framework in Foreign Trade Oriented Marketing of Bangladesh Agricultural Commodities and Services" is exclusively my own work in pursuance of the award of Doctor of Philosophy under the supervision of Professor. Dr. M Ziaulhuq Mamun, Institute of Business Administration, University of Dhaka.

Furthermore, I confirm that this work has been composed by me without assistance; that I have clearly referenced in accordance with departmental requirements, in both the text and the bibliography or references and footnotes, the sources (either from a printed source, internet or any other source, such as, archived data files) used in the work; that no part of the data and findings in the work has been falsified or embellished; that this work has not been previously, or concurrently, used either for other courses or within other processes as an exam work or has been used in full or partial compliance with any other degree/program; and that this work has not been previously published. All measures have been taken to incorporate citations, references and links to published materials which have been included in this paper. Corrections and modifications will be made for any mistaken omission.

I appreciate that any false claim in respect of this work will result in disciplinary action in accordance with university or departmental regulations.

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Subject: Submission of the revised PhD Dissertation

Ref:
i. Notes dated Thursday, September 15, 2011
ii. Notes dated Tuesday, September 20, 2011
iii. Notes dated Sunday, September 25, 2011
iv. Notes dated Friday, April 4, 2014
v. Notes dated Friday, April 11, 2014
vi. Notes dated Saturday, April 19, 2014
vii. Notes dated Tuesday, May 13, 2014
viii. Notes dated Saturday, April 28, 2014
ix. Notes dated Saturday, April 28, 2014
x. Notes dated Wednesday, May 7, 2014
xi. Notes dated Wednesday, May 7, 2014
xii. Notes dated Friday, May 9, 2014
xiii. Draft Paper dated Thursday, February 12, 2015
xiv. Draft Final Paper dated Sunday, November 29, 2015
xv. Notes on Seminar Paper, November 16, 2016
xvi. Notes on Seminar Paper, February 02, 2017
xvii. PhD Dissertation, August 10, 2017

Revered Professor,

With reference to the letter issued from the Office of the Controller of Examinations, University of Dhaka, no: 597/Section-2/P dated 16 July 2018, I am submitting the revised PhD dissertation, titled, "An Operations-Based Approach for Introducing a Value Chain Framework in Foreign Trade Oriented Marketing of Bangladesh Agricultural Commodities and Services".

02. The restructured PhD Dissertation reflects the views/opinion of one of the hon'ble members of the examination board. All points mentioned in the letter from the Hon'ble External Examiner Dr. Toufic A Choudhury, DG, BIBM, have been incorporated and the thesis structure has been modified accordingly. I have reflected all nine points of observation in the paper – except for changing the placement of the 'political economy of jute' and 'trade equation' sections – since it is my reasoned opinion that these two chapters complete the findings and give a more fulsome sense of understanding of the hypotheses tested and creates the "story-line" of the dissertation. In particular, I believe that I have wholly satisfied all requirements of the paragraphs 2, 5 and 9 of the report dated July 10, 2018 and also fulfilled all modification requirements contained in the Hon'ble Examiner's report.

03. The last couple of years had been eye opening. Under your supervision, I have tried my hands on issues, areas and research-methods, which I had never even thought of before! As it appears, sir, you have sufficiently challenged my thought-processes and disciplined my mind to process new information in a meaningful way, which could then be channeled back to the quotidian life of a policy maker. While I do agree that the stone is as beautiful as the sculpture, we very need to streamline our information and process them into meaningful symbols. While symbols are not important in themselves (except for the

creativity that goes into its creation) the process teaches us to introspect and seek beyond what is given and probably only then we understand the answers to the greater questions of being alive. May be that is what the objective of a program at the PhD level is! To answer questions and then to raise more and yet be content with the ceaseless journey in quest of perfection!

04. As will the relevant sections suggest, sir, the objectives have been modified a couple of times to further elaborate and assess specific objectives and then test sets of hypotheses. The modification reflects an added emphasis on the operational aspects of generating a generic, value-chain and value-network driven business model for products and services or solutions for the agricultural sector of Bangladesh under conditions of regional and multilateral trade regimes. A particular emphasis has been put on jute (the select commodity from the first three levels of research on the agricultural sector of Bangladesh under conditions of foreign trade) so as to come up with a very well defined set of parameters which could foretell the success-failure spectrum for agricultural marketing in Bangladesh.

05. As such, the broad objectives have further been elaborated to include specific objectives and a set of hypotheses. The parts relating to the Methodology associated with each of the sets of objectives and hypotheses have been detailed. Research has been carried out at the following levels:

a. Secondary literature survey for establishing a base-line concept for the thesis
b. Simulation runs coupled with primary data validation has been carried out using the following models:

I. RCA (Revealed Comparative Advantage)
II. Fuzzy TOPSIS (Technique for Order Preference by Similarity to Ideal Solution)
III. Gravity Model (augmented)
IV. AHP (Analytic Hierarchy Process)
V. Quantitative SWOT

06. We have given a very extensive description of the discussions and negotiations which have taken place under the rubrique of the WTO to build the case for taking a new look at the regional and bilateral solutions which could present themselves in the days ahead. We have also built a political economy scenario with the help of Dr. Tariq Ali's PhD dissertation (which contains a plethora of detailed references which could not have otherwise been reproduced without copying in tact) and with detailed records from the Archives of India (for Bangladesh archives data were either destroyed or not found at at all – thanks to the wholesale destruction caused by the War of Liberation 1971) to portray a case argument for instituting an operations based approach for jute sector.We have also built the trading model as an equation to ensure that whatever the understanding distilled from the discussions under various chapters and areas of this thesis could be summarized in one full block of numbers. The revised paper, sir, is submitted for your kind approval.

07. Thank you, Sir, for your time and kind attention.

With most profound regards,

Syed Muntasir Mamun
PhD Aspirant

ACKNOWLEDGMENT

I take this opportunity to thank my supervisor – Professor Dr. Muhammad Ziaulhuq Mamun – primarily for his immense patience with me and then for guiding me in the wonderful journey towards the PhD. This was a unique privilege, to have had taken the walk. New instruments and models were acquired, assimilated and built-upon. The paper itself has aided in taking real life decisions concerning the prejudices and privileges accessible for regional economic integration. I most humbly acknowledge the gift of trust that was bestowed on him by the Professor. A strong emphasis on the correct algorithm and sequencing in research was the most important contribution that the endeavor rendered to the intellectual pursuit of the author.

A special note of thanks to Professor Dr. Syed Ferhat Anwar, for his powerful leadership in the course on Research Methodology. Many years back, it was from Professor Anwar that the author learnt how to 'define' a research problem – complete with its parameters: constructs, concepts and objectives. A note of gratitude to Dr. M Saiful Majid, Director, IBA, for his leadership and for his constant encouragement.

A note of special reference is documented here to recognize the contribution of Ms. Akriti Bhatia, PhD Scholar, Jawharlal Nehru University for her commitment to the project and for sharing the workload in collecting, collating and analyzing the data used in the paper. She practically worked day and night for more than three years to collect and collate more than a hundred and thirty years of data used in the paper from the National Archives of India. Gratitude is also due to Mr. Yashasvi Nain, a wonderful young lawyer with the Geneva School, for his tireless efforts in assisting the author for completing some of the legal documentations associated with the work of the paper. I am grateful to H.E. Mr. Harsh Vardhan Shringla – then Joint Secretary (BSM), Ministry of External Affairs, for his kind assistance in securing access to the old and rare manuscripts and government records from the Archives of India – which has become a source of great information and detail for Bangladesh as a country. I thank Mr. Mohiuddin for his assistance in securing administrative necessities for the work and submission of the paper.It would constitute to be a criminal offence to leave out Dr. Nur E Elahi Mim, Associate Professor, BSMMU – for the paper, in all possible manners, is as much to him as much as it is to the author. It is due to his astute leadership and robust (read, imaginative) conversations that the paper stayed on course – and in particular – at a time when I was hard pressed with resource constraints and was also undergoing personal issues.

I would put on record my profound gratitude to Dr. Tariq Ali and CPD for their extensive works which I have copied, reproduced and explained in a newer context for building up the case. Particularly, I would thank Dr. Tariq Ali for his PhD dissertation – parts of which have been reproduced extensively in this paper for tracing the references to the political economy of jute in the twentieth century. I would express my deepest gratitude to all those who have helped me learn and grow – but whose names are not mentioned here. Let it be known that all learningis acknowledged with gratitude and humility.

I would like to thank my parents, Colonel Syed Ali Imam Al Mamun and Begum Kalpana Mamun … for the kind support they always kept on providing even in spite of seemingly insurmountable adversities. I take a moment of devotion to express and document my conviction especially in my mother – Kalpana Mamun – for her unflinching faith in the author.A note of gratitude to Ms. NawshiMatin, for staying the course and for enduring the trauma which comes along with the undertaking of a PhD. Gratitude is due to Dr. SyedaZerin Imam, for providing support at times when energy levels were low and steps still needed to be taken. Syed Nawshad Imam could not see to the end while SyedaNawshaba Imam came forward to light the way. Let it be noted that Nawshad will be awaited.

It was a journey of long seven years. A journey through the alleyways of several capitals of South Asia, Europe and North America.A journey through death and life – lives, rather. A journey of love and living the dream.

ACRONYMS and ABBREVIATIONS

AAMA:	American Apparels Manufacturing Association
AAMC:	American Apparel Manufacturing Corporation
AAQC:	American Association of Quality Control
AAQC:	American Apparels Quality control
ACP:	Africa, Caribbean, Pacific, the ACP countries
ADD:	Anti-Dumping Duty
AFTA:	ASEAN Free Trade Area
AGM:	Assistant General Manager
AIA:	ASEAN Investment Area
ALADI:	Latin American Integration Association and the Carribean
AM:	Assistant Merchandiser
AMS:	Aggregate Measurement of Support (in Agreement on Agriculture)
AMS:	Aggregate Measurement of Support
ANZCER:	Australia-New Zealand Closer Economic Relationship (Treaty Agreement)
AOA:	Agreement on Agriculture (WTO)
APEC:	Asian Pacific Economic Cooperation
AQL:	Acceptable Quality Level
ASEAN Plus Three:	ASEAN Ten and Japan, China and South Korea
ASEAN:	Association of Southeast Asian Nations
ASEM	Asia-Europe Meeting
ASQC:	American Society for Quality Control
ASTM:	American Society for Testing Materials
BATEXPO:	Bangladesh Textile Exposition
BB L/C:	Back to Back L/C
BCCFA:	Bangladesh Custom Clearing & Forwarding Agent
BCI:	Bangladesh Commerce & Investment
BEPZA:	Bangladesh Export Processing Zone Authority
BGMEA:	Bangladesh Garments Manufacturers & Exporters Association
BGWUC:	Bangladesh Garments Worker Unit Council
BISD:	Basic Instruments and Selected Documents (published by GATT)
BJCP:	Bangladesh Jute Cultivation Program
BJEC:	Bangladesh Jute Export Corporation
BJMA:	Bangladesh Jute Mills Association
BJMC:	Bangladesh Jute Mills Corporation
BKMEA:	Bangladesh Knitwear Manufacturers & Exporters Association
BL:	Bill of Lading
BLT:	Build, Lease, and Transfer
BOM:	Bill of Materials
BOO:	Build, Own, and Operate
BOT:	Build, Operate, and Transfer
BOT:	Board of Trade
BRT:	Business Roundtable
BS:	Bill of Sale
BS:	British Standard
BTMA:	Bangladesh Textile Mills Association
BTMC:	Bangladesh Textile Mills Corporation
BWTG:	Better Worker in Textile Garments
C & F:	Cost & Freight
C&F:	Clearing and Forwarding
CACM:	Central American Common Market
CAD:	Computer Aided Design
CAF:	Currency Adjustment Factor

CAM:	Computer Aided Manufacturing
CAP:	Common Agricultural Policy
CAP:	Corrective Action Plan
CARICOM:	Caribbean Common Market
CARIFTA:	Caribbean Free Trade Area Association
CBA:	Collective Bargaining Agent
CBC:	Carpet Backing Cloth
CBL:	Center Back Line
CBM:	Cubic Meter
CCC:	Customs Cooperation Council
CCC Secretariat:	Secretariat of the Customs Co-operation Council
CDs:	Compact Disks
CEEC:	Central and Eastern European Countries
CEO:	Chief Executive Officer
CEO:	Chief Executive Officer
CET:	Common External Tariff
CF:	Cubic Feet
CFC:	Chloro-Fluoro Carbons
CFL:	Center Front Line
CFS:	Container Freight Station
CGE:	Computable General Equilibrium
CI:	Commercial Invoice
CIF:	Cost, Insurance and Freight
CM:	Common Market
CM:	Cost of Manufacturing
CM:	Country Manger
CM:	Cutting and Making
CMO:	Cost of Making Order
CMT:	Cost of Making with Trimming
CMT:	Cost of Manufacturing with Trims / Cut Make Trim
CMT:	Cut, Make and Trim
CMTA:	Cut, Make, Trim and Quota
CNF:	Clearing & Forwarding
CNTBT:	Comprehensive Nuclear Test-Ban Treaty
CO:	Certificate of Origin
CO:	Country of origin
CO:	Certificate of Origin
COD:	Cash on Delivery
COD:	Cash on Delivery
CRD:	Cargo Receive Date
CSP:	Count Sire Pound
CT:	Cycle Time
CTBL:	Combined Transport Bill of Lading
CTL:	Consumer Testing Laboratories
CU:	Customs Union
CUSFTA:	Canada-U.S. Free Trade Agreement
CVC:	Chief Value of Cotton
CVT:	Co-effective of Variation
CY:	Container Yard
DAC:	Development Assistance Committee (OECD)
DDP:	Delivery Duty Paid
DDU:	Delivery Duty Unpaid
DSB:	Dispute Settlement Body
DSU:	Dispute Settlement Understanding
E-Pattern:	Electrical Pattern

EAEC:	East Asian Economic Caucus cooperation
EAs:	Europe Agreements
EASG:	East Asian Study Group
EBA:	Everything but Arms
ECLA:	United Nations Economic Commission for Latin America
ECM:	European Common Market
EEA:	European Economic Area
EEC:	European Economic Community
EFTA:	European Commission on Human Rights
ELM:	East Asia-Latin America Forum
EMB:	Embroidery
EP:	Export Procedure
EPA:	European Productivity Agency
EPB:	Export Promotion Bureau
EPI:	Ends per Inch
EPZ:	Export Processing Zone
ETA:	Expected Time of Arrival
ETD:	Expected Time of Departure
ETP:	Effluent Treatment Plan
EU	European Union
f.o.b:	Free on Board
FAK:	Freight All Kinds
FAO:	Food and Agriculture Organization of the United Nations
FBCCI:	Federation of Bangladesh Chamber of Commerce and Industries
FCL:	Full container Load
FDI	Foreign Direct Investment
FDI:	Foreign Direct Investment
FEU:	Forty-Foot Equivalent Unit
FEU:	Forty Feet Equivalent
FIFO:	First in First Out
FMC:	Federal Maritime Commission
FOA:	Free on Air
FOB A:	Free On-Board Air
FOB:	Free on Board/Freight on Board
FPC:	Flat Packing container
FPI:	Fixed Per Inch
FQA:	Final Quality Audit
FT:	Free Trade
FTA:	Free Trade Agreement, Free Trade Area
FTAA:	Free Trade Area of the Americas (in 1989, 15 countries; in 2000, 19)
FTC:	Federal Trade Commission
FTC:	Federal Trade Commission
FV:	Feeder Vessel
FY:	Financial Year
G 15:	"Algeria, Argentina, Brazil, Chile, Colombia, Egypt, India, Indonesia, Iran, Jamaica, Kenya, Malaysia, Mexico, Nigeria, Peru, Senegal, Sri Lanka,Venezuela, Zimbabwe"
GAT:	General Agreement on Tariff and Trade
GATS:	General Agreement on Trade in Services
GATT 1994:	General Agreement on Tariffs and Trade 1994
GATT:	Generalized Agreement on Tariffs and Taxes
GCC:	Gulf Cooperation Council
GDP:	Gross Domestic Product
GDP:	Growth Domestic Product
GDP:	Gross Domestic product

GM: General Manager
GMOs: Genetically Modified Organisms
GMT: Garments (interchangeably, with RMG)
GNP: Gross National Product
GoB: Government of Bangladesh
GOH: Garment on Hanger
GP: General Container
GPT: Garments Performance Test
GSP: Generalized System of Preferences
GSP: Generalized System of Preference
GSTP: Global System of Trade Practices
GW: Gross Weight
HAWB: House Airway Bill
HQ: High Cubic Feet
HS: Harmonized Commodity Description and Coding System
HYV: High-yielding Variety
IAEA: International Atomic Energy Agency
IATA: International Air Transport Association
IBRD: International Bank for Reconstruction and Development
IC: Inspection Certification
IC: Inspection certificate
ICB: Investment Corporation of Bangladesh
ICC: International Chamber of Commerce
IDB: Inter-American Development Bank
IE: Industrial engineering
IEC: International Electrotechnical Commission
IFTU: International Federation of Trade Union
IFTU: International Federation of Trade Union
ILO: International Labor Organization
IM: Import Procedure
IMF: International Monetary Fund
IMS: Industrial Management System/Service
IPC: In-Process Check
IPI: Interior Point Internodes
ISO: International Organization for Standardization
ISO: International Organization for Standardization
IT0 International Trade Organization
ITC: International Trade Centre
ITO: Income Tax Officer
JETRO: Japan External Trade Organization
KEDO: Korean peninsula Energy Development Organisation
KPI: Key Performance Indicator
KTA: Knitted Textile Association of America
L: Large (Size)
L/C: Letter of Credit
LAFTA: Latin American Free Trade Area
LCA: Letter of Credit Authorization
LCL: Less than Container Load
LCL: Lace Container Load/Light
LDCs: Less Developed Countries
LIFO: Last in First Out
LNG: Liquified Natural Gas
LPPS: Independent Power Producers
M & W: Men and Women
M: Medium (Size)

MAI: Multilateral Agreement on Investments
MAWB: Master Airway Bill
MCDM: Multi Criteria Decision Making
MEBF: Mercosur-European Union Business Forum
MENA: Middle Eastern and North African countries
MFA: Arrangement Regarding International Trade in Textiles
MFA: Multi-Fiber Arrangement
MFN: Most Favoured Nation
MFW: Most-Favored Nation Treatment
MIS: Management Information System
MM: Merchandise Manger
MMT: Measurement
MNCS: Multinational Corporations
MOC: Ministry of Commerce
MOFTAC: Ministry of Foreign Trade and Commerce (China)
MOS: Margin of Safety
MOT: Ministry of Textile
MP: Man Power
MT: Metric Ton
MTCR: Missile Technology Control Regime
MTD: Month to Date
MV: Mother Vessel
NAFTA: North American Free Trade Agreement
NAS: New Asia Strategy
NFT: Nonproliferation Treaty
NGC: New Generation Computing
NGO: Nongovernmental Organization
NIEs: Newly Industrialized Economies
NORAD: Norwegian Agency for Development Cooperation
NOVCC: Non-Vessel Operations Common Carrier
NPT: Non-Productive Time
NSA: No Seam Allowance
NTB: Non-tariff Barrier
NW: Net Weight
OBL: Original Bill of Lading/Ocean Bill of Lading
ODA Official Development Assistance
OECD Organization for Economic Cooperation and Development
OM: Office Manger
OPEC: Organization of Petroleum Exporting Countries
OQL: Outgoing Quality Level
OZ: Ounces
P/C: Polyester + Cotton
PD: Plain Dyed
PDM: Production Development Manual
Peach Finish: Use for Finishing Softness
PEMEX: Petrobleos de Mexico, Mexican Oil Company
PGE: Permanent Group of Experts (in Agreement on Subsidies and Countervailing Measures)
PH: Private Finance Initiative
PI: Pro-forma Invoice
PM: Production Manager
PMTS: Predetermined Motion Time System
PO: Production Manager
PO: Production Officer
PO: Production Order/Purchase Order

POD:	Port of Delivery
POL:	Port of Loading
PP:	Pre Production
PPE:	Personal Productive Equipment
PPI:	Picks per Inch
PPP	Purchasing Power Parity
PPP:	Public-Private Partnership
PS:	Production Sample
PSI:	Pre-shipment Inspection
PT:	Partido dos Trabalhadores, Workers' Party
PTAs:	Preferential Trade Areas
PTI:	Private Textile Industry
PTS:	Primary Textile Sector
QA:	Quality Assurance
QC:	Quality Controller
QIP:	Quality Improvement Plan
QMS:	Quality Management System
QR(s):	Quantitative Restrictions
QWL:	Quality of Work Use
R&D:	Research and Development
RCA:	Revealed Comparative Advantage
RFT:	Right First Time
RMG:	Readymade Garments
RoO:	Rules of Origin
RPM:	Revolution per minute
RSL:	Restricted Substances List
RTA:	Regional Trade Agreement
S:	Small (Size)
SAARC:	South Asia Association for Regional Cooperation
SAFTA:	South American Free Trade Area
SAM:	Standard Allowed Minute
SCM:	Subsidies and Countervailing Measures
SDT:	Special and Differential Treatment(s)
SEANWFZ:	South East Asia Nuclear Weapon Free Zone
Secretariat:	Secretariat of the World Trade Organization
SKU:	Stock Keeping Unit
SM:	Senior Merchandiser
SME:	Small and Medium Enterprise
SMV:	Standard Minute Value
SOEs:	State-Owned Enterprises
SOP:	Standard Operating Procedure
SPI:	Stitch per inch
SPS:	Sanitary and Phytosanitary
SPSM:	Agreement on the Application of Sanitary and Phytosanitary Measures
SQL:	Submitted Quality Level
SRL:	Sensory and Consumer Research
SSG:	Special Safeguard (in Agreement on Agriculture)
ST:	Special Treatment (in Annex 5, Agreement on Agriculture)
Sweden BL:	Sweden Bill of Lading (used for Triangular Trade)
T/C:	Tetron& Cotton
T&P:	Time & Action Plain
TA:	Time Action
TAP:	Total Acceptable Product
TBD:	Transatlantic Business Dialogue
TBT:	Agreement on Technical Barriers to Trade

TBT:	Technical Barrier to Trade
TCB:	Trading Corporation of Bangladesh
TEU:	Twenty Feet Equivalent
TMB:	Textiles Monitoring Body
TMTA:	Transatlantic Free Trade Area
TOE:	Tons of Energy
TPA:	Trade Promotion Authority
TPI:	Twist per Inch
TPN:	Tesco Product Number
TPRB:	Trade Policy Review Body
TPRM:	Trade Policy Review Mechanism
TPT:	Through per Time
TRIMs:	Trade-Related Investment Measures
TRIPS:	Agreement on Trade-Related Aspects of Intellectual Property within WTO
TRL:	Technology Readiness Level
TSB:	Textiles Surveillance Body
TU:	Trade Union
TUF:	Technology Up gradation Fund
UD:	Utilization Declaration
UK:	United Kingdom
UN:	United Nations
UNCLOS:	United Nations Conference on the Law of the Sea
UNDP:	United Nations Development Program me
UNEC:	United Nation Economic and Development Commission
UNIDO:	United Nation International Development Organization
UNITC:	United Nations International trade center
UP:	Utilization Permission
UPC:	Universal Product Code
USA:	United States of America
USD:	United States Dollar
USITC:	United States International Trade Commission
VAT:	Value Added Tax
VPP:	Value Payable Post
VPR:	Vendor performance Record
WAS:	Weekly Audit Schedule
WB:	World Bank
WBS:	Work Breakdown Structure
WC:	Wealthy Countries
WFTU:	World Federation of Trade Unions
WH:	Working Hour
World Bank:	International Bank for Reconstruction and Development
WR:	Water Register
WRAP:	World Wide Responsible Apparels Product
WRs:	Voluntary Export Restraints
WTO:	World Trade Organization
WTO Agreement:	Agreement Establishing the World Trade Organization
WTP:	Water Treatment Plant
XL:	Extra Large (Size)
YTD:	Year to Date
YY:	Yardage Yield
ZPCSA:	Zone of Peace and Cooperation in the South Atlantic

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ABSTRACT

The idea behind a doctoral project for introducing Operations Approach in Agricultural Marketing for Bangladesh stems from a deep-rooted conviction in the statement that the life sustaining conditions in the whole of South Asia – especially in Bangladesh, are changing fast. What had started as a collective effort in reducing "artificiality" in production and marketing of agricultural commodities (and services) world over (particularly in the backdrop of a massive *First World* bottleneck for international markets), has morphed into something more vivacious and atrocious; something more corporate and branded; something more action oriented and future-focused. Changes induced by more intense geo-political alignments and greater mobility in most of the factors of production – except for land – have induced significant changes in the way business in agricultural products and services are conceived. Even land is conceived to be a factor or an input so long as it could be collateralized and taken in for contract farming solutions.

As has been noted earlier in the proposal submitted on 25 September 2011, this project builds on the knowledge base created during the course of the MPhil program carried out under supervision of the current supervisor through the years 2005 – 2011. The research carried out under the MPhil program, titled, "Agricultural Subsidies: Impact Analysis and Combat Techniques for Bangladesh in the World Trade Organization", aimed at putting together an appropriate country strategy for Bangladesh under different stipulations in WTO negotiations in Agricultural Subsidies under varied conditions of: (i) subsidies, (ii) tariffs, (iii) production inputs and (iv) market access parameters.

For the baselines, it has already been stipulated that under differentiated and negatively distorted subsidies regimes prevalent in the World Trade Organization – which affect the patterns in flow of tradable goods and services world over, it could be implied that Bangladesh would lose out 'financially' if agricultural subsidies provided by the industrially developed countries are not "properly" addressed through the WTO for - (a) decisions of production and pricing of agricultural commodities in Bangladesh (export-oriented) ; (b) analysis of the impact of de-subsidized trade patterns in agricultural commodities (phase-wise; in the international market) on the domestic industrial output; (c) analysis of opportunities for Bangladeshi agricultural commodities in the international markets under different situational conditions.

As such, the research area in the backdrop of such a wide-ranging agricultural negotiation framework was divided into two major divisions:

i. Production and pricing of agricultural commodities in Bangladesh (for exports), with respect to:
   a. Situational analysis under different de-subsidized trade patterns/conditions in agricultural commodities (phase-wise; in separate but logical combinations/configurations; in the international market; under WTO regime)
   b. Impact assessment of such production and pricing decisions on the domestic industrial output; and
   c. Opportunities for Bangladesh agricultural commodities in the international markets under different situational conditions (i.e., WTO trade negotiations on agricultural commodities and withdrawal of tariff/non-tariff barriers).
ii. Preparation of a WTO agenda for Bangladesh with respect to agricultural commodities.

The control conditions included:

i. In respect of negotiations in trades, sovereign and other administrative pre-conditions would remain static, if not unchanged, during the entire course of the specific study; as well as for the projected time frame.
ii. WTO negotiations would follow a logical and sequential pattern with respect to formulation and execution of resolutions.
iii. Necessary domestic pre-conditions (governance, legal framework, multilateral negotiation systems, regional participation, etc) would prevail for the execution of a coherent WTO policy.

iv. Production sensitivity to inputs would remain valid for the time period projected.

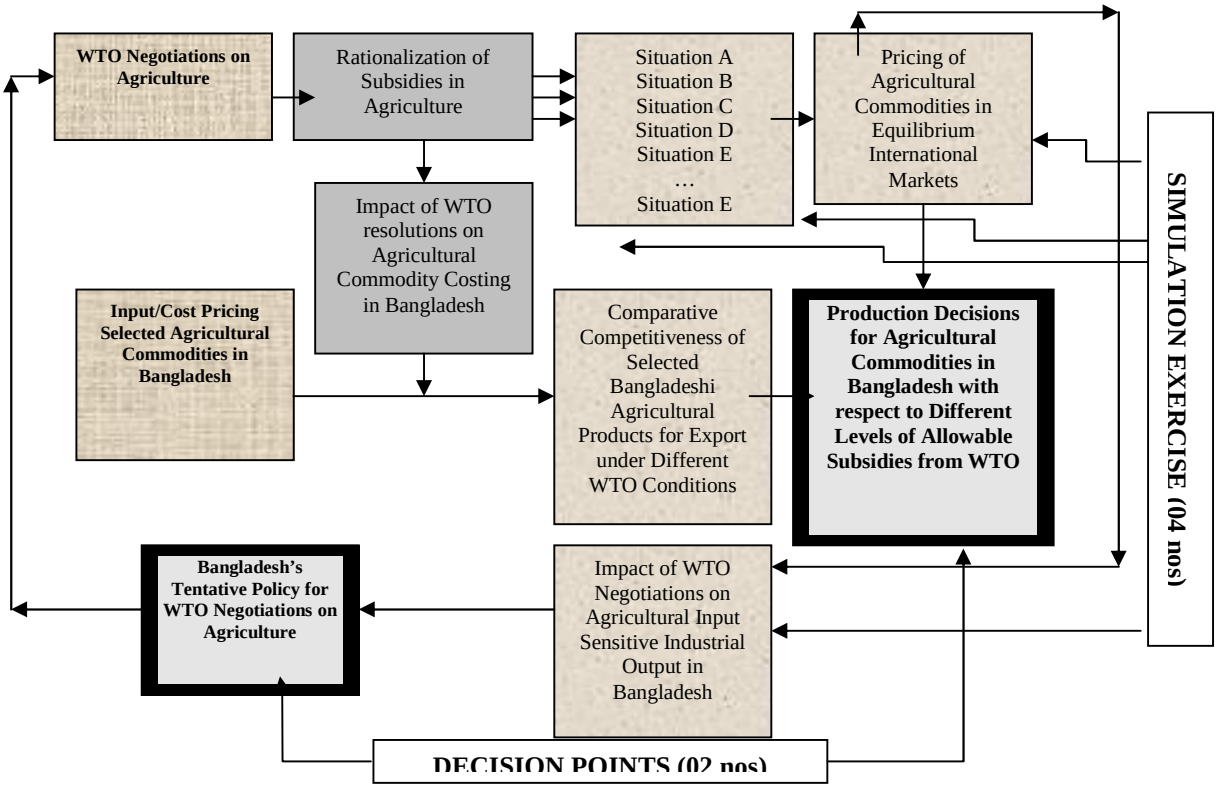
For reference, the objectives of the MPhil research were to find comparatively competitive agricultural produces and their marketing strategies under different stages of de-subsidization selecting suitable block/countries to strengthen bargaining power and to link agricultural subsidies negotiation pattern for Bangladesh especially with reference to negotiations on GATS Mode-IV (especially for movement of service providers). Specific objectives of the previous project at the MPhil included:

i. Analyzing the trading and protection scenario for finding the agricultural products where Bangladesh holds comparative advantages.
ii. Testing the commercial viability of selected products for exports at different stages of de-subsidization in the WTO.
iii. Finding the avenues for advanced agricultural marketing / financing options.
iv. Finding specific WTO negotiation strategy that Bangladesh would follow for linking agricultural production and service provision patterns with GATS Mode–IV.

Primary research for the MPhil project analyzed the scenario for the different stages of de-subsidization and based on the analysis suggested a comprehensive policy for WTO negotiation on agricultural products and recommended product-selection and production patterns with the opportunities for exporting which are economically beneficial for Bangladesh. The scope of the research area included:

i. Existing composition of the agricultural produces for export
ii. Spatiotemporal projection for world prices of agricultural commodities with WTO de-subsidization in agricultural subsidies
iii. Situation analysis for advanced marketing in agricultural commodities where Bangladesh has comparative advantage basing on above findings.
iv. Specific negotiation strategy for WTO on agricultural subsidies
v. Specific tactics for implementation of the WTO strategy (devised thus)

Thematically, the following diagram approximates the **MPhil research model**:



4 (four) simulation exercises depicting the current flow of negotiations in the World Trade Organization, and 2 (two) decision points, rendered concrete and consolidated understanding about:

i. The production strategy in agriculture as it should look like under the changed subsidization schedule, and
ii. The national stance in WTO as it should look like with regard to the impact of de-coupling and other subsidies withdrawal measures.

The research aimed to ascertain a direction for the following end results:

i. Impact on the world agricultural commodity prices on the basis of different levels of (spatiotemporal) withdrawal of subsidies in the world market
ii. Appropriate Bangladesh agricultural products (for export) at different levels of withdrawal of agricultural subsidies
iii. Appropriate marketing niche and strategy for the development of international trade in agricultural commodities under differentiated subsidies regime in the WTO.

The research findings supported the "notion" that <u>Bangladesh can claim its position as an agro-commodities exporter under a stable WTO regime</u>. However, the recommendations put forward in the individual product/commodity analysis would assist in the resolution of the minor glitches that the agricultural sector is facing at this moment – arising out of primarily three reasons:

i. Technological inferiority
ii. Management inefficiency and absence of advanced marketing focus/plan/control mechanisms
iii. Input unavailability.

As primary research found out, in the face of a trade regime, which threatens to wipe out the inefficient from the broader range of competition in the world market, priority areas for intervention and support include:

i. Increasing agricultural productivity, diversification, and value addition
ii. Improving factor markets, access to assets and natural resource management (including, but not limited to:
    a) Agricultural land
    b) Agricultural inputs
    c) Rural finance
    d) Water resources management, and
    e) Natural resource management
iii. Strengthening Rural Institutions and Livelihood Support

In view of the above findings, the previous paper proposed that:

i. Bangladesh pursue an agricultural subsidies pattern in line with the World Trade Organization (WTO) negotiation pattern but independent in its focus on:
    a) Providing a safety-net for the farming community
    b) Providing food-security to the community and the society
    c) Providing a stable production base for the agricultural products
ii. Bangladesh raise the socio-economic issues of its one hundred and sixty million people in the WTO to form a consensus bloc on issues related to subsidies rationalization and tariff-binds for the LDCs and Developing Countries. This is a major concern for especially the countries in the west, which hover almost on the verge of paranoia as far as the security regime is concerned.
iii. Quantify its temporal orientation in agricultural production and growth patterns for presenting the findings in a meaningful pattern to the World Community.

Obviously, the papers presented during the MPhil program covered a lot of area with regards to policy imperatives for the Government as far as WTO negotiations were concerned. However, even the patterns in WTO negotiations have changed. It is no longer the monolith of diplomatic prerogatives. The

stalled DDR (Doha Development Round) has suddenly been revitalized after a prolonged backchannel negotiations for more than eight years and with BRIC (Brazil, Russia, India, China, *and now, Indonesia*) taking a lead role in the patterns which are slowly emerging, the focus is very much on accentuating rather predatory marketing systems and value networks for materializing solid business advantages.

In other words, the focus is on solidifying business propositions and networks, which apply to the feasibility of a functioning (complete) marketing system (with 4Ps: Product, Price, Place, and Promotion, plus the added P: Public Relations). Basic proposition is that agriculture is not limited to farm products from within the traditional households inside the country now. Rather, the range spreads to include, but not limited to:

i. Composite farms
ii. Contract farming, and
iii. Setting up Wholesale farms abroad in regions where factors of production suit the needs of the entrepreneurs.

It may be mentioned that a ten product "Preferred Agricultural Spectrum" was drawn in the previous sets of paper. Therefore, to make the study at this level more specific, a particular product line, i.e., Jute, has been chosen. This is to ensure that the learning from studies on the international trade in agricultural commodities and services from Bangladesh under conditions of multilateral and regional trade negotiations could be modulated into a generic business model and an operations approach (read, equation) could be formulated for eventually replicating across different other product and service categories. It is believed that if the paper concentrates on a specific product, in this case, 'jute', on which we already have trend data and secondary research done (especially at the MPhil level papers) and focus on finding out an 'optimal' operations-based solution for the production-marketing-distribution of the product (i.e., the entire range of products which may emanate out of the generic terms) using various mathematical models, primarily based on, but not limited to an adapted (or an augmented form of) 'Gravity Models' might just result in a wonderful dissertation of how actually the business model should look like in the case of Bangladesh - with boundary conditions set under various subsidy regimes and multilateral/bilateral trade pacts (read, trade diversion measures).

It is not only international trade and an effort to introduce an operations approach into the agricultural (i.e., jute, for the purpose of this study) marketing paradigm of Bangladesh that prompted this writer to undertake this study. While it is true that Jute was found to be a niche product in which Bangladesh held competitive advantage, it was also found to be an agricultural produce which consolidates the widest variety of production inputs and industrial manufacturing avenues (read, value addition). To begin with, there is a firm personal conviction that the way Bangladesh Government divested from the Jute-centric industrial sector in the nineties was not entirely appropriate. This paper, would therefore, add a chapter to prove that the decision to 'divest' from the large jute mills in the nineties was a wrong decision, both financially in the short run and strategically in the long run. While the glory days of Jute essentially started with private sector organizations and trading arrangements, post-liberation of Bangladesh, the sector was led into public undertakings with consequent introduction of highly political content in management and financial overheads. This paper would also prove, with modified RCA (Revealed Comparative Advantage) models that Bangladesh still holds RCA in Jute and advanced category derivatives (both products and services) – thereby complementing the argument that the divestiture from the jute-based industrial architecture at the behest of the Bretton Woods Institutions was a faulty decision on the part of the Government.

With boundary conditions in subsidies and trade diversion (read, trade pacts; both multilateral and bilateral), this paper could also aim for a modified Gravity Model in international trade in jute and jute derivatives. After the first round of primary qualitative research, the author plans to use both RCA (Revealed Comparative Advantage) matrices and AHP (Analytic Hierarchy Process), to derive the coefficients to describe how exactly the decision to trade is arrived at (i.e., for Jute). Production, usage (various) and pricing data are already being collected. This paper is also conceived as an archive for

sensitive data from authenticated sources so that the outcome document becomes a reference material in itself.

It is also planned that at this part of the paper, both the AHP and F-TOPSIS analysis would be used to derive the marketing functions (read, equations) which could determine the ''future'' of advanced jute goods and derivatives. This paper also looks into the possibility (read, probability) of farming solutions which can be adopted to 'optimize' the return from both: (a) the natural endowments, and (b) the acquired skill sets (with components in: (i) value addition processes, (ii) scale efficiencies, and (iii) learning curve positions). This may take us into composite, or leased, or contract farming (abroad) farming solutions - depending on what the outcome of the hypotheses testing indicates.

Ultimately, based on the above, a generic business model for jute is proposed - for its revival and for its diversified growth. While a lot has been said about the past glory of Jute and also its revival, there has been no operations-based research on the subject so far. The author of this paper believes that this paper could actually raise a storm in the policy-field and bring out a substantive contribution to the operations research area in Bangladesh.

Hence, There is a need for (a) the Government, (b) the Business Houses – both established and upcoming, and (c) the Trade Bodies (i.e., Federations/Chambers/Associations) of Bangladesh to immediately institute an operations-based approach leading towards a Value Chain Framework in Foreign Trade Oriented Marketing of Bangladesh Agricultural Commodities and Services, with production and marketing functions of a certain produce, i.e., jute, being taken for formulating a generic model under Conditions of Multilateral and Regional Trade Negotiations to - (a) widen existing trade patterns, i.e., products, services, and compositions wise, and (b) explore new markets.

Since – (a) it is obvious that jute is one such produce which combines and spans through all sectors of the economy, including labor, land, capital (both short term working capital and long term investment grade), manufacturing (and value addition) and marketing, and since – (b) jute sector in Bangladesh has been subject to policy interventions which have been rather erratic in nature, taking jute as the core product to formulate the integrated business model could be a good approximation for instituting an operations approach in the field.

This is project is conceived to make an attempt to encapsulate the ideas and ideations that this author has had the privilege of studying and experiencing as an individual. While the paper is woven essentially around certain objective parameters and solid and quantitative research models in vogue for research of such magnitude in operations, economic and marketing areas.

The objects under scanner are varied in nature. They include, and not limited to, production factors and functions, produce and value-added derivatives, input markets and output markets, comprehensive value chains and cross-cutting networks – concentric on primarily two loci, i.e., international trading configurations (at bilateral, multilateral, regional and global) and jute (at levels of production, processing, manufacturing and value addition, marketing and advanced derivatives). By its very nature, the paper is conceived at a multi-dimensional space where all variables are categorized as per their trend data and also projected at multi-axes spatiotemporal dimensions.

But to this author, the project is conceived as an intellectual endeavor to address a very basic question – what happened to a once prosperous Bengal and its agro-based industrialization patterns before the partition of the sub-continent. While the erstwhile Bengal enjoyed one of the highest per capita GDP across the entire breadth of the Indian sub-continent and a significant portion of the primary wealth generation was contributed by the jute sector even till the 1971 War of Liberation, the situation started changing rapidly in the seventies and afterwards. Once profitable jute sector suffered an essentially unplanned nationalization spree. Fixed labor content was charged as management overhead – leading to pseudo employment and a drag on the individual firm's profitability score. Jute Mills in general suffered a part of the deep scars that the bloodstained war of liberation had put on the green face of Bangladesh. Then came the nineties. With the return of democracy came the stings and strings attached to the flow of funds from the Bretton Woods institutions. Large-scale sales of jute-centric heavy industry – including the largest jute mills of Asia, Adamjee, took place. All in the name of reducing burden on the national exchequer. Apparently, wealth generation capabilities were compromised for short-term but chronic income and fund flow imbalances. While there was nothing inherently wrong with the jute sector within itself, basically Bangladesh jute collapsed.

While Bangladesh jute sector was going down, at that very same time, jute mills around the world – especially in the West Bengal region started growing up! And then came the new millennium and its consequent emphasis on eco-friendly jute and an acute shift of focus from bio-un-degradable cheaper synthetic substitutes. Value added products on a jute frame started taking center stage once again!

Couple all these to the different stages of finding global platform for trade negotiations, regulations and deregulations, with later emphasis on regional and sub-regional trade blocks.

All these when seen from the perspective of a professional who has worked across private, public and regulatory sector organizations both inside and outside the country whether optimal decisions were made in the first place, if ever, at all, with regards to the main cash crop of Bangladesh.

This author believes that the decision – highly influenced by the structural adjustment plans suggested by essentially biased Bretton Woods' consultants was flawed, if not entirely wrong. While Bangladesh divested from her heavy industrial architecture, dismantling the jute mainframe, smaller and agile firms were growing up all over West Bengal and even as far as in Thailand. This paper analyzes the 5Ws and 1H of the entire decision making process related to the primary cash crop of Bangladesh and how in stages a comprehensive value-chain was cut off into pieces and growth centers of the region were put out of sync with their natural vein-artery-capillary networks and how artificially created conundrums were prioritized – first during and after the division of the Sub-Continent and then after the 1971 War of Liberation, and then the eventual divestiture from Public Enterprises in the nineties.

What we now see and experience, and especially with regards to this author's personal experience travelling to the jute producing countries of the world, this could be a unique opportunity to learn what went wrong and how and may be use that for composing a generic operations based business model for agricultural produce and even services!

The research has a distinctly **operations-based approach**and practically a marketing plan for Bangladesh agriculture is destined to be an end product to suggest to the stakeholders in Bangladesh, i.e., (i) Government, (ii) Trade Bodies, (iii) Business Organizations, and (iv) Entrepreneurs under time-bound conditions.

The target for this research is to come up with an outcome document, which could be utilized by the stakeholders mentioned above and this document would be based on the possible scenarios which negotiation patterns at – (i) bilateral, (ii) multilateral, (iii) regional and (iv) global platforms which have a direct/indirect bearing on Bangladesh.

To develop an operations-based approach for introducing a value chain framework in foreign trade oriented marketing of Bangladesh agricultural commodities and services under conditions of multilateral and regional trade negotiations

The research aims to ascertain the following:

i. **Defining a prioritized Agricultural Business Policy Framework for Bangladesh** with respect to (a) International Trading and (b) homegrown competitive/comparative advantages using Fuzzy TOPSIS (Technique for Order Preference by Similarity to Ideal Solution) with specific reference to Jute - with RCA (Revealed Comparative Advantage).
ii. **Analyzing markets which could host (a) products, (b) services, and (c) farming solutions** from Bangladesh in terms of (a) revenue generating capabilities, (b) revenue sustainability, and (c) employment generation capabilities – in the backdrop of major multilateral and regional trade negotiations (i.e., how multilateral and regional trade negotiations have impacted trade in agricultural sector) – using a muted form of General Gravity Model.
iii. **Analyzing (a) areas, (b) products, (c) services, and (d) operations/solutions which Bangladesh would be able to provide / complement the markets** identified (at) above (i.e., Broad Objective ii) – using both Conjoint and Factor Analysis respectively for pricing and options
iv. **Preparing an action plan** which could be followed by (i) Government, (ii) Trade Bodies (i.e., Federations/Chambers/Associations), (iii) Established Business Houses, and (iv) Entrepreneurial/Green-Field institutions to take advantage of the situation identified above in terms of providing a Value Chain Framework for international trade in agricultural products, services and aggregate solutions – using Cobweb Programming and Quantitative SWOT – AHP (Analytic Hierarchy Process).

The following Specific Objectives are drawn on the Broad Objectives:

i. Defining a prioritized Agricultural Business Policy Framework for Bangladesh with respect to (a) International Trading and (b) homegrown competitive/comparative advantages using Fuzzy TOPSIS (Technique for Order Preference by Similarity to Ideal Solution) with special reference to jute – with RCA (Revealed Comparative Advantage), which comprises of debriefing on
   a) Encapsulating the trends of agriculture and trade in agricultural products, services and solutions which were generated from Bangladesh during the whole of the recorded history of this region
   b) Encapsulating the reasons which determined the patterns and shifts/changes in these patterns
   c) Formulating a comprehensive scenario with regards to emerging trends in agricultural sector with regards to products (variations/varieties/innovations/discoveries), services, and solutions which determine the present and future of agriculture in Bangladesh under conditions of bilateral, multilateral, regional and global trading configurations
   d) Preparing a comprehensive background study on Jute sector in Bangladesh using RCA (Revealed Comparative Advantage)

ii. Analyzing markets, which could host (a) products, (b) services, and (c) farming solutions from Bangladesh in terms of: (a) revenue generating capabilities, (b) revenue sustainability, and (c) employment generation capabilities – in the backdrop of major multilateral and regional trade

negotiations – using a muted form of General Gravity Model. While Jute forms the core analytical framework, the objective is attained by:

a) Documenting both the spatial and temporal distribution of markets for international trade in agricultural products, services and (wholesale) solutions – with special emphasis on Jute
b) Understanding temporal trends in international trade in agricultural products, services, and solutions – with special emphasis on Jute
c) Understanding how major multilateral and regional trade negotiations have impacted trade in agricultural products, services and solutions – with special emphasis on Jute
d) Understanding emerging trends in international trade in agricultural, especially Jute, products, services, and solutions specially with regards to
    i) Revenue generating capabilities
    ii) Revenue sustainability, and
    iii) Employment generation capabilities

iii. Using Factor Analysis, analyze how Bangladesh, and specifically, jute, would be able to provide/complement the markets identified (at) above through:
    a) Areas: i.e., connecting spatial distribution of products and services from Bangladesh to specific region(s) of the world
    b) Products: i.e., product/production specialization for providing complements to the international markets in agricultural sector
    c) Services: i.e., service specialization for providing complements to the international markets in agricultural sector, and
    d) Operations/solutions through:
        i) Composite farms
        ii) Contract farming, and
        iii) Setting up Wholesale farms abroad in regions where factors of production suit the needs of the entrepreneurs.

iv. Identifying the hindrances affecting the performance of Bangladesh agricultural sector with regards to international trade – with specific reference to Jute in production, value addition, trade and advanced economic programming – using Cobweb Design

v. Using Quantitative SWOT – AHP (Analytic Hierarchy Process), Preparing a staged action plan for Agricultural products and services, with specific reference to jute, for
    a) Government
    b) Trade Bodies (i.e., Federations/Chambers/Associations)
    c) Established Business Houses, and
    d) Entrepreneurial/Green-Field institutions to take advantage of the situation identified above
    - Leading to the formation of a value-chain framework, specifically for the sector and generally (read, generic) for Bangladesh, which would securely lock the country into the world market for inputs and outputs

To validate the 'problem statement' and test 'assumptions', a research designs has been drawn on the following sets of hypotheses[1]:

i. For defining a prioritized Agricultural Business Policy Framework for Bangladesh with respect to (a) International Trading and (b) homegrown competitive/comparative advantages using Fuzzy TOPSIS (Technique for Order Preference by Similarity to Ideal Solution) with special reference to jute – with RCA (Revealed Comparative Advantage):
    a) Bangladesh was an 'active' participant in international trade in agriculture, and especially jute, during the whole of the recorded history (for last three hundred years) of this region through:
        i) Production inputs

[1] The sets of hypotheses draw heavily on the MPhil dissertation by the author. However, the list is not exhaustive and is subject to change/modification with the completion of the first phases of the exploratory research.

ii) Products
iii) Services
iv) Value added derivatives
v) Wholesale farming solutions

b) The following reasons positively impacted the patterns for international reach/activities of Bangladesh agricultural sector, specially jute:
i) Favorable natural endowments
ii) Favorable climatic conditions
iii) Favorable position in the learning curve for production and value addition in jute
iv) Entrepreneurial capabilities of the population
v) Social structure/composition of the population
vi) Administrative strength of the political / bureaucratic institutions
vii) Colonial regimes – starting with the Mughal invasion and leading through British Raj and Pakistan occupation
viii) Structured administrative architecture – leading to steady markets for both inputs and outputs

c) The following reasons determine the shifts and changes in the international trade patterns for Bangladesh agricultural sector, especially jute:
i) Adverse changes in the composition of natural endowments
ii) Impact of natural calamities
iii) Impact of man-made disasters/wars
iv) Rise of more favorable factor markets (i.e., input sources)
v) Rise of alternative produce and substitutes
vi) Adverse changes in learning curve management
vii) Impact of the division of Indian sub-continent, especially, fragmentation of the natural value chains of the sub-continent
viii) Independence of Bangladesh and consequent divestiture by established jute merchants
ix) Impact of global, multilateral and regional trade negotiations
x) Impact of inefficiency/inadequacy in policy formulation by Government (especially with nationalization of the jute sector)
xi) Impact of inefficient decision making by trade bodies (for inputs) led to the gradual degeneration of international trade in agriculture for Bangladesh, especially with regards to jute and jute derivatives
xii) Adverse impact of policy interventions by International Bodies, such as World Bank and IMF
xiii) Adverse impact rising out of political instability in the country
xiv) Adverse impact of politicization of the input and output markets
xv) Lack of technological innovation and adaptation in the jute sector
xvi) Lack of marketing initiatives and branding for jute and jute derivatives
xvii) Lack of working capital supply in the sector
xviii) Lack of investment grade surplus for the sector

d) For formulating a comprehensive scenario with regards to emerging trends in trade in agricultural sector, Bangladesh holds Revealed Comparative Advantage (RCA), in jute, in
i) Factor inputs
ii) Learning Curve Position
iii) Mid-to-long term production sustainability
iv) Mid-to-long term absence of productive competitors
v) Product variations
vi) Product varieties
vii) Product innovations/discoveries
viii) Agricultural services
ix) Wholesale operations/solutions through:
(1) Composite farms
(2) Contract farming, and

(3) Setting up Wholesale farms abroad in regions where factors of production suit the needs of the entrepreneurs.

ii. For analyzing markets, which could host (a) products, (b) services, and (c) farming solutions from Bangladesh in terms of: (a) revenue generating capabilities, (b) revenue sustainability, and (c) employment generation capabilities – in the backdrop of major multilateral and regional trade negotiations – using a muted form of General Gravity Model. While Jute forms the core analytical framework, hypotheses spectrum is codified through
   a) Multilateral trade negotiations have impacted international trade in agricultural products, services and solutions, especially, in the jute sector
   b) Regional trade negotiations and treaties have impacted international trade in agricultural products, services and solutions, especially, in the jute sector
   c) Bilateral trade negotiations have impacted international trade in agricultural products, services and solutions, especially, in the jute sector
   d) Migration (or lack thereof) has impacted international trade in agriculture, especially in the jute sector
   e) There exists in international trade in agricultural products, services, and solutions, 'venture-worthy-markets' with regards to
      i) Revenue generating capabilities
      ii) Revenue sustainability, and
      iii) Employment generation capabilities

iii. For analyzing how Bangladesh, and specifically, jute, would be able to provide/complement the markets identified (at) above with:
   a) Areas (i.e., connecting spatial distribution of products and services from Bangladesh to specific region(s) of the world): there are specific areas of Bangladesh, especially with regards to jute and in relation to the ancient value-chains existing between and amongst regions of the world, which could be connected to the international factor input and exchange markets for providing
      i) Products
      ii) Services
      iii) Wholesale solutions
   b) Products (i.e., product/production specialization for providing complements to the international markets in agricultural sector): there are specific value added products in which Bangladesh Jute holds competitive and/or comparative advantages for complementing international markets over the period 2010 – 2030 (i.e., identification of product-variations)
   c) Services (i.e., service specialization for providing complements to the international markets in agricultural sector): there are specific services which Bangladesh holds competitive and/or comparative advantages for complementing international markets over the period 2010 – 2030 (i.e., identification of service areas), and
   d) Bangladesh can complement the international markets by providing comprehensive operations/solutions in jute farming and jute derivatives through:
      i) Composite farms
      ii) Contract farming, and
      iii) Setting up wholesale farms abroad in regions where factors of production suit the needs of the entrepreneurs.

iv. For identifying the hindrances affecting the performance of Bangladesh agricultural sector with regards to international trade, it is implied that the following impact in a direct way:
   a) Technological inferiority
   b) Management inefficiency
   c) Absence of advanced marketing focus/control
   d) Input unavailability
   e) Adverse changes in the environment/ecological factors, through:
      i) Internal displacement/relocation of people/business
      ii) External movement of people/business

iii) Changes in the factor endowments for agriculture

f) Trans-boundary (i.e., across national borders) movement of factors of production and especially natural persons

g) (Trans)-Migration of personnel and service providers

h) Priority areas for intervention and support include:

i) Increasing agricultural productivity, diversification, and value addition

ii) Improving factor markets, access to assets and natural resource management (including, but not limited to:

(1) Agricultural land

(2) Agricultural inputs

(3) Rural finance

(4) Water resources management, and

(5) Natural resource management

(6) Strengthening Rural Institutions and Livelihood Support

(7) Re-establishing connections to pre-existing (and now cut-off/disjointed) production and distribution points and channels (emphasis added)

v. An action plan is needed for preparing a 'Value-Chain Framework' for international trade in agricultural sector, especially in jute, for:

a) The Government

b) The Trade Bodies (i.e., Federations/Chambers/Associations)

c) The Established Business Houses, and

d) The Entrepreneurial/Green-Field institutions to take advantage of the situation identified above

The research has a distinctly **Operations-based Approach (OBA),**and for all practical purposes, a marketing plan for Bangladesh agriculture is destined to be an end product to suggest to the stakeholders in Bangladesh, i.e., (i) Government, (ii) Trade Bodies, (iii) Business Organizations, and (iv) Entrepreneurs under time-bound conditions.

This project builds on the knowledge base created during the course of the MPhil program carried out under supervision of the current supervisor through the years 2005 – 2011. The research carried out under the MPhil program, titled, "Agricultural Subsidies: Impact Analysis and Combat Techniques for Bangladesh in the World Trade Organization", aimed at putting together an appropriate country strategy for Bangladesh under different stipulations in WTO negotiations in Agricultural Subsidies under varied conditions of: (i) subsidies, (ii) tariffs, (iii) production inputs and (iv) market access parameters.

The target for this research is to come up with an outcome document, which could be utilized by the stakeholders mentioned before and this document is based on the possible scenarios with regards to negotiation patterns at – (i) bilateral, (ii) multilateral, (iii) regional and (iv) global platforms which have a direct/indirect bearing on Bangladesh.

The operational parameters of the research brings into focus the following four areas:

i. **Defining a prioritized Agricultural Business Policy Framework for Bangladesh** with respect to:

a) International Trading and

b) Homegrown competitive/comparative advantages using Fuzzy TOPSIS (Technique for Order Preference by Similarity to Ideal Solution) with specific reference to Jute - with RCA (Revealed Comparative Advantage).

v. **Analyzing markets which could host:**

a) **Products**

b) **Services, and**

c) **Farming solutions** from Bangladesh in terms of:

(1) Revenue generating capabilities
(2) Revenue sustainability, and
(3) Employment generation capabilities –

- in the backdrop of major multilateral and regional trade negotiations (i.e., how multilateral and regional trade negotiations have impacted trade in agricultural sector) – using a muted form of General Gravity Model.

vi. **Analyzing:**
   a) **Areas**
   b) **Products**
   c) **Services, and**
   d) **Operations/solutions which Bangladesh would be able to provide / complement the markets** identified above using both Conjoint and Factor Analysis respectively for pricing and options.

vii. **Preparing an action plan** which could be followed by:
   a) Government
   b) Trade Bodies (i.e., Federations/Chambers/Associations)
   c) Established Business Houses, and
   d) Entrepreneurial/Green-Field institutions to take advantage of the situation identified above in terms of providing a Value Chain Framework for international trade in agricultural products, services and aggregate solutions – using Cobweb Programming and Quantitative SWOT – AHP (Analytic Hierarchy Process).

Primary Qualitative Research has already been carried out at the following levels:

a. Secondary literature survey for establishing a base-line concept for the thesis
b. Simulation runs coupled with primary data validation has been carried out using the following models:
   i. AHP (Analytic Hierarchy Process)
   ii. Fuzzy TOPSIS (Technique for Order Preference by Similarity to Ideal Solution)
   iii. Gravity Model (Augmented)
   iv. Quantitative SWOT Analysis

The project is limited in focus. It limits itself in identifying a generic Value-Chain based Marketing framework for exporting agricultural commodities, products and services, with specific reference to Jute, that stakeholders in Bangladesh, i.e., (i) Government, (ii) Established Business Houses, (iii) Trade Bodies, and (iv) Entrepreneurs could pursue.

The Graphical Representation for the Project is as follows:

Primary Qualitative Research has already been carried out at the following levels:

a. Secondary literature survey for establishing a base-line concept for the thesis

b. Simulation runs coupled with primary data validation has been carried out using the following models

I. RCA (Revealed Comparative Advantage)
II. Fuzzy TOPSIS (Technique for Order Preference by Similarity to Ideal Solution)
III. AHP (Analytic Hierarchy Process) (for ranking coefficients)
IV. Gravity Model (Augmented)
V. Quantitative SWOT

Across the models mentioned above, the study has a combination of four types of research designs, namely:

i. <u>Observational Techniques:</u> Analyzing price-sensitive data on agricultural commodities (with reference to jute and jute derivatives) and trade in a cross-section (observations made at one time) and longitudinally (observations occur over several time-periods) – for drawing up the baselines of the research. Observational methods are used for the following scenario-analyses:
   a. Bilateral and Multilateral trade negotiation time pattern over the past (fifty years; time and region wise; indexed)
   b. Bilateral and Multilateral trade negotiation simulation for the future (ten years; time and region wise; indexed)
   c. Trends in Bangladesh Agricultural production / service delivery over the past (since recorded history to have a comprehensive idea about how agriculture evolved and where competitive advantages/disadvantages traditionally had been; specifically with reference to Jute)
   d. Emerging trends in Bangladesh Agricultural production/service (with reference to Jute) into the future
   e. Possible scenarios with regards to trade in agriculture, with reference to Jute, and opening of major/significant markets ten years into the future.

ii. <u>Qualitative Research:</u> With a smaller number of respondents in the administration, political and diplomatic circles, academia, business organizations, trade federations, etc., through focus groups and depth interviews for identifying the parameters of business as it stands now.

Qualitative research – especially depth interviews have been and are being conducted to construct scenarios, which would strengthen understanding of the following:

a. Past trends in international markets for trade in jute products and services
b. Emerging trends in international markets for trade in agricultural products and services – with reference to Jute
c. For identifying the hindrances affecting the performance of Bangladesh agricultural sector (jute specific) with regards to international trade, especially with regards to: Technological inferiority, Management inefficiency, Absence of advanced marketing focus/control, Input unavailability, Adverse changes in the environment/ecological factors, Trans-boundary (i.e., across national borders) movement of factors of production and especially natural persons, (Trans)-Migration of personnel and service providers, Priority areas for intervention and support
d. Major composite farming solutions devised/developed all over the world (i.e., to systematically categorize them into understandable quanta of workable knowledge)
e. Systemic deficiencies that major international markets in agricultural products and services are expected to face in next ten to twenty years of time (i.e., to facilitate understanding of where Bangladesh could fall in for bridging the gap/deficiency) and their impact on production and value addition (both in produce and services) in jute.

iii. Quantitative Marketing Research: To draw conclusions – testing sets of specific hypotheses and using random sampling techniques through questionnaire-surveys and also data analysis based on established trend data are considered. The following quantitative research options have been deployed:
   a. Testing the validity of exporting traditional Bangladesh agricultural commodities and services (jute specific) by running Regression Analysis against the composite of world trade patterns (region-wise)
   b. Testing the validity of the proposition that Bangladesh would be able to provide/complement the international markets, specific to jute, through:
      i) Areas (i.e., connecting spatial distribution of products and services from Bangladesh to specific region(s) of the world): there are specific areas of Bangladesh which could be connected to the international markets for providing
         (1) Products
         (2) Services
         (3) Wholesale solutions
      ii) Products (i.e., product/production specialization for providing complements to the international markets in agricultural sector): there are specific products in which Bangladesh holds competitive and/or comparative advantages for complementing international markets over the period 2010 – 2030 (i.e., identification of products)
      iii) Services (i.e., service specialization for providing complements to the international markets in agricultural sector): there are specific services which Bangladesh holds competitive and/or comparative advantages for complementing international markets over the period 2010 – 2030 (i.e., identification of service areas)
      iv) Setting up export-oriented composite farms with district-wise patterns inside Bangladesh for connecting to world markets in jute
      v) Taking up contract farming solutions, i.e., taking up contract farming options by Bangladesh entrepreneurs and business houses abroad for jute and jute derivatives.
      vi) Setting up wholesale farms abroad in regions where factors of production suit the needs of the entrepreneurs.

iv. Experimental Simulations: Creating a quasi-artificial environment identifying spurious factors, and then manipulating at least one of the variables. A 'Case Study' has been conducted especially for testing the probability of successful markets for wholesale farming solutions, which is already underway in one of the countries (in the African continent).

The following specifications are drawn with regards to the Research Model presented before:

i. Defining a prioritized Agricultural Business Policy Framework for Bangladesh with respect to (a) International Trading and (b) homegrown competitive/comparative advantages using Fuzzy TOPSIS (Technique for Order Preference by Similarity to Ideal Solution) with special reference to jute – with RCA (Revealed Comparative Advantage), which comprises of debriefing on
   a) Encapsulating the trends of agriculture and trade in agricultural products, services and solutions which were generated from Bangladesh during the whole of the recorded history of this region
   b) Encapsulating the reasons which determined the patterns and shifts/changes in these patterns
   c) Formulating a comprehensive scenario with regards to emerging trends in agricultural sector with regards to products (variations/varieties/innovations/discoveries), services, and solutions which determine the present and future of agriculture in Bangladesh under conditions of bilateral, multilateral, regional and global trading configurations
   d) Preparing a comprehensive background study on Jute sector in Bangladesh using RCA (Revealed Comparative Advantage)

ii. Analyzing markets, which could host (a) products, (b) services, and (c) farming solutions from Bangladesh in terms of: (a) revenue generating capabilities, (b) revenue sustainability, and (c) employment generation capabilities – in the backdrop of major multilateral and regional trade negotiations – using a muted form of General Gravity Model. While Jute forms the core analytical framework, the objective is attained by:
   a) Documenting both the spatial and temporal distribution of markets for international trade in agricultural products, services and (wholesale) solutions – with special emphasis on Jute
   b) Understanding temporal trends in international trade in agricultural products, services, and solutions – with special emphasis on Jute
   c) Understanding how major multilateral and regional trade negotiations have impacted trade in agricultural products, services and solutions – with special emphasis on Jute
   d) Understanding emerging trends in international trade in agricultural, especially Jute, products, services, and solutions specially with regards to
      i) Revenue generating capabilities
      ii) Revenue sustainability, and
      iii) Employment generation capabilities

iii. Using Factor Analysis, analyze how Bangladesh, and specifically, jute, would be able to provide/complement the markets identified (at) above through:
   a) Areas: i.e., connecting spatial distribution of products and services from Bangladesh to specific region(s) of the world
   b) Products: i.e., product/production specialization for providing complements to the international markets in agricultural sector
   c) Services: i.e., service specialization for providing complements to the international markets in agricultural sector, and
   d) Operations/solutions through:
      i) Composite farms
      ii) Contract farming, and
      iii) Setting up Wholesale farms abroad in regions where factors of production suit the needs of the entrepreneurs.

iv. Identifying the hindrances affecting the performance of Bangladesh agricultural sector with regards to international trade – with specific reference to Jute in production, value addition, trade and advanced economic programming – using Cobweb Programming

v. Using Quantitative SWOT – AHP (Analytic Hierarchy Process), Preparing a staged action plan for Agricultural products and services, with specific reference to jute, for
   a) Government
   b) Trade Bodies (i.e., Federations/Chambers/Associations)
   c) Established Business Houses, and

d) Entrepreneurial/Green-Field institutions to take advantage of the situation identified above

- Leading to the formation of a value-chain framework, specifically for the sector and generally (read, generic) for Bangladesh, which would securely lock the country into the world market for inputs and outputs

in the last part of the thesis, we conclude that:

i. <u>In matters of Information Asymmetry -</u>
   a. There exist significant differences in the data sets that individuals and institutions are dealing with
   b. There exist significant biases in the way information is reported and reflected across the whole range of decision-making bodies
   c. Individuals and institutions either intentionally or unintentionally hide segments of information which might be detrimental to their own status quo or to the coteries which they represent

ii. <u>In matters of agricultural production –</u>
   a. Flawed data sets have been in circulation which reveals only a partial picture of what is actually produced and what the returns of the production are
   b. Production patterns have undergone serious changes over last one hundred years and more than it is due to the seemingly tectonic changes in technology and process innovation related to production, seed, farming, implement, and even cropping pattern, it is due to the fact that fundamental rules of engagement in trading the crop have changed. That is, trade diversion, trade aversion (in case of sovereign preferences), trade barriers, and finally, trading access have all proved to be the principle drivers for the production decisions to have had taken place.

iii. <u>In matters of industrial production –</u>
   a. Skewed (not flawed) data sets are in circulation which reveals 'biased' use of industrial production which does not account for the true cost of production nor does it account for the true opportunity cost of producing (the right product) or not producing (the right product).
   b. The above (i.e., point (a) – ante) takes place because more than anything else, rade diversion, trade aversion (in case of sovereign preferences), trade barriers, and finally, trading access have all proved to be the principle drivers for the production facilities to have had grown and actual production to have had taken place. Case in sight, the industrialization of East Bengal after the partition of the Indian sub-continent.
   c. The partition of the Indian sub-continent gave rise to unnatural trading vectors so long as routing the traded goods and services were concerned. Abrupt disruptions of the natural manufacturing-trading-marketing corridors led to the formation of:
      i. Alternative trading destinations
      ii. Alternative trading mechanisms
      iii. Distorted market signals
      iv. Distorted price signals
      v. Distorted decision making patterns
      vi. Use of illegal trading channels to maintain older trading channels
      vii. Use of illegal payment mechanisms to minimize the cost of transaction – which included now (after the partition) a cost portion each from both tariff and para/non-tariff barriers

iv. <u>In matters of complete Value Chains:</u>
   a. The existing value chains with components across the Indian sub-continent were disrupted
   b. New value chains formed with some components from the erstwhile value chains and inefficient new components – including distant marketing channels where premiums are shared with their local sponsors (i.e., at distant and faraway places)

c. Unnatural trading mechanisms have forced the production and distribution agents to make choices and decisions which have negative implications for the
d. A significant portion of the value created out of the transactions hence, are either unreported or under-reported to avoid legal and financial consequences. This have:
    i. Circular negative impact on production-expectation-pricing troika
    ii. Disjointed and unrepresentative data sets for policy makers
    iii. Flawed price signals for the market (at a casual observer level)
    iv. Flawed production-possibility frontier
    v. Flawed observational paradigm for matters related to national production and also Gross National Product (GDP)

v. <u>In matter related to trade negotiations and rules of engagement</u>
    a. Tariff and Para/Non-Tariff barriers have been found as significant hindrances towards optimization of economic decisions by the production-processing-trading communities
    b. Sovereign restrictions put in place by means of domestic laws have been found to hinder smoother movement of goods and services across the border
    c. Conventions or even negotiations to reintegrate the economies of the sub-continent have been found to have a decidedly positive effect on the expected outcome of the trading configurations existing in the current time
    d. Initial cut-off period from the existing Indian trade routes have been found to have positively affected the industrialization of East Bengal
    e. Resuscitation of the old trade routes and securing preferential trading concessions have been found as necessary pre-conditions for the revival of the jute sector, and as such, all possible products (both goods and services) where the region (i.e., Bangladesh) may hold a regional RCA (Revealed Comparative Advantage).
    f. That a comprehensive economic integration of the sub-continental production and trading lines along with the established marketing channels would be beneficial for the rejuvenation of both the produce and the innovation.

It is observed that the Quantity Supplied and the Quantity Demanded for any commodity (product or service or a mix of both) can never be equal at any point in real terms. While it is true that there is always a clearing price for each commodity on a certain and at the clearing or at the equilibrium price when quantities demanded meet up quantities supplied, it is observed that in effect, from an observational point of view, the supply and demand schedules exist in different planes. So a simple linear sinusoid curve to represent their relationship is a partial view of their inter-connected nature of occurring. Not only that they have a set of multi-pronged impact on each other, but also that they have multi-plane co-variability (e.g., in 'expectation' of a rise in quantity demanded, 'quantity-which-could-be-supplied' is stacked up, or for that matter, in 'anticipation' of a fall in quantity demanded, 'quantity-which-could-have-been-supplied' is geared down). So when a Supply-demand curve is required to be plotted a whole new set of variables (including, but not limited to some inversely-proportional variables might become more pertinent.

For example, 'periods' or 'episodes' or for that matter even 'points' in time could be a variable with direct impact possibility and it would be possible to postulate probable outcome scenario or resulting outcomes (whereas, under the theoretical framework utilized for plotting Demand-Supply Schedules, time is used as a primary axis to observe quantities demanded or supplied match and vary).

If a simple 'reasoning by first principle' is applied for this variable, a paradox would emerge. For example, assuming that at a point in time an element A is moving towards another element B, but both of them are moving in the same direction or pattern (that is, to say, A is following the movement path of B). If A and B are at two different points in 'time', then it would never be possible for "A" to catch "B" (by following the same path). By the 'time' (t) "A" would reach (t-1)-position of "B", B will not be there and will have moved towards a new position (t+1). No matter what pace or acceleration is given or taken from both at a particular static point of observation they will not be able to catch each other. But this is not the case in observed reality. Question arises as to where the flaw is. The flaw is the conceptualization of the variable itself. As 'time' (as in an independent element in the overall

calculation) moves, "A" takes a different path while following the same path taken by "B". Here it is obvious that 'time' is a very important characteristic of the Path-Line as this characteristic made superimposition of different paths possible. So what we actually observe is that two different paths crossing each other at a certain point in time. This is exactly what happens if we replace "A" by Demand and "B" by Supply in a real life simulation. Similarly the "commodity" induced "utility" and utility driven (production of) the "commodity", and "earning" based on "costing" and "costing" driven by (sales based) "earning" and everything in a two variable world of events and phenomena.

So the first Principle that we could derive from the exercise conducted during the course of writing the paper, 'time' can be used as it is a variable-onto-variable to intersect such components following the same Path-Lines. And then thus the Mathematical expression of $Q = f(p)$is incorrect, rather, it would be $Q \equiv f \frac{\partial(p)}{\partial t}$.

What if we ask what is the cost of a 'jute bag'? To answer that question what we do is, quite literally, 'market analysis'. To find out manufacturing cost we calculate 'resource value' and then add necessary component to it, i.e.,

$$p \equiv f\langle Cost\ Component\ 1 | Cost\ Component\ 2 | Cost\ Component\ 3 \mid \dots \rangle.$$

To calculate the 'resource value' we calculate what resources been utilized. But is that the actual cost? Before coming there, this cost assumption reciprocally make us set the market value of that commodity. Why coal is cheaper than iron? Does any commodity or 'material' has any value at all till it is thrown in the previous cycle? So it is the 'utility' value; not only the component-wise value of that material. Making the quantity demanded or quantity supplied a function of prices on offer is hardly an approximation of the real sequence of events which determine the actual incidence of sale and purchase of a certain commodity.

Now what could be the impact of a high 'utility value' in the market of that commodity and vice-versa? Pre-fixed high 'utility value' positively reinforces (read, feeds) the market, if taken as given. Branding comes to play a major synthesizing role here and so does the Total Value Chain – as they intuitively add up components of value into the total trade equation.

What is the impact of high pre-fixed 'market value' on 'utility value'? High market value creates negative impact on the utility value. The pre-fixation limits the utility potential.

To determine the effect (read, co-linearity) of 'anything' on the outcome of another we use statistical comparison (read, regression). Here in our case AHP Values of both the constructs and the variables are supposed to guide us set priority on where to emphasize more.

During the course of the entire exercise, we have executed two different simulations and compared the outcome of two different sets of values. One set of AHP Value was determined by composite analysis of impact factors of variables based on logical deduction and reference to such impact is there. Another set of AHP Values is that there by assessing the perception survey between key-workers in the Jute Field (From farmers to policy makers). Here the simulation takes a different pattern.
We need to clearly understand why this variation, when assuming or assessing the impact factors of key variables on competitive edge of Jute?
My inference here is because of the 'point of observation' this dissimilarity is happening. An analogy might be like the well-known simple one like 'publisher always blames the less number of book being sold for high price setting of published book and the reader always blames the publisher for not reading books as they are expensive'. This circular-domino effect continues for *n*-th iteration.

So I opted to construct a model in my thesis which would be able to get incorporated in any point of simulation and have the potential to move in any direction based on the variable-scenario it faces at the time it starts functioning; rather to have any pre-fix target point.

Approaching Trade Equation of Jute from Quantity Traded rather Price of Trading to avoid dummy variables:

$Q \equiv f\ \frac{\partial(p)}{\partial t}$. ----------(1)

Where Q is the quantity traded in time t; which will be a direct f of $\partial(P)$ where P is the 'utility value' of Jute. From (2)-

$P \equiv f\langle Cost\ Component\ 1|Cost\ Component\ 2|Cost\ Component\ 3 \mid \dots\rangle.$

$P \equiv f\langle C1|C\ 2|C\ 3 \mid \dots\rangle$----------(2)

Cost Component 1 $\equiv C1 \equiv Production\ Cost \equiv f(Input\ Costs) \equiv f\ (a,b,c,d,\dots\dots)$
Cost Component 2 $\equiv C2 \equiv Prod\ \ ct\ \ Cost \equiv f\ (Input\ Costs) \equiv f\ (a,b,c,d,\dots\dots)$
Cost Component 3 $\equiv C3 \equiv Cost\ after\ C2 \equiv f(Input\ Costs) \equiv f\ (a,b,c,d,\dots\dots)$
Cost Component 4 $\equiv C4 \equiv Cost\ after\ C3 \equiv f(Input\ Costs) \equiv f\ (a,b,c,d,\dots\dots)$
……
Cost Component n $\equiv Cn \equiv Cost\ after\ C(n-1) \equiv f(Input\ Costs) \equiv f\ (a,b,c,d,\dots\dots)$

Here a, b,c,d…. are factors affecting Each stage of Production Costs . For Jute

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$C1 \equiv f\ (Land\ Constructs, Input\ Constructs, Exogenous\ Constructs, \dots.\ )$

But-
Land Constructs $\equiv f\ \{land\}$ [availability, Utilization, Administration]
Input Constructs $\equiv f\{Input\ \}$ [Seed, Irrigation, Fertilizer, Pesticide-cost]
Exogenous Constructs $\equiv f\{\ Exogenous\}$[Entrepreneurship, Stability, Agreements (Bilateral, Regional, Global,…)]
& Stability$\equiv f\ \{stability\}$[Unrest, Climatic change, Policy stability]

$C2$
$\equiv f\ (Labor\ Constructs, Capital\ Constructs, Agricultural\ Value\ Constructs, Industrial\ Value$ Constructs)

But
Labor Concts
$\equiv f\ (Labour)[\ Cropping-pattern, Frming\ Intensity, Shift-to-alternate, \dots]$
Capital Constructs $\equiv f\{Capital\}[National\ Economic\ Growth, Working\ Capital\ Flow, Investment\ (private\ , public\{agriculture, inductry\})\ \dots]$
Agricultural Value Constructs $\equiv f\ \{AVC\}[Policy, R\&D, E\&T, Mechanization, Extension, \dots]$

Industrial Value Constructs
$\equiv f\ \{IVC\}[Policy, Management\ Overhead, Labor\ Employment, Quality\ Control, R\ \&D, Advanced\ Technology, Product\ Variety, Position\ in\ Learning\ Curve\ \dots]$

C3 $\equiv f\ (Conectivity\ Constructs, Market\ Constructs, Exogenous\ Factors, \dots)$

But

Connectivity Constructs ≡ $f\ \{Connectivity\}[\ Existing$Transport Architecture, Investment in Transport Architecture, Distance to Factor Market, Connectivity to World Marker, Distribution Networks]

Market
Constructs ≡
$f\ \{Market\}[Substitute\ Market, New\ Market, Destination\ Market, Loyalty\ of\ Network\ Chain\ ]$

C 4 ≡ $f\ (Advanced\ Derivative\ Constructs)$

AD
Constructs ≡
$f\ (Product\ diversification$,
$Alternative\ use\ of\ products, BrandingComposite\ \&\ Contract\ farms,$
$Portfolio\ investment\ , Total\ Value\ Chain\ (TVC)Integration\ \&\ Ownership\ )$

Cn ≡ $f\ (€\ \equiv error\ value)$

Since we got two-sets of Value for each variable and construct co-efficient:

From Meta-data it comes to be:

P ≡ f [**C1** {Land(.022) Input(.026)Exogenous (.31) } **C2** { Labor (.026), Capital (.049),Agricultural Value Addition (.015),Industrial Value Addition (.16) **C3 {** Connectivity (.082) , Market (.126), Exogenous (.031) **C4** { Product diversification(.085),Alternative use of products (.014),Branding (.17)Composite & Contract farms (.045),Portfolio investment(.014) ,Total Value Chain (TVC)Integration & Ownership Product (.227) }…..Cn {(€…) } …]

From Survey it comes to be:

P ≡ f [**C1** {Land(.054) Input(.063), Exogenous (.55) } **C2** { Labor (.061), Capital (.069),Agricultural Value Addition (.052),Industrial Value Addition (.051) **C3 {** Connectivity (.076) , Market (.091), Exogenous (.055) **C4** { Product diversification(.079),Alternative use of products (.043),Branding (.85)Composite & Contract farms (.058),Portfolio investment(.039) ,Total Value Chain (TVC)Integration & Ownership Product (.069) }…..Cn {(€…) } …]

RATIONALITY: We have contrasted the findings from the meta-data and the survey data and have found that the trading equation heavily depends on the control conditions set by regional trading constraints. While WTO does not hinder the trading jute, a disconnect with the traditional trading functions seriously jeopardize the profitability and hence, sustainability of the product.

Actually if mathematically seen bringing back the natural value chain can be synonymously stated as bringing back or apply previous known factors in the equation. As an equation enjoys freedom of legality and mean value is always only a value; it can be assumed safely that once proven factors will make the equation function again.

The important thing here to note is that, the reverting process and mechanism itself will act as a new variable for the Jute trade and must be considered in any experimental method or test. However, that should not dissuade the determined policy maker to turn back the tides and ride the waves!

Here in the paper, we have tried to construct a representative model with detailed constituent components to see what trading under boundary conditions of regional and multilateral trade negotiations would look like and with regards to the agricultural products and services we conclude that:

a. Regional and Multilateral Trade Negotiations do not affect the mobility of trading (and therefore, production) in the short-run because of the sheer time-lag which is required to induce changes in the composition and formation of product-matrix
b. However, because of the same logic, Regional and Multilateral Trade Negotiations do seriously affect the mobility of trading (and therefore, production) in the short-run because of the time-induced changes in anticipation and expectation for the composition and formation of product-matrix
c. That reconnecting the regional value chains once again is expected to yield positive outcomes for the domestic production scenario in agricultural products and services.
d. Therefore, reconnecting the ancient value chains connecting the centers of production to their eventual markets have to be centerpiece of all diplomatic negotiations in this regard.
e. For the private sector to come up with a plausible model for taking full advantage of such negotiations and outcomes above would be to integrate the components of the complete value chains and hedge its expectations with components of the advanced derivatives in both commodity production and pricing.

The idea is simple. To construct the optimized jute trade equation, we need to take off the procedural and legal blockades which hinder the smooth operation of a 'natural' value system. To draw the most competitive market forces out into the open we need to actually let the markets roll and turn back to their most natural shape. While this is literally impossible given the changes which has happened over last seventy odd years, it is in fact much better to let the barriers roll and let natural markets re-emerge in their current optimum because:

a. Infusion of advanced capital has already taken place in the Bangladesh (East Bengal) economy.
b. Bangladesh, that is, East Bengal, has tasted superior capital and technology, and therefore, the knowledge divide which had prevented the eastern Bengal landscape from acquiring the colors of Kolkata does not exist. Now, it is almost level playing field – so long as inter
c. Bangladesh has now established firm and sustainable market access for other goods and services across the Asian, European and American markets. Therefore, the over-dependency on a single agricultural commodity does not exist any more. As a result, though far from being perfectly balanced as an economy, Bangladesh can afford to play a more stable role in the regional and sub-regional configurations of the Indian economic systems – which would shift the advantage of the economic fulcrum in favor of Bangladesh (as an economy). This could very well serve as the counter-argument against the anti-integration stakeholders

One important area which deters both Bangladesh and India from more actively engaging each other is the issue of the Land Boundary Agreement (LBA). Now, Two issues dominate any discussion on India-Bangladesh relationship: (a) the yawning trade gap (10:1 in favor of India), and (b) the Land Boundary Agreement (LBA) - the ratification of which is stuck at the Indian parliament for last four decades. The dynamics between these two seemingly unrelated issues cannot be fathomed unless seen from both ends and analyzed with rigorous quantitative methods. The formal trade between Bangladesh and India is around US$5.5 billion. What is not visible is the depth and breadth of the informal sector, estimated to be anywhere between US$15 to US$25 billion a year. Governed by a strong 'gravity formulation', a significant share of the flow of economic elements between the two countries across the 4,096-kilometer long porous border is *de facto* and not *de jure*. Even if a 10%-share of this informal sector is accounted for in multipliers, it gives rise to a formidable economic coterie, which could affect the political game playing across North and Northeast India. Studies done by this author suggest that resolving the LBA adversely affects the rent-seeking behavior of the *de facto* gatekeepers of this porous

border and wrests the control back to the legal institutions. Time series analysis of the use of spoilers in the guise of parliamentary action by smaller peripheral parties and turbulence in the border districts tacitly supported by the larger coalitions in power suggests that the economic consequences of not ratifying the LBA could very well be quantified and grouped as a constant in the trade equation. Therefore, it could be hypothesized that only when the Central Government can effectively assert control over the informal gateways of the India-Bangladesh trading routes will there be a resolution of the LBA at the Indian parliament. Intuitive understanding supported by mathematical reasoning suggests that Bangladesh may, finally attain its long-cherished diplomatic objective now with the current Indian center governed by a strong leader with absolute majority of a single party. Trivia: some such indications are already visible.

It may come as a fiction, but it is my observation that much of the stereotyping done by peoples and countries within the region have essentially remained at the era of August-1947 – which saw the opening of the deepest wounds the peace-loving people of South Asia ever suffered. The natural flows of livelihood, income generation, communication and trade, and as an apposition, of friendship, which were cut off most abruptly, were never restored. Rather, the ideas of a post-Westphalian state-system were toyed with in the mosaic of a civilization as old as humanity itself.

Arbitrary borders. Artificial systems. What else do we need to create heightened states of insecurity? Irrationality in the foundation leads only to irrationality in the structure. Given the complexity involved, it is of paramount import to visualize where South Asia fits in the context of time and space. The answer appears to be simple, used time and again in morbid diplomatic negotiations, we need to work on finding a “common minimum agenda” to begin with. Beginning point? Come up with a widely discussed and authoritatively endorsed “Master Document for South Asia”.

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1.0. INTRODUCTION

1.1. Background

A PhD level dissertation on the efficacy of introducing a comprehensive value chain framework originated from the postulation that unless the question of trade, production and consumption is addressed in whole – a compartmental solution to any segment of the equation would not be sustainable (Bloom & Hinrichs, 2011). Also, the idea behind a doctoral project for introducing Operations Approach in Agricultural Marketing for Bangladesh stems from a deep-rooted conviction in the statement that the life sustaining conditions in the whole of South Asia – especially in Bangladesh, are changing fast (Lund-Thomsen & Nadvi, 2010). What had started as a collective effort in reducing "artificiality" in production and marketing of agricultural commodities (and services) world over (particularly in the backdrop of a massive First World bottleneck for international markets), has morphed into something more vivacious and atrocious; something more corporate and branded; something more action oriented and future-focused (Peet, 2009). Changes induced by more intense geo-political alignments and greater mobility in most of the factors of production – except for land – have induced significant changes in the way business in agricultural products and services are conceived. Even land is conceived to be a factor or an input so long as it could be collateralized and taken in for contract farming solutions (Seuring & Müller, 2008).

The primary postulations utilised for conceiving the PhD dissertation, as had been reported in the proposal submitted on 25 September 2011, this project builds on the knowledge base created during the course of the MPhil program carried out under supervision of the current supervisor through the years 2005 – 2011. The research carried out under the MPhil program, titled, "Agricultural Subsidies: Impact Analysis and Combat Techniques for Bangladesh in the World Trade Organization", aimed at putting together an appropriate country strategy for Bangladesh under different stipulations in WTO negotiations in Agricultural Subsidies under varied conditions of: (i) subsidies, (ii) tariffs, (iii) production inputs and (iv) market access parameters.

Negotiations at the World Trade Organisation has been given a strong emphasis because of the fact that the WTO was, till a certain timeline (2005) looked at as a cure for the trading ills that festered the world (Sutherland, 2004). However, the stalemate that the DDR (Doha Development Round) suffered and never recovered from – prompted an understanding of the organization in a very different angle – which included finding regional solutions instead of a global solution at one go (Hoekman & Kostecki, 2009). Our findings from the baselines (from research carried out under the MPhil programme) already stipulates that under differentiated and negatively distorted subsidies regimes prevalent in the World Trade Organization – which affect the patterns in flow of tradable goods and services world over, it could be implied that Bangladesh would lose out 'financially' if agricultural subsidies provided by the industrially developed countries are not "properly" addressed through the WTO for - (a) decisions of production and pricing of agricultural commodities in Bangladesh (export-oriented) ; (b) analysis of the impact of de-subsidized trade patterns in agricultural commodities (phase-wise; in the international market) on the domestic industrial output; (c) analysis of opportunities for Bangladeshi agricultural commodities in the international markets under different situational conditions (Correa, 2000).

The research area in the backdrop of such a wide-ranging agricultural negotiation framework was divided into two major divisions:

i. Production and pricing of agricultural commodities in Bangladesh (for exports), with respect to:
   a. Situational analysis under different de-subsidized trade patterns/conditions in agricultural commodities (phase-wise; in separate but logical combinations/configurations; in the international market; under WTO regime)
   b. Impact assessment of such production and pricing decisions on the domestic industrial output; and
   c. Opportunities for Bangladesh agricultural commodities in the international markets under different situational conditions (i.e., WTO trade negotiations on agricultural commodities and withdrawal of tariff/non-tariff barriers).
ii. Preparation of a WTO agenda for Bangladesh with respect to agricultural commodities.

The control conditions included:

i. In respect of negotiations in trades, sovereign and other administrative pre-conditions would remain static, if not unchanged, during the entire course of the specific study; as well as for the projected time frame.
ii. WTO negotiations would follow a logical and sequential pattern with respect to formulation and execution of resolutions.
iii. Necessary domestic pre-conditions (governance, legal framework, multilateral negotiation systems, regional participation, etc) would prevail for the execution of a coherent WTO policy.
iv. Production sensitivity to inputs would remain valid for the time period projected.

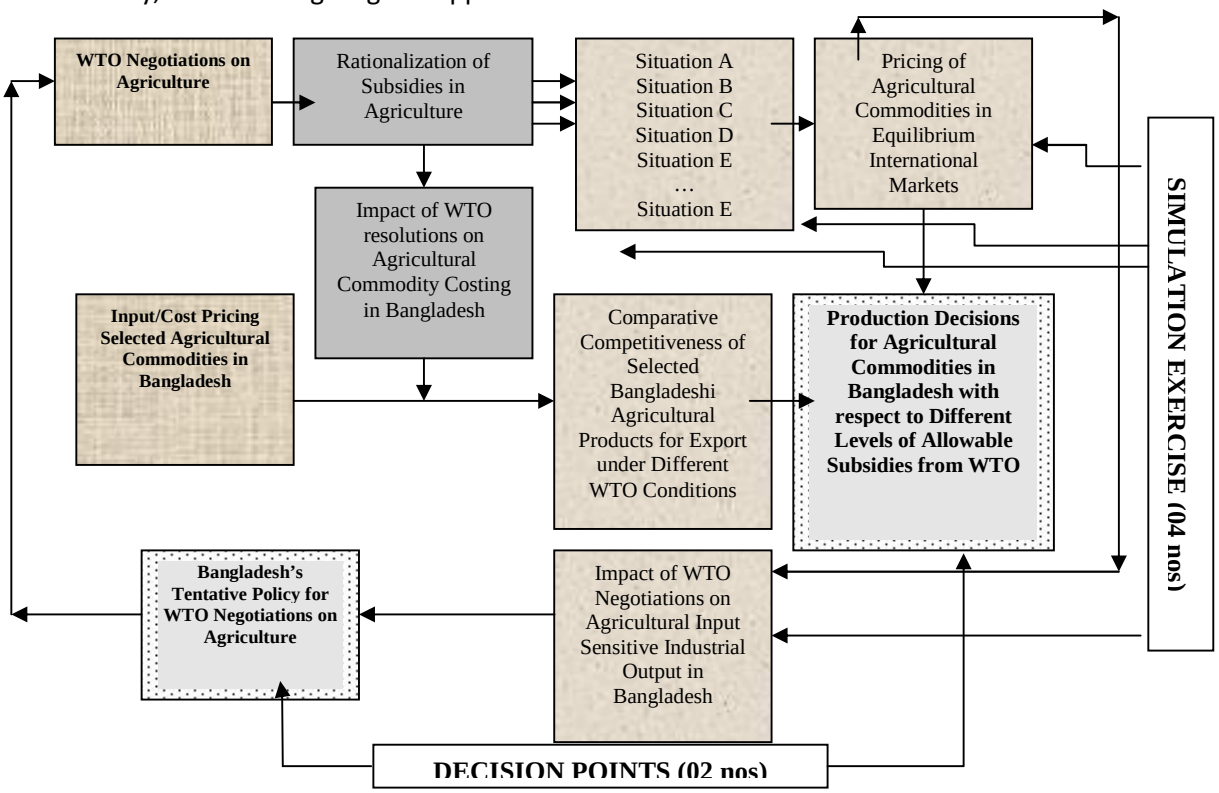
Structurally, for an ideational recall, the objectives of the MPhil research were to find comparatively competitive agricultural produces and their marketing strategies under different stages of de-subsidization selecting suitable block/countries to strengthen bargaining power and to link agricultural subsidies negotiation pattern for Bangladesh especially with reference to negotiations on GATS Mode-IV (especially for movement of service providers). Specific objectives of the previous project at the MPhil included:

i. Analyzing the trading and protection scenario for finding the agricultural products where Bangladesh holds comparative advantages.
ii. Testing the commercial viability of selected products for exports at different stages of de-subsidization in the WTO.
iii. Finding the avenues for advanced agricultural marketing / financing options.
iv. Finding specific WTO negotiation strategy that Bangladesh would follow for linking agricultural production and service provision patterns with GATS Mode–IV.

Primary research for the MPhil project analyzed the scenario for the different stages of de-subsidization and based on the analysis suggested a comprehensive policy for WTO negotiation on agricultural products and recommended product-selection and production patterns with the opportunities for exporting which are economically beneficial for Bangladesh. The scope of the research area included:

i. Existing composition of the agricultural produces for export
ii. Spatiotemporal projection for world prices of agricultural commodities with WTO de-subsidization in agricultural subsidies
iii. Situation analysis for advanced marketing in agricultural commodities where Bangladesh has comparative advantage basing on above findings.
iv. Specific negotiation strategy for WTO on agricultural subsidies
v. Specific tactics for implementation of the WTO strategy (devised thus)

Thematically, the following diagram approximates the MPhil research model:



4 (four) simulation exercises depicting the current flow of negotiations in the World Trade Organization, and 2 (two) decision points, rendered concrete and consolidated understanding about:

i. The production strategy in agriculture as it should look like under the changed subsidization schedule, and
ii. The national stance in WTO as it should look like with regard to the impact of de-coupling and other subsidies withdrawal measures.

The research aimed to ascertain a direction for the following end results:

i. Impact on the world agricultural commodity prices on the basis of different levels of (spatiotemporal) withdrawal of subsidies in the world market
ii. Appropriate Bangladesh agricultural products (for export) at different levels of withdrawal of agricultural subsidies
iii. Appropriate marketing niche and strategy for the development of international trade in agricultural commodities under differentiated subsidies regime in the WTO.

The research findings supported the "notion" that Bangladesh can claim its position as an agro-commodities exporter under a stable WTO regime. However, the recommendations put forward in the individual product/commodity analysis would assist in the resolution of the minor glitches that the agricultural sector is facing at this moment – arising out of primarily three reasons:

i. Technological inferiority
ii. Management inefficiency and absence of advanced marketing focus/plan/control mechanisms
iii. Input unavailability.

As primary research found out, in the face of a trade regime, which threatens to wipe out the inefficient from the broader range of competition in the world market, priority areas for intervention and support include:

i. Increasing agricultural productivity, diversification, and value addition
ii. Improving factor markets, access to assets and natural resource management (including, but not limited to:
    a) Agricultural land
    b) Agricultural inputs
    c) Rural finance
    d) Water resources management, and
    e) Natural resource management
iii. Strengthening Rural Institutions and Livelihood Support

In view of the above findings, the baseline documents proposed that:

i. Bangladesh pursue an agricultural subsidies pattern in line with the World Trade Organization (WTO) negotiation pattern but independent in its focus on:
    a) Providing a safety-net for the farming community
    b) Providing food-security to the community and the society
    c) Providing a stable production base for the agricultural products
ii. Bangladesh raise the socio-economic issues of its one hundred and sixty million people in the WTO to form a consensus bloc on issues related to subsidies rationalization and tariff-binds for the LDCs and Developing Countries. This is a major concern for especially the countries in the west, which hover almost on the verge of paranoia as far as the security regime is concerned.
iii. Quantify its temporal orientation in agricultural production and growth patterns for presenting the findings in a meaningful pattern to the World Community.

Obviously, the papers presented during the MPhil program covered a lot of area with regards to policy imperatives for the Government as far as WTO negotiations were concerned. However, even the patterns in WTO negotiations have changed. It is no longer the monolith of diplomatic prerogatives. The stalled DDR (Doha Development Round) has suddenly been revitalized after a prolonged backchannel negotiations for more than eight years and with BRIC (Brazil, Russia, India, China, and now, Indonesia) taking a lead role in the patterns which are slowly emerging, the focus is very much on accentuating rather predatory marketing systems and value networks for materializing solid business advantages.

In other words, the focus is on solidifying business propositions and networks, which apply to the feasibility of a functioning (complete) marketing system (with 4Ps: Product, Price, Place, and Promotion, plus the added P: Public Relations). Basic proposition is that agriculture is not limited to farm products from within the traditional households inside the country now. Rather, the range spreads to include, but not limited to:

i. Composite farms
ii. Contract farming, and
iii. Setting up Wholesale farms abroad in regions where factors of production suit the needs of the entrepreneurs.

It may be mentioned that a ten product “Preferred Agricultural Spectrum” was drawn in the previous sets of paper. Therefore, to make the study at this level more specific, a particular product line, i.e., Jute, has been chosen. This is to ensure that the learning from studies on the international

trade in agricultural commodities and services from Bangladesh under conditions of multilateral and regional trade negotiations could be modulated into a generic business model and an operations approach (read, equation) could be formulated for eventually replicating across different other product and service categories. It is believed that if the paper concentrates on a specific product, in this case, 'jute', on which we already have trend data and secondary research done (especially at the MPhil level papers) and focus on finding out an 'optimal' operations-based solution for the production-marketing-distribution of the product (i.e., the entire range of products which may emanate out of the generic terms) using various mathematical models, primarily based on, but not limited to an adapted (or an augmented form of) 'Gravity Models' might just result in a wonderful dissertation of how actually the business model should look like in the case of Bangladesh - with boundary conditions set under various subsidy regimes and multilateral/bilateral trade pacts (read, trade diversion measures).

This paper, thus, adds a chapter to prove that the decision to 'divest' from the large jute mills in the nineties was a wrong decision, both financially in the short run and strategically in the long run. While the glory days of Jute essentially started with private sector organizations and trading arrangements, post-liberation of Bangladesh, the sector was led into public undertakings with consequent introduction of highly political content in management and financial overheads. This dissertation would also prove, with modified RCA (Revealed Comparative Advantage) models that Bangladesh still holds RCA in Jute and advanced category derivatives (both products and services) – thereby complementing the argument that the divestiture from the jute-based industrial architecture at the behest of the Bretton Woods Institutions was a faulty decision on the part of the Government.

With boundary conditions in subsidies and trade diversion (read, trade pacts; both multilateral and bilateral), this paper could also aim for a modified Gravity Model in international trade in jute and jute derivatives. After the first round of primary qualitative research, the author plans to use both RCA (Revealed Comparative Advantage) matrices and AHP (Analytic Hierarchy Process), to derive the coefficients to describe how exactly the decision to trade is arrived at (i.e., for Jute). Production, usage (various) and pricing data are already being collected. This paper is planned to be useful as a source of archivally important data from authenticated sources so that the outcome document becomes a reference material in itself.

Both the AHP and F-TOPSIS analysis is used to derive the marketing functions (read, equations) which could determine the ''future'' of advanced jute goods and derivatives. This paper also looks into the possibility (read, probability) of farming solutions which can be adopted to 'optimize' the return from both: (a) the natural endowments, and (b) the acquired skill sets (with components in: (i) value addition processes, (ii) scale efficiencies, and (iii) learning curve positions). This may take us into composite, or leased, or contract farming (abroad) farming solutions - depending on what the outcome of the hypotheses testing indicates.

The political economy of jute in constructed in a separate chapter to give meaning and a sense of purpose to the whole exercise – leading to the formulation of the trade equation of jute under conditions of both bilateral and multilateral trading negotiations.

While a lot has been said about the past glory of Jute and also its revival, there has been no operations-based research on the subject so far. The author of this paper believes that this paper could actually raise a debate in the policy-field and bring out a substantive contribution to the operations research area in Bangladesh.

1.2. The Problem Statement

It is not only international trade and an effort to introduce an operations approach into the agricultural (i.e., jute, for the purpose of this study) marketing paradigm of Bangladesh that prompted this writer to undertake this study. While it is true that Jute was found to be a niche product in which Bangladesh held competitive advantage, it was also found to be an agricultural produce which consolidates the widest variety of production inputs and industrial manufacturing avenues (read, value addition; Bandara & Yu, 2003). To begin with, there is a firm personal and educated conviction that the way Bangladesh Government divested from the Jute-centric industrial sector in the nineties was not entirely appropriate. What we have collected as archival information from the Archives of India – only testifies to the fact that the operational frameworks which persisted across the Indian sub-continent had been more efficient than what exists as of now (Pitigala, 2005).

Given the anomalies and dispersions which exist in the difference between the perception of trade and the actual trade in South Asia (Chapman, 2010), it is important to note that any deeper and introspectively meaningful research needs to encapsulate the ideas and ideations which create the geo-strategic spaces and Westphalian configurations which define the South Asian realities (Kemal et al, 2002; Farmer, 1983). While we may weave the literature around certain objective parameters and solid and quantitative research models in vogue for diving deeper into areas related to operations, economic and marketing, it ought to be understood that unless we can define what exists today is a consequence of what happened yesterday (at the state level) – our findings would only be a shadow of the actual scenario (Kraska, 2003).

The objects under scanner are varied in nature. They include, and not limited to, production factors and functions, produce and value-added derivatives, input markets and output markets, comprehensive value chains and cross-cutting networks – concentric on primarily two loci, i.e., international trading configurations (at bilateral, multilateral, regional and global) and jute (at levels of production, processing, manufacturing and value addition, marketing and advanced derivatives). By its very nature, the paper is conceived at a multi-dimensional space where all variables are categorized as per their trend data and also projected at multi-axes spatiotemporal dimensions.

The requirement to conceive an intellectual endeavor to address a very basic question – what happened to a once prosperous Bengal and its agro-based industrialization patterns before the partition of the sub-continent (Pasha, 1996). While the erstwhile Bengal enjoyed one of the highest per capita GDP across the entire breadth of the Indian sub-continent and a significant portion of the primary wealth generation was contributed by the jute sector even till the 1971 War of Liberation, the situation started changing rapidly in the seventies and afterwards. Once profitable jute sector suffered an essentially unplanned nationalization spree (Sobhan, 1974). Fixed labor content was charged as management overhead – leading to pseudo employment and a drag on the individual firm's profitability score (Bhaskar & Khan, 1995). Jute Mills in general suffered a part of the deep scars that the bloodstained war of liberation had put on the green face of Bangladesh. Then came the nineties. With the return of democracy came the stings and strings attached to the flow of funds from the Bretton Woods institutions. Large-scale sales of jute-centric heavy industry – including the largest jute mills of Asia, Adamjee, took place. All in the name of reducing burden on the national exchequer. Apparently, wealth generation capabilities were compromised for short-term but chronic income and fund flow imbalances. While there was nothing inherently wrong with the jute sector within itself, basically Bangladesh jute collapsed (Hoque & Hopper, 1994).

While Bangladesh jute sector was going down, at that very same time, jute mills around the world – especially in the West Bengal region started growing up (Uddin et al., 2014)! And then came the new

millennium and its consequent emphasis on eco-friendly jute and an acute shift of focus from bio-un-degradable cheaper synthetic substitutes. Value added products on a jute frame started taking center stage once again! Couple all these to the different stages of finding global platform for trade negotiations, regulations and deregulations, with later emphasis on regional and sub-regional trade blocks.

All these when seen from the perspective of a professional who has worked across private, public and regulatory sector organizations both inside and outside the country whether optimal decisions were made in the first place, if ever, at all, with regards to the main cash crop of Bangladesh.

This author believes that the decision – highly influenced by the structural adjustment plans suggested by essentially biased Bretton Woods' consultants was flawed, if not entirely wrong. While Bangladesh divested from her heavy industrial architecture, dismantling the jute mainframe, smaller and agile firms were growing up all over West Bengal and even as far as in Thailand. This paper analyzes the 5Ws and 1H of the entire decision making process related to the primary cash crop of Bangladesh and how in stages a comprehensive value-chain was cut off into pieces and growth centers of the region were put out of sync with their natural vein-artery-capillary networks and how artificially created conundrums were prioritized (Rahman, 1994) – first during and after the division of the Sub-Continent and then after the 1971 War of Liberation (Ayoob & Subrahmaniam, 1972), and then the eventual divestiture from Public Enterprises in the nineties (Uddin & Tsamenyi, 2005).

More importantly, what we see prevailing in the country (and which we shall prove in the later sections of the paper) is a comprehensive absence of policy level understanding in the corporate domain which accounts for the entire range of value frameworks underlining the basic root-canals of the economic order (Rahman & Owen, 2007). Particularly important is to note that the economic policies taken by the government and trade bodies appear to be influenced more by immediate tactical needs of the situation and not by strategic and definitional substantiation of the problematique (Ahmed, 1996).

Hypothetically, if we could draw linear (not literally) relational equations to identify the causes and consequences underlining each spectrum of events in the political economy (Zald, 1970), thus, we could create the necessary intellectual infrastructure (Logan & Molotch, 2007) to assess, comment, appreciate and predict the future of both production and trade in Bangladesh. If we could do it for a single product, i.e., jute (Bhaskar & Khan, 1995), we could, theoretically, do it for all products – end to end – and a comprehensive trove of understanding would come out from the exercise.

There is a need for (a) the Government, (b) the Business Houses – both established and upcoming, and (c) the Trade Bodies (i.e., Federations/Chambers/Associations) of Bangladesh to immediately institute an operations-based approach leading towards a Value Chain Framework in Foreign Trade Oriented Marketing of Bangladesh Agricultural Commodities and Services, with production and marketing functions of a certain produce, i.e., jute, being taken for formulating a generic model under Conditions of Multilateral and Regional Trade Negotiations to - (a) widen existing trade patterns, i.e., products, services, and compositions wise, and (b) explore new markets. Since – (a) it is obvious that jute is one such produce which combines and spans through all sectors of the economy, including labor, land, capital (both short term working capital and long term investment grade), manufacturing (and value addition) and marketing, and since – (b) jute sector in Bangladesh has been subject to policy interventions which have been rather erratic in nature, taking jute as the core product to formulate the integrated business model could be a good approximation for instituting an operations approach in the field.

What we now see and experience, and especially with regards to this author's personal experience travelling to the jute producing countries of the world, this could be a unique opportunity to learn

what went wrong and how and may be use that for composing a generic operations based business model for agricultural produce and even services (Sarker, 2006).

1.3. Objectives

The research has a distinctly **operations-based approach** and practically a marketing plan for Bangladesh agriculture is destined to be an end product to suggest to the stakeholders in Bangladesh, i.e., (i) Government, (ii) Trade Bodies, (iii) Business Organizations, and (iv) Entrepreneurs under time-bound conditions.

The target for this research is to come up with an outcome document, which could be utilized by the stakeholders mentioned above and this document is based on the possible scenarios which negotiation patterns at – (i) bilateral, (ii) multilateral, (iii) regional and (iv) global platforms which have a direct/indirect bearing on Bangladesh.

1.3.1. Broad Objectives

To develop an operations-based approach for introducing a value chain framework in foreign trade oriented marketing of Bangladesh agricultural commodities and services under conditions of multilateral and regional trade negotiations

The research aims to ascertain the following:

i. **Defining a prioritized Agricultural Business Policy Framework for Bangladesh** with respect to (a) International Trading and (b) homegrown competitive/comparative advantages using Fuzzy TOPSIS (Technique for Order Preference by Similarity to Ideal Solution) with specific reference to Jute - with RCA (Revealed Comparative Advantage).
ii. **Analyzing markets which could host (a) products, (b) services, and (c) farming solutions** from Bangladesh in terms of (a) revenue generating capabilities, (b) revenue sustainability, and (c) employment generation capabilities – in the backdrop of major multilateral and regional trade negotiations (i.e., how multilateral and regional trade negotiations have impacted trade in agricultural sector) – using a muted form of General Gravity Model.
iii. **Analyzing (a) areas, (b) products, (c) services, and (d) operations/solutions which Bangladesh would be able to provide / complement the markets** identified (at) above (i.e., Broad Objective ii) – using both Conjoint and Factor Analysis respectively for pricing and options
iv. **Preparing an action plan** which could be followed by (i) Government, (ii) Trade Bodies (i.e., Federations/Chambers/Associations), (iii) Established Business Houses, and (iv) Entrepreneurial/Green-Field institutions to take advantage of the situation identified above in terms of providing a Value Chain Framework [12] for international trade in agricultural products,

[1] Capturing the value generated along the chain is the new approach taken by many management strategists. This Value Chain approach is precisely what stems from Michael Porter's model prescribed in his 1985 best-seller, "Competitive Advantage: Creating and Sustaining Superior Performance". If we would take a closer look at the model at hand, the points would be simple. At a 'Firm Level', a value chain is a chain of activities for a firm operating in a specific industry. The business unit is the appropriate level for construction of a value chain, not the divisional level or corporate level. Products pass through all activities of the chain in order, and at each step of activity the product gains some value. The chain of activities gives the products more added value than the sum of added values of all activities. The value chain categorizes the generic value-adding activities of an organization. The "primary activities" include: inbound logistics, operations (production), outbound logistics, marketing and sales (demand), and services (maintenance). The "support activities" include: administrative infrastructure management, human resource management, technology (R&D), and procurement. The costs and value drivers are identified for each value activity. At the Industry Level, the concept is characterized as a physical representation of the various processes that are involved in producing goods and services, starting with raw materials and ending with the delivered product (also known as the supply chain). It is based on the notion of value-added at the link (i.e., stage of production) level. The sum total of link-level value-added yields total value. The French Physiocrat's

services and aggregate solutions – using Cobweb Programming and Quantitative SWOT – AHP (Analytic Hierarchy Process).

1.3.2. Specific Objectives

The following Specific Objectives are drawn on the Broad Objectives:

i. Defining a prioritized Agricultural Business Policy Framework for Bangladesh with respect to (a) International Trading and (b) homegrown competitive/comparative advantages using Fuzzy TOPSIS (Technique for Order Preference by Similarity to Ideal Solution) with special reference to jute – with RCA (Revealed Comparative Advantage), which comprises of debriefing on
   a) Encapsulating the trends of agriculture and trade in agricultural products, services and solutions which were generated from Bangladesh during the whole of the recorded history of this region
   b) Encapsulating the reasons which determined the patterns and shifts/changes in these patterns
   c) Formulating a comprehensive scenario with regards to emerging trends in agricultural sector with regards to products (variations/varieties/innovations/discoveries), services, and

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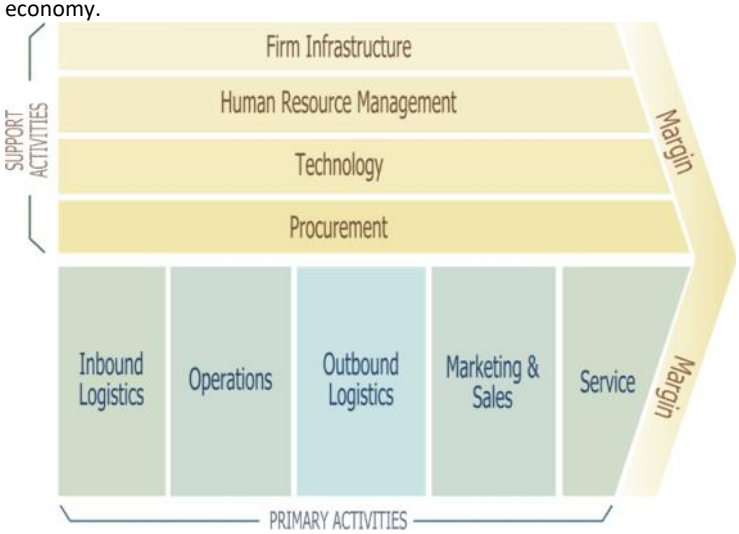
Tableau économique is one of the earliest examples of a value chain. Wasilly Leontief's Input-Output tables, published in the 1950's, provide estimates of the relative importance of each individual link in industry-level value-chains for the U.S. economy.



As a management tool, the value chain framework quickly made its way to the forefront of management thought as a powerful analytical tool for strategic planning. The value-chain concept has been extended beyond individual firms. It can apply to whole supply chains and distribution networks. The delivery of a mix of products and services to the end customer will mobilize different economic factors, each managing its own value chain. The industry wide synchronized interactions of those local value chains create an extended value chain, sometimes global in extent. Porter terms this larger interconnected system of value chains the "value system." A value system includes the value chains of a firm's supplier (and their suppliers all the way back), the firm itself, the firm distribution channels, and the firm's buyers (and presumably extended to the buyers of their products, and so on).

By exploiting the upstream and downstream information flowing along the value chain, the firms may try to bypass the intermediaries creating new business models, or in other ways create improvements in its value system. Based on the core principles of Value Chain Analysis – complete with the Value Reference Models – a unique strategy could be devised for the economic alignment of Bangladesh Agricultural Sector and the rest of the world in a win-win composition.

[2] Note of Gratitude

solutions which determine the present and future of agriculture in Bangladesh under conditions of bilateral, multilateral, regional and global trading configurations

d) Preparing a comprehensive background study on Jute sector in Bangladesh using RCA (Revealed Comparative Advantage)

ii. Analyzing markets, which could host (a) products, (b) services, and (c) farming solutions from Bangladesh in terms of: (a) revenue generating capabilities, (b) revenue sustainability, and (c) employment generation capabilities – in the backdrop of major multilateral and regional trade negotiations – using a muted form of General Gravity Model. While Jute forms the core analytical framework, the objective is attained by:

a) Documenting both the spatial and temporal distribution of markets for international trade in agricultural products, services and (wholesale) solutions – with special emphasis on Jute
b) Understanding temporal trends in international trade in agricultural products, services, and solutions – with special emphasis on Jute
c) Understanding how major multilateral and regional trade negotiations have impacted trade in agricultural products, services and solutions – with special emphasis on Jute
d) Understanding emerging trends in international trade in agricultural, especially Jute, products, services, and solutions specially with regards to
    i) Revenue generating capabilities
    ii) Revenue sustainability, and
    iii) Employment generation capabilities

iii. Using Factor Analysis, analyze how Bangladesh, and specifically, jute, would be able to provide/complement the markets identified (at) above through:

a) Areas: i.e., connecting spatial distribution of products and services from Bangladesh to specific region(s) of the world
b) Products: i.e., product/production specialization for providing complements to the international markets in agricultural sector
c) Services: i.e., service specialization for providing complements to the international markets in agricultural sector, and
d) Operations/solutions through:
    i) Composite farms
    ii) Contract farming, and
    iii) Setting up Wholesale farms abroad in regions where factors of production suit the needs of the entrepreneurs.

iv. Identifying the hindrances affecting the performance of Bangladesh agricultural sector with regards to international trade – with specific reference to Jute in production, value addition, trade and advanced economic programming – using Cobweb Design

v. Using Quantitative SWOT – AHP (Analytic Hierarchy Process), Preparing a staged action plan for Agricultural products and services, with specific reference to jute, for

a) Government
b) Trade Bodies (i.e., Federations/Chambers/Associations)
c) Established Business Houses, and
d) Entrepreneurial/Green-Field institutions to take advantage of the situation identified above

- Leading to the formation of a value-chain framework, specifically for the sector and generally (read, generic) for Bangladesh, which would securely lock the country into the world market for inputs and outputs

1.3.3. Hypotheses

To validate the 'problem statement' and test 'assumptions', a detailed design architecture has been drawn on the following sets of hypotheses[3]:

i. For defining a prioritized Agricultural Business Policy Framework for Bangladesh with respect to (a) International Trading and (b) homegrown competitive/comparative advantages using Fuzzy TOPSIS (Technique for Order Preference by Similarity to Ideal Solution) with special reference to jute – with RCA (Revealed Comparative Advantage):
   a) Bangladesh was an 'active' participant in international trade in agriculture, and especially jute, during the whole of the recorded history (for last three hundred years) of this region through:
      i) Production inputs
      ii) Products
      iii) Services
      iv) Value added derivatives
      v) Wholesale farming solutions
   b) The following reasons positively impacted the patterns for international reach/activities of Bangladesh agricultural sector, specially jute:
      i) Favorable natural endowments
      ii) Favorable climatic conditions
      iii) Favorable position in the learning curve for production and value addition in jute
      iv) Entrepreneurial capabilities of the population
      v) Social structure/composition of the population
      vi) Administrative strength of the political / bureaucratic institutions
      vii) Colonial regimes – starting with the Mughal invasion and leading through British Raj and Pakistan occupation
      viii) Structured administrative architecture – leading to steady markets for both inputs and outputs

   c) The following reasons determine the shifts and changes in the international trade patterns for Bangladesh agricultural sector, especially jute:
      i) Adverse changes in the composition of natural endowments
      ii) Impact of natural calamities
      iii) Impact of man-made disasters/wars
      iv) Rise of more favorable factor markets (i.e., input sources)
      v) Rise of alternative produce and substitutes
      vi) Adverse changes in learning curve management
      vii) Impact of the division of Indian sub-continent, especially, fragmentation of the natural value chains of the sub-continent
      viii) Independence of Bangladesh and consequent divestiture by established jute merchants
      ix) Impact of global, multilateral and regional trade negotiations
      x) Impact of inefficiency/inadequacy in policy formulation by Government (especially with nationalization of the jute sector)
      xi) Impact of inefficient decision making by trade bodies (for inputs) led to the gradual degeneration of international trade in agriculture for Bangladesh, especially with regards to jute and jute derivatives
      xii) Adverse impact of policy interventions by International Bodies, such as World Bank and IMF

[3] The sets of hypotheses draw heavily on the MPhil dissertation by the author. However, the list is not exhaustive and is subject to change/modification with the completion of the first phases of the exploratory research.

xiii) Adverse impact rising out of political instability in the country
xiv) Adverse impact of politicization of the input and output markets
xv) Lack of technological innovation and adaptation in the jute sector
xvi) Lack of marketing initiatives and branding for jute and jute derivatives
xvii) Lack of working capital supply in the sector
xviii) Lack of investment grade surplus for the sector

d) For formulating a comprehensive scenario with regards to emerging trends in trade in agricultural sector, Bangladesh holds Revealed Comparative Advantage (RCA), in jute, in
   i) Factor inputs
   ii) Learning Curve Position
   iii) Mid-to-long term production sustainability
   iv) Mid-to-long term absence of productive competitors
   v) Product variations
   vi) Product varieties
   vii) Product innovations/discoveries
   viii) Agricultural services
   ix) Wholesale operations/solutions through:
      (1) Composite farms
      (2) Contract farming, and
      (3) Setting up Wholesale farms abroad in regions where factors of production suit the needs of the entrepreneurs.

ii. For analyzing markets, which could host (a) products, (b) services, and (c) farming solutions from Bangladesh in terms of: (a) revenue generating capabilities, (b) revenue sustainability, and (c) employment generation capabilities – in the backdrop of major multilateral and regional trade negotiations – using a muted form of General Gravity Model. While Jute forms the core analytical framework, hypotheses spectrum is codified through
   a) Multilateral trade negotiations have impacted international trade in agricultural products, services and solutions, especially, in the jute sector
   b) Regional trade negotiations and treaties have impacted international trade in agricultural products, services and solutions, especially, in the jute sector
   c) Bilateral trade negotiations have impacted international trade in agricultural products, services and solutions, especially, in the jute sector
   d) Migration (or lack thereof) has impacted international trade in agriculture, especially in the jute sector
   e) There exists in international trade in agricultural products, services, and solutions, 'venture-worthy-markets' with regards to
      i) Revenue generating capabilities
      ii) Revenue sustainability, and
      iii) Employment generation capabilities

iii. For analyzing how Bangladesh, and specifically, jute, would be able to provide/complement the markets identified (at) above with:
   a) Areas (i.e., connecting spatial distribution of products and services from Bangladesh to specific region(s) of the world): there are specific areas of Bangladesh, especially with regards to jute and in relation to the ancient value-chains existing between and amongst regions of the world, which could be connected to the international factor input and exchange markets for providing
      i) Products
      ii) Services

iii) Wholesale solutions

b) Products (i.e., product/production specialization for providing complements to the international markets in agricultural sector): there are specific value added products in which Bangladesh Jute holds competitive and/or comparative advantages for complementing international markets over the period 2010 – 2030 (i.e., identification of product-variations)

c) Services (i.e., service specialization for providing complements to the international markets in agricultural sector): there are specific services which Bangladesh holds competitive and/or comparative advantages for complementing international markets over the period 2010 – 2030 (i.e., identification of service areas), and

d) Bangladesh can complement the international markets by providing comprehensive operations/solutions in jute farming and jute derivatives through:
   i) Composite farms
   ii) Contract farming, and
   iii) Setting up wholesale farms abroad in regions where factors of production suit the needs of the entrepreneurs.

iv. For identifying the hindrances affecting the performance of Bangladesh agricultural sector with regards to international trade, it is implied that the following impact in a direct way:
   a) Technological inferiority
   b) Management inefficiency
   c) Absence of advanced marketing focus/control
   d) Input unavailability
   e) Adverse changes in the environment/ecological factors, through:
      i) Internal displacement/relocation of people/business
      ii) External movement of people/business
      iii) Changes in the factor endowments for agriculture
   f) Trans-boundary (i.e., across national borders) movement of factors of production and especially natural persons
   g) (Trans)-Migration of personnel and service providers
   h) Priority areas for intervention and support include:
      i) Increasing agricultural productivity, diversification, and value addition
      ii) Improving factor markets, access to assets and natural resource management (including, but not limited to:
         (1) Agricultural land
         (2) Agricultural inputs
         (3) Rural finance
         (4) Water resources management, and
         (5) Natural resource management
         (6) Strengthening Rural Institutions and Livelihood Support
         (7) Re-establishing connections to pre-existing (and now cut-off/disjointed) production and distribution points and channels (emphasis added)

v. An action plan is needed for preparing a 'Value-Chain Framework' for international trade in agricultural sector, especially in jute, for:
   a) The Government
   b) The Trade Bodies (i.e., Federations/Chambers/Associations)
   c) The Established Business Houses, and
   d) The Entrepreneurial/Green-Field institutions to take advantage of the situation identified above

1.4. Significance of the Study

As has been explained the previous sections, the ideation behind the project at hand is aimed towards producing an academically sound understanding of what went wrong in the operational analysis of the business processes framework and render predictive capabilities to the reader to utilize the understanding in matter related to other commodities and services. It essentially attempts to encapsulate the ideas and ideations that this author has had the privilege of studying and experiencing as an individual. While the paper is woven essentially around certain objective parameters and solid and quantitative research models in vogue for research of such magnitude in operations, economic and marketing areas.

The objects under scanner are varied in nature. They include, and not limited to, production factors and functions, produce and value-added derivatives, input markets and output markets, comprehensive value chains and cross-cutting networks – concentric on primarily two loci, i.e., international trading configurations (at bilateral, multilateral, regional and global) and jute (at levels of production, processing, manufacturing and value addition, marketing and advanced derivatives). By its very nature, the paper is conceived at a multi-dimensional space where all variables are categorized as per their trend data and also projected at multi-axes spatiotemporal dimensions.

But to this author, the project is conceived as an intellectual endeavor to address a very basic question – what happened to a once prosperous Bengal and its agro-based industrialization patterns before the partition of the sub-continent. While the erstwhile Bengal enjoyed one of the highest per capita GDP across the entire breadth of the Indian sub-continent and a significant portion of the primary wealth generation was contributed by the jute sector even till the 1971 War of Liberation, the situation started changing rapidly in the seventies and afterwards. Once profitable jute sector suffered an essentially unplanned nationalization spree. Fixed labor content was charged as management overhead – leading to pseudo employment and a drag on the individual firm's profitability score. Jute Mills in general suffered a part of the deep scars that the bloodstained war of liberation had put on the green face of Bangladesh. Then came the nineties. With the return of democracy came the stings and strings attached to the flow of funds from the Bretton Woods institutions. Large-scale sales of jute-centric heavy industry – including the largest jute mills of Asia, Adamjee, took place. All in the name of reducing burden on the national exchequer. Apparently, wealth generation capabilities were compromised for short-term but chronic income and fund flow imbalances. While there was nothing inherently wrong with the jute sector within itself, basically Bangladesh jute collapsed.

While Bangladesh jute sector was going down, at that very same time, jute mills around the world started growing up! And then came the new millennium and its consequent emphasis on eco-friendly jute and an acute shift of focus from bio-un-degradable cheaper synthetic substitutes. Value added products on a jute frame started taking center stage once again!

Couple all these to the different stages of finding global platform for trade negotiations, regulations and deregulations, with later emphasis on regional and sub-regional trade blocks.

All these when seen from the perspective of a professional who has worked across private, public and regulatory sector organizations both inside and outside the country whether optimal decisions were made in the first place, if ever, at all, with regards to the main cash crop of Bangladesh.

This author believes that the decision – highly influenced by the structural adjustment plans suggested by essentially biased Bretton Woods' consultants was flawed, if not entirely wrong. While Bangladesh divested from her heavy industrial architecture, dismantling the jute mainframe, smaller and agile firms were growing up all over West Bengal and even as far as in Thailand. This paper analyzes the 5Ws and 1H of the entire decision making process related to the primary cash crop of Bangladesh and how in stages a comprehensive value-chain was cut off into pieces and growth centers of the region were put out of sync with their natural vein-artery-capillary networks and how artificially created conundrums were prioritized – first during and after the division of the Sub-Continent and then after the 1971 War of Liberation, and then the eventual divestiture from Public Enterprises in the nineties.

What we now see and experience, and especially with regards to this author's personal experience travelling to the jute producing countries of the world, this could be a unique opportunity to learn what went wrong and how and may be use that for composing a generic operations based business model for agricultural produce and even services!

This paper, thus, is aimed more at creating art than at science.

1.5. Scope and Limitation

The paper encompasses the following points in detail:

i. Analyze the Agricultural Business Policy Framework for Bangladesh with respect to International Trading and homegrown competitive advantage development (based on the MPhil dissertation).
ii. Analyze markets which could host (i) products, (ii) services, and (iii) farming solutions from Bangladesh in terms of (i) revenue generating capabilities, (ii) revenue sustainability, and (iii) employment generation capabilities
iii. Analyze how Bangladesh, and specifically, jute, would be able to provide/complement the markets identified (at) above
i. Prepare an operations-based agricultural marketing plan for jute and jute derivatives from Bangladesh – bound to time sensitive operations, which could be followed by (i) Government, (ii) Trade Bodies (i.e., Federations/Chambers/Associations), (iii) Established Business Houses, and (iv) Entrepreneurial/Green-Field institutions.

The project is limited in focus. It limits itself in identifying a generic Value-Chain based Marketing framework for exporting agricultural commodities, products and services, with specific reference to Jute, that stakeholders in Bangladesh, i.e., (i) Government, (ii) Established Business Houses, (iii) Trade Bodies, and (iv) Entrepreneurs could pursue.

1.6. Conceptual Framework

The research has a distinctly **Operations-based Approach (OBA),** and for all practical purposes, a marketing plan for Bangladesh agriculture is destined to be an end product to suggest to the stakeholders in Bangladesh, i.e., (i) Government, (ii) Trade Bodies, (iii) Business Organizations, and (iv) Entrepreneurs under time-bound conditions.

This project builds on the knowledge base created during the course of the MPhil program carried out under supervision of the current supervisor through the years 2005 – 2011. The research carried out under the MPhil program, titled, "Agricultural Subsidies: Impact Analysis and Combat

Techniques for Bangladesh in the World Trade Organization", aimed at putting together an appropriate country strategy for Bangladesh under different stipulations in WTO negotiations in Agricultural Subsidies under varied conditions of: (i) subsidies, (ii) tariffs, (iii) production inputs and (iv) market access parameters.

The target for this research is to come up with an outcome document, which could be utilized by the stakeholders mentioned before and this document is based on the possible scenarios with regards to negotiation patterns at – (i) bilateral, (ii) multilateral, (iii) regional and (iv) global platforms which have a direct/indirect bearing on Bangladesh.

The operational parameters of the research brings into focus the following four areas:

i. **Defining a prioritized Agricultural Business Policy Framework for Bangladesh** with respect to:
   a) International Trading and
   b) Homegrown competitive/comparative advantages using Fuzzy TOPSIS (Technique for Order Preference by Similarity to Ideal Solution) with specific reference to Jute - with RCA (Revealed Comparative Advantage).

v. **Analyzing markets which could host:**
   a) **Products**
   b) **Services, and**
   c) **Farming solutions** from Bangladesh in terms of:
      (1) Revenue generating capabilities
      (2) Revenue sustainability, and
      (3) Employment generation capabilities –

- in the backdrop of major multilateral and regional trade negotiations (i.e., how multilateral and regional trade negotiations have impacted trade in agricultural sector) – using a muted form of General Gravity Model.

vi. **Analyzing:**
   a) **Areas**
   b) **Products**
   c) **Services, and**
   d) **Operations/solutions which Bangladesh would be able to provide / complement the markets** identified above using both Conjoint and Factor Analysis respectively for pricing and options.

vii. **Preparing an action plan** which could be followed by:
   a) Government
   b) Trade Bodies (i.e., Federations/Chambers/Associations)
   c) Established Business Houses, and
   d) Entrepreneurial/Green-Field institutions to take advantage of the situation identified above in terms of providing a Value Chain Framework for international trade in agricultural products, services and aggregate solutions – using Cobweb Programming and Quantitative SWOT – AHP (Analytic Hierarchy Process).

Primary Qualitative Research has already been carried out at the following levels:

a. Secondary literature survey for establishing a base-line concept for the thesis
b. Simulation runs coupled with primary data validation has been carried out using the following models:
   i. AHP (Analytic Hierarchy Process)

ii. Fuzzy TOPSIS (Technique for Order Preference by Similarity to Ideal Solution)
iii. Gravity Model (Augmented)
iv. Quantitative SWOT Analysis

The project is limited in focus. It limits itself in identifying a generic Value-Chain based Marketing framework for exporting agricultural commodities, products and services, with specific reference to Jute, that stakeholders in Bangladesh, i.e., (i) Government, (ii) Established Business Houses, (iii) Trade Bodies, and (iv) Entrepreneurs could pursue.

The Graphical Representation for the Project is as follows:

Figure 1: PhD Research Model

1.7. Deliverables

The deliverables of the research would be:

ii. End-product: an operations-based agricultural marketing plan for jute and jute derivatives from Bangladesh – bound to time sensitive operations
iii. Target clientele:
   a) Government Ministries (for creating enabling conditions and supporting the operations with logistics and funding)
   b) Chamber Bodies (for streamlining specific business interests to the that of the Government initiatives and priorities and vice versa)
   c) Business Houses (for exposure to the business interests arising out of the ground realities both within and outside the country and devising time-bound operations templates for setting up feasible business ventures)
   d) Entrepreneurs/Green Field institutions
iv. Time frame: 2011 to 2030

2.0 METHODOLOGY

2.1 Models in Use

Primary Qualitative Research has already been carried out at the following levels:

a. Secondary literature survey for establishing a base-line concept for the thesis

b. Simulation runs coupled with primary data validation has been carried out using the following models

I. RCA (Revealed Comparative Advantage)
II. Fuzzy TOPSIS (Technique for Order Preference by Similarity to Ideal Solution)
III. AHP (Analytic Hierarchy Process) (for ranking coefficients)
IV. Gravity Model (Augmented)
V. Quantitative SWOT

The models have been variously chosen to reflect the creative processes which underline the quest for finding answers to questions which are difficult to ask, i.e., conceptualize. For example, why would two neighboring countries not trade while trade might happen between far away countries (except for even comparative advantage points) – the answers to which could be found in the Gravity Model. For the RCA, Revealed Comparative Advantage models have been deployed to ascertain the precise entry points for trade in commodities and services. Fuzzy TOPSIS model has been utilized for finding the dissonance spectrum which could identify the differences between the ideal situation and the actual scenario.

Across the models mentioned above, the study has a combination of four types of research designs, namely:

i. Observational Techniques: Analyzing price-sensitive data on agricultural commodities (with reference to jute and jute derivatives) and trade in a cross-section (observations made at one time) and longitudinally (observations occur over several time-periods) – for drawing up the baselines of the research. Observational methods are used for the following scenario-analyses:
   a. Bilateral and Multilateral trade negotiation time pattern over the past (fifty years; time and region wise; indexed)
   b. Bilateral and Multilateral trade negotiation simulation for the future (ten years; time and region wise; indexed)
   c. Trends in Bangladesh Agricultural production / service delivery over the past (since recorded history to have a comprehensive idea about how agriculture evolved and where competitive advantages/disadvantages traditionally had been; specifically with reference to Jute)
   d. Emerging trends in Bangladesh Agricultural production/service (with reference to Jute) into the future
   e. Possible scenarios with regards to trade in agriculture, with reference to Jute, and opening of major/significant markets ten years into the future.

ii. Qualitative Research: With a smaller number of respondents in the administration, political and diplomatic circles, academia, business organizations, trade federations, etc., through focus groups and depth interviews for identifying the parameters of business as it stands now.

Qualitative research – especially depth interviews have been and are being conducted to construct scenarios, which would strengthen understanding of the following:

a. Past trends in international markets for trade in jute products and services
b. Emerging trends in international markets for trade in agricultural products and services – with reference to Jute
c. For identifying the hindrances affecting the performance of Bangladesh agricultural sector (jute specific) with regards to international trade, especially with regards to: Technological inferiority, Management inefficiency, Absence of advanced marketing focus/control, Input unavailability, Adverse changes in the environment/ecological factors, Trans-boundary (i.e., across national borders) movement of factors of production and especially natural persons, (Trans)-Migration of personnel and service providers, Priority areas for intervention and support
d. Major composite farming solutions devised/developed all over the world (i.e., to systematically categorize them into understandable quanta of workable knowledge)
e. Systemic deficiencies that major international markets in agricultural products and services are expected to face in next ten to twenty years of time (i.e., to facilitate understanding of where Bangladesh could fall in for bridging the gap/deficiency) and their impact on production and value addition (both in produce and services) in jute.

iii. Quantitative Marketing Research: To draw conclusions – testing sets of specific hypotheses and using random sampling techniques through questionnaire-surveys and also data analysis based on established trend data are considered. The following quantitative research options have been deployed:
   a. Testing the validity of exporting traditional Bangladesh agricultural commodities and services (jute specific) by running Regression Analysis against the composite of world trade patterns (region-wise)
   b. Testing the validity of the proposition that Bangladesh would be able to provide/complement the international markets, specific to jute, through:
      i) Areas (i.e., connecting spatial distribution of products and services from Bangladesh to specific region(s) of the world): there are specific areas of Bangladesh which could be connected to the international markets for providing
         (1) Products
         (2) Services
         (3) Wholesale solutions
      ii) Products (i.e., product/production specialization for providing complements to the international markets in agricultural sector): there are specific products in which Bangladesh holds competitive and/or comparative advantages for complementing international markets over the period 2010 – 2030 (i.e., identification of products)
      iii) Services (i.e., service specialization for providing complements to the international markets in agricultural sector): there are specific services which Bangladesh holds competitive and/or comparative advantages for complementing international markets over the period 2010 – 2030 (i.e., identification of service areas)
      iv) Setting up export-oriented composite farms with district-wise patterns inside Bangladesh for connecting to world markets in jute
      v) Taking up contract farming solutions, i.e., taking up contract farming options by Bangladesh entrepreneurs and business houses abroad for jute and jute derivatives.
      vi) Setting up wholesale farms abroad in regions where factors of production suit the needs of the entrepreneurs.

iv. Experimental Simulations: Creating a quasi-artificial environment identifying spurious factors, and then manipulating at least one of the variables. A 'Case Study' has been conducted especially for testing the probability of successful markets for wholesale farming solutions, which is already underway in one of the countries (in the African continent).

The following specifications are drawn with regards to the Research Model presented before:

i. Defining a prioritized Agricultural Business Policy Framework for Bangladesh with respect to (a) International Trading and (b) homegrown competitive/comparative advantages using Fuzzy TOPSIS (Technique for Order Preference by Similarity to Ideal Solution) with special reference to jute – with RCA (Revealed Comparative Advantage), which comprises of debriefing on
   a) Encapsulating the trends of agriculture and trade in agricultural products, services and solutions which were generated from Bangladesh during the whole of the recorded history of this region
   b) Encapsulating the reasons which determined the patterns and shifts/changes in these patterns
   c) Formulating a comprehensive scenario with regards to emerging trends in agricultural sector with regards to products (variations/varieties/innovations/discoveries), services, and solutions which determine the present and future of agriculture in Bangladesh under conditions of bilateral, multilateral, regional and global trading configurations
   d) Preparing a comprehensive background study on Jute sector in Bangladesh using RCA (Revealed Comparative Advantage)

ii. Analyzing markets, which could host (a) products, (b) services, and (c) farming solutions from Bangladesh in terms of: (a) revenue generating capabilities, (b) revenue sustainability, and (c) employment generation capabilities – in the backdrop of major multilateral and regional trade negotiations – using a muted form of General Gravity Model. While Jute forma the core analytical framework, the objective is attained by:
   a) Documenting both the spatial and temporal distribution of markets for international trade in agricultural products, services and (wholesale) solutions – with special emphasis on Jute
   b) Understanding temporal trends in international trade in agricultural products, services, and solutions – with special emphasis on Jute
   c) Understanding how major multilateral and regional trade negotiations have impacted trade in agricultural products, services and solutions – with special emphasis on Jute
   d) Understanding emerging trends in international trade in agricultural, especially Jute, products, services, and solutions specially with regards to
      i) Revenue generating capabilities
      ii) Revenue sustainability, and
      iii) Employment generation capabilities

iii. Using Factor Analysis, analyze how Bangladesh, and specifically, jute, would be able to provide/complement the markets identified (at) above through:
   a) Areas: i.e., connecting spatial distribution of products and services from Bangladesh to specific region(s) of the world
   b) Products: i.e., product/production specialization for providing complements to the international markets in agricultural sector
   c) Services: i.e., service specialization for providing complements to the international markets in agricultural sector, and
   d) Operations/solutions through:
      i) Composite farms
      ii) Contract farming, and
      iii) Setting up Wholesale farms abroad in regions where factors of production suit the needs of the entrepreneurs.

iv. Identifying the hindrances affecting the performance of Bangladesh agricultural sector with regards to international trade – with specific reference to Jute in production, value addition, trade and advanced economic programming – using Cobweb Programming

v. Using Quantitative SWOT – AHP (Analytic Hierarchy Process), Preparing a staged action plan for Agricultural products and services, with specific reference to jute, for
   a) Government
   b) Trade Bodies (i.e., Federations/Chambers/Associations)
   c) Established Business Houses, and
   d) Entrepreneurial/Green-Field institutions to take advantage of the situation identified above
   - Leading to the formation of a value-chain framework, specifically for the sector and generally (read, generic) for Bangladesh, which would securely lock the country into the world market for inputs and outputs

2.2 Complex and Simple Variables

Serial	Complex Variables (in order of significance)	Simple Variables
1.	Foreign trade oriented marketing	Variables include: i. Foreign Trade: Export of value added produce (both product and services) from Bangladesh to other countries ii. Marketing: The management process through which goods and services move from 'concept' to the 'consumer'. It includes the coordination of four elements, namely: a. Identification, selection and development of the produce (goods or services; or mix of both) b. Determination of the price of the produce c. Selection of a distribution channel to reach the customer's place, and d. Development and implementation of a promotional strategy. Essentially to derive the demand function for the produce. The research is grouped around a specific product, i.e., jute, to derive the production and marketing functions as a model generator.
2.	Value Chain Framework (VCF)	Interlinked value-adding activities that convert inputs into outputs, which, in turn, add to the market worth of the produce and help create competitive advantage. A value chain typically consists of: (i) Inbound distribution or logistics, (ii) Manufacturing operations (iii) Outbound distribution or logistics (iv) Marketing and selling, and (v) After-sales service. These activities are supported by: (vi) Purchasing or procurement (vii) Research and development

Serial	Complex Variables (in order of significance)	Simple Variables
		(viii) Human resource development, and (ix) Corporate infrastructure. The construct defines the entire conception-production-processing-manufacturing-marketing-distribution-feedback channels (read, intersecting and overlapping multidimensional networks)
3.	Operations-based Approach (OBA)	The Construct refers to the administration of business practices to create the highest level of efficiency possible within each stage of value addition of the business process under scanner for this research. The OBA is concentric to everything related to Jute to ascertain the exact factor combinations and to ascertain the production and marketing functions (read, equations) for the specific produce (in terms of product, service and factor combinations) to utilize the references for other produces of agricultural origin. The Operations-based Approach is concerned with – (a) All available factors of production (b) All available processes involved (c) All available trading platforms, and (d) At different temporal/interval-specific projections, which could be deployed to produce goods and services at highest possible efficiency to maximize the unit return on investment. The Operations-based Approach aims at the entire range of designing the method of conversion of inputs (materials, labor, proprietary information, etc.) into outputs (goods, services, value-added products, etc.) that is most beneficial to the value-chain (i.e., of jute) concerned. The construct used for the purpose of this research aims to balance costs and expenditure with revenue to achieve the highest net operating profit possible – leading to wealth maximization.
4.	Generic Model	A business model, which builds on Jute-centric Value-Chain Framework which could then be replicated across different agricultural produces (goods and services) based value-lines.
5.	Conditions of Multilateral and Regional Trade Negotiations	**Super-Construct**: For the purpose of this research, the conditions of the multilateral and regional negotiations in the trading platform include the following sub-components: i. Production and Pricing Decisions: What agricultural commodities to produce and in what prices targeting export markets ii. De-subsidized Trade Patterns: Multiple-scenario analysis for trade under different conditions of agricultural subsidies

Serial	Complex Variables (in order of significance)	Simple Variables
		provided by the developed countries. The scenario is simulated under different conditions of gradual reduction in agricultural subsidies; especially under varied conditions of: (a) Subsidies (b) Tariffs, (c) Production inputs and (d) Market access parameters. iii. Domestic Industrial Output: Input composition and pricing of elements for the domestic industrial composition.
6.	(Widening Opportunities in International Markets)	**Super-Construct**: For the purpose of this research, the widening opportunities in international markets include: (i) Different market-opening and market facilitation opportunities (ii) Changes in production-location facilities (iii) Creating new markets for existing products (iv) Creating new product lines and variations (v) Creating new markets for new product-lines and variations (vi) Creating service add-ons to existing product lines (vii) Creating service add-ons to new product lines (viii) Optimizing factor-input and product distribution infrastructures, (ix) Creating new and efficient factor-input and product distribution - infrastructures – including but not limited to: - (a) Connecting regional and global growth centers - (b) Connecting regional and global production functions - (c) Connecting regional and global marketing networks - (d) Connecting regional and global modes of transport (essentially multimodal) - (e) Streamlining economic and especially financial (including working capital and capex) stimulus and incentive patterns

2.3 Schema

2.3.1 Optimised Objectives

To validate the 'problem statement' and test 'assumptions', a certain measure of qualitative survey has been carried out. The primary interviews conducted with experts in the field of operations management, agricultural trade, and negotiations at WTO and other multilateral bodies indicate the following modifications on the problem proposition and also in the hypotheses pattern:

Indices	Primary Set of Objectives	Optimised Set of Objectives
Problem Statement	There is a *need* for (a) the Government, (b) the Business Houses – both established and upcoming, and (c) the Trade Bodies	There is a *need* for (a) the Government, (b) the Business Houses – both established and upcoming, and (c) the

Indices	Primary Set of Objectives	Optimised Set of Objectives
	(i.e., Federations/Chambers/Associations) of Bangladesh to immediately institute an operations-based approach leading towards a Value Chain Framework in Foreign Trade Oriented Marketing of Bangladesh Agricultural Commodities and Services under Conditions of Multilateral and Regional Trade Negotiations to - (a) widen existing trade patterns, i.e., products, services, and compositions, and (b) explore new markets.	Trade Bodies (i.e., Federations/Chambers/Associations) of Bangladesh to immediately institute an operations-based approach leading towards a Value Chain Framework in Foreign Trade Oriented Marketing of Bangladesh Agricultural Commodities and Services, with production and marketing functions of a certain produce, i.e., jute, being taken for formulating a generic model under Conditions of Multilateral and Regional Trade Negotiations to - (a) widen existing trade patterns, i.e., products, services, and compositions, and (b) explore new markets. Since – (a) it is obvious that jute is one such produce which combines and spans through all sectors of the economy, including labor, land, capital (both short term working capital and long term investment grade), manufacturing (and value addition) and marketing, and since – (b) jute sector in Bangladesh has been subject to policy interventions which have been rather erratic in nature, taking jute as the core product to formulate the integrated business model could be a good approximation for instituting an operations approach in the field.
Broad Objectives		
Broad Objective #1	Defining an aggregate Agricultural Business Policy Framework for Bangladesh with respect to (a) International Trading and (b) homegrown competitive/comparative advantages	Defining a prioritized Agricultural Business Policy Framework for Bangladesh with respect to: a) International Trading and b) Homegrown competitive/comparative advantages using Fuzzy TOPSIS (Technique for Order Preference by Similarity to Ideal Solution) with specific reference to Jute - with RCA (Revealed Comparative Advantage).
Broad Objective #2	Analyze markets which could host (a) products, (b) services, and (c) farming solutions from Bangladesh in terms of (a) revenue generating capabilities, (b) revenue sustainability, and (c) employment generation capabilities – in the backdrop of major multilateral and regional trade negotiations (i.e., how multilateral and regional trade	Analyzing markets which could host: a) Products b) Services, and c) Farming solutions from Bangladesh in terms of: (1) Revenue generating capabilities (2) Revenue sustainability, and (3) Employment generation capabilities –

Indices	Primary Set of Objectives	Optimised Set of Objectives
	negotiations have impacted trade in agricultural sector).	- in the backdrop of major multilateral and regional trade negotiations (i.e., how multilateral and regional trade negotiations have impacted trade in agricultural sector) – using a muted form of General Gravity Model.
Broad Objective #3	Analyze (a) areas, (b) products, (c) services, and (d) operations/solutions which Bangladesh would be able to provide / complement to the markets identified (at) above (i.e., Broad Objective ii)	Analyzing: a) Areas b) Products c) Services, and d) Operations/solutions which Bangladesh would be able to provide / complement the markets identified above using both Conjoint and Factor Analysis respectively for pricing and options.
Broad Objective #4	Preparing an action plan which could be followed by (i) Government, (ii) Trade Bodies (i.e., Federations/Chambers/Associations), (iii) Established Business Houses, and (iv) Entrepreneurial/Green-Field institutions to take advantage of the situation identified above in terms of providing a Value Chain Framework for international trade in agricultural products, services and aggregate solutions.	Preparing an action plan which could be followed by: a) Government b) Trade Bodies (i.e., Federations/Chambers/Associations) c) Established Business Houses, and d) Entrepreneurial/Green-Field institutions to take advantage of the situation identified above in terms of providing a Value Chain Framework for international trade in agricultural products, services and aggregate solutions – using Cobweb Programming and Quantitative SWOT – AHP (Analytic Hierarchy Process).

2.3.2 Optimised Hypotheses

Indices	Primary Set of Hypotheses	Optimised Set of Hypotheses
Hypotheses Set #1	For defining an aggregate Agricultural Business Policy Framework for Bangladesh with respect to (a) International Trading and (b) homegrown competitive/comparative advantages: a) Bangladesh was an 'active' participant in international trade in agriculture during the whole of the recorded history of this region through: i) Products ii) Services, and iii) Wholesale solutions b) The following reasons positively impacted the patterns for international reach/activities of Bangladesh	For defining a prioritized Agricultural Business Policy Framework for Bangladesh with respect to (a) International Trading and (b) homegrown competitive/comparative advantages using Fuzzy TOPSIS (Technique for Order Preference by Similarity to Ideal Solution) with special reference to jute – with RCA (Revealed Comparative Advantage): a) Bangladesh was an 'active' participant in international trade in agriculture, and especially jute, during the whole of the recorded history of this region through: i) Production inputs

	agricultural sector: i) Favorable natural endowments ii) Entrepreneurial capabilities of the population iii) Social structure/composition of the population iv) Administrative strength of the political / bureaucratic institutions v) Colonial administration of Mughal – British – Pakistan regimes c) The following reasons determined the shifts and changes in the international trade patterns for Bangladesh agricultural sector: i) Changes in the composition of natural endowments ii) Impact of natural calamities iii) Impact of man-made disasters/wars iv) Impact of the division of Indian sub-continent v) Independence of Bangladesh vi) Impact of global, multilateral and regional trade negotiations vii) Impact of inefficiency/inadequacy in policy formulation by Government and Trade Bodies (for inputs) led to the gradual degeneration of international trade in agriculture for Bangladesh d) For formulating a comprehensive scenario with regards to emerging trends in trade in agricultural sector, Bangladesh holds comparative advantage in i) Product variations ii) Product varieties iii) Product innovations/discoveries iv) Agricultural services v) Wholesale operations/solutions through: (1) Composite farms (2) Contract farming, and (3) Setting up Wholesale farms abroad in regions where factors of production suit the needs of the entrepreneurs.	ii) Products iii) Services iv) Value added derivatives v) Wholesale farming solutions b) The following reasons positively impacted the patterns for international reach/activities of Bangladesh agricultural sector, specially jute: i) Favorable natural endowments ii) Favorable climatic conditions iii) Favorable position in the learning curve for production and value addition in jute iv) Entrepreneurial capabilities of the population v) Social structure/composition of the population vi) Administrative strength of the political / bureaucratic institutions vii) Colonial regimes – starting with the Mughal invasion and leading through British Raj and Pakistan occupation viii) Structured administrative architecture – leading to steady markets for both inputs and outputs c) The following reasons determine the shifts and changes in the international trade patterns for Bangladesh agricultural sector, especially jute: i) Adverse changes in the composition of natural endowments ii) Impact of natural calamities iii) Impact of man-made disasters/wars iv) Rise of more favorable factor markets (i.e., input sources) v) Rise of alternative produce and substitutes vi) Adverse changes in learning curve management vii) Impact of the division of Indian sub-continent, especially, fragmentation of the natural value chains of the sub-continent viii) Independence of Bangladesh and consequent divestiture by established jute merchants ix) Impact of global, multilateral and regional trade negotiations x) Impact of inefficiency/inadequacy

		in policy formulation by Government (especially with nationalization of the jute sector) xi) Impact of inefficient decision making by trade bodies (for inputs) led to the gradual degeneration of international trade in agriculture for Bangladesh, especially with regards to jute and jute derivatives xii) Adverse impact of policy interventions by International Bodies, such as World Bank and IMF xiii) Adverse impact rising out of political instability in the country xiv) Adverse impact of politicization of the input and output markets xv) Lack of technological innovation and adaptation in the jute sector xvi) Lack of marketing initiatives and branding for jute and jute derivatives xvii) Lack of working capital supply in the sector xviii) Lack of investment grade surplus for the sector d) For formulating a comprehensive scenario with regards to emerging trends in trade in agricultural sector, Bangladesh holds Revealed Comparative Advantage (RCA), in jute, in i) Factor inputs ii) Learning Curve Position iii) Mid-to-long term production sustainability iv) Mid-to-long term absence of productive competitors v) Product variations vi) Product varieties vii) Product innovations/discoveries viii) Agricultural services ix) Wholesale operations/solutions through: (1) Composite farms (2) Contract farming, and (3) Setting up Wholesale farms abroad in regions where factors of production suit the needs of the entrepreneurs.
Hypotheses Set #2	For analyzing markets which could host (a) products, (b) services, and (c) farming solutions from Bangladesh in terms of (a)	For analyzing markets, which could host (a) products, (b) services, and (c) farming solutions from Bangladesh in terms of: (a)

	revenue generating capabilities, (b) revenue sustainability, and (c) employment generation capabilities – in the backdrop of major multilateral and regional trade negotiations, through a) Major multilateral trade negotiations have impacted international trade in agricultural products, services and solutions b) Major regional trade negotiations have impacted international trade in agricultural products, services and solutions c) Migration (or lack thereof) has impacted international trade in agriculture d) There exists in international trade in agricultural products, services, and solutions, 'venture-worthy-markets' with regards to i) Revenue generating capabilities ii) Revenue sustainability, and iii) Employment generation capabilities	revenue generating capabilities, (b) revenue sustainability, and (c) employment generation capabilities – in the backdrop of major multilateral and regional trade negotiations – using a muted form of General Gravity Model. While Jute forms the core analytical framework, hypotheses spectrum is codified through a) Multilateral trade negotiations have impacted international trade in agricultural products, services and solutions, especially, in the jute sector b) Regional trade negotiations and treaties have impacted international trade in agricultural products, services and solutions, especially, in the jute sector c) Bilateral trade negotiations have impacted international trade in agricultural products, services and solutions, especially, in the jute sector d) Migration (or lack thereof) has impacted international trade in agriculture, especially in the jute sector e) There exists in international trade in agricultural products, services, and solutions, 'venture-worthy-markets' with regards to i) Revenue generating capabilities ii) Revenue sustainability, and iii) Employment generation capabilities
Hypotheses Set #3	For analyzing how Bangladesh would be able to provide / complement to the international markets through: a) Areas (i.e., connecting spatial distribution of products and services from Bangladesh to specific region(s) of the world): there are specific areas of Bangladesh which could be connected to the international markets for providing i) Products ii) Services iii) Wholesale solutions b) Products (i.e., product/production specialization for providing complements to the international markets in agricultural sector): there are specific products in	(Using Conjoint Analysis and Factor Analysis) For analyzing how Bangladesh, and specifically, jute, would be able to provide/complement the markets identified (at) above with: a) Areas (i.e., connecting spatial distribution of products and services from Bangladesh to specific region(s) of the world): there are specific areas of Bangladesh, especially with regards to jute and in relation to the ancient value-chains existing between and amongst regions of the world, which could be connected to the international factor input and exchange markets for providing i) Products ii) Services

	which Bangladesh holds competitive and/or comparative advantages for complementing international markets over the period 2010 – 2030 (i.e., identification of products) c) Services (i.e., service specialization for providing complements to the international markets in agricultural sector): there are specific services which Bangladesh holds competitive and/or comparative advantages for complementing international markets over the period 2010 – 2030 (i.e., identification of service areas), and d) Bangladesh can complement the international markets by providing operations/solutions through: i) Composite farms ii) Contract farming, and iii) Setting up wholesale farms abroad in regions where factors of production suit the needs of the entrepreneurs.	iii) Wholesale solutions b) Products (i.e., product/production specialization for providing complements to the international markets in agricultural sector): there are specific value added products in which Bangladesh Jute holds competitive and/or comparative advantages for complementing international markets over the period 2010 – 2030 (i.e., identification of products) c) Services (i.e., service specialization for providing complements to the international markets in agricultural sector): there are specific services which Bangladesh holds competitive and/or comparative advantages for complementing international markets over the period 2010 – 2030 (i.e., identification of service areas), and d) Bangladesh can complement the international markets by providing comprehensive operations/solutions in jute farming and jute derivatives through: i) Composite farms ii) Contract farming, and iii) Setting up wholesale farms abroad in regions where factors of production suit the needs of the entrepreneurs.
Hypotheses Set #4	For identifying the hindrances affecting the performance of Bangladesh agricultural sector with regards to international trade, it is implied that the following impact in a direct way: a) Technological inferiority b) Management inefficiency c) Absence of advanced marketing focus/control d) Input unavailability e) Adverse changes in the environment/ecological factors, through: i) Internal displacement/relocation of people/business ii) External movement of people/business iii) Changes in the factor endowments for agriculture	For identifying the hindrances affecting the performance of Bangladesh agricultural sector with regards to international trade, it is implied that the following impact in a direct way: a) Technological inferiority b) Management inefficiency c) Absence of advanced marketing focus/control d) Input unavailability e) Adverse changes in the environment/ecological factors, through: i) Internal displacement/relocation of people/business ii) External movement of people/business iii) Changes in the factor endowments for agriculture

	f) Trans-boundary (i.e., across national borders) movement of factors of production and especially natural persons g) (Trans)-Migration of personnel and service providers h) Priority areas for intervention and support include: i) Increasing agricultural productivity, diversification, and value addition ii) Improving factor markets, access to assets and natural resource management (including, but not limited to: (1) Agricultural land (2) Agricultural inputs (3) Rural finance (4) Water resources management, and (5) Natural resource management (6) Strengthening Rural Institutions and Livelihood Support	f) Trans-boundary (i.e., across national borders) movement of factors of production and especially natural persons g) (Trans)-Migration of personnel and service providers h) Priority areas for intervention and support include: i) Increasing agricultural productivity, diversification, and value addition ii) Improving factor markets, access to assets and natural resource management (including, but not limited to: (1) Agricultural land (2) Agricultural inputs (3) Rural finance (4) Water resources management, and (5) Natural resource management (6) Strengthening Rural Institutions and Livelihood Support (7) Re-establishing connections to pre-existing (and now cut-off/disjointed) production and distribution points and channels (emphasis added)
Hypotheses Set #5	An action plan is needed for preparing a 'Value-Chain Framework' for international trade in agricultural sector for: a) The Government b) The Trade Bodies (i.e., Federations/Chambers/Associations) c) The Established Business Houses, and d) The Entrepreneurial/Green-Field institutions to take advantage of the situation identified above	An action plan is needed for preparing a 'Value-Chain Framework' for international trade in agricultural sector, especially in jute, for: a) The Government b) The Trade Bodies (i.e., Federations/Chambers/Associations) c) The Established Business Houses, and d) The Entrepreneurial/Green-Field institutions to take advantage of the situation identified above

2.4 Modeling Technique, Data and Sampling

2.4.1 Broad Objective # 1

Defining a prioritized Agricultural Business Policy Framework for Bangladesh with respect to:

e) International Trading and

f) Homegrown competitive/comparative advantages using Fuzzy TOPSIS (Technique for Order Preference by Similarity to Ideal Solution) with specific reference to Jute - with RCA (Revealed Comparative Advantage).

2.4.1.1 Specific Objective Set # 1

Defining a prioritized Agricultural Business Policy Framework for Bangladesh with respect to (a) International Trading and (b) homegrown competitive/comparative advantages using Fuzzy TOPSIS (Technique for Order Preference by Similarity to Ideal Solution) with special reference to jute – with RCA (Revealed Comparative Advantage), which comprises of debriefing on:

i) Encapsulating the trends of agriculture and trade in agricultural products, services and solutions which were generated from Bangladesh during the whole of the recorded history of this region
ii) Encapsulating the reasons which determined the patterns and shifts/changes in these patterns
iii) Drawing a comprehensive scenario with regards to emerging trends in agricultural sector with regards to products (variations/varieties/innovations/discoveries), services, and solutions which determine the present and future of agriculture in Bangladesh under conditions of bilateral, multilateral, regional and global trading configurations
iv) Preparing a comprehensive background study on Jute sector in Bangladesh using RCA (Revealed Comparative Advantage)

2.4.1.2 Hypotheses Set # 1

For defining a prioritized Agricultural Business Policy Framework for Bangladesh with respect to (a) International Trading and (b) homegrown competitive/comparative advantages using Fuzzy TOPSIS (Technique for Order Preference by Similarity to Ideal Solution) with special reference to jute – with RCA (Revealed Comparative Advantage), a four-component hypotheses set has been devised. The four components, when taken together, determine the attainment of the Broad Objective # 1.

i. Bangladesh was an 'active' participant in international trade in agriculture, and especially jute, during the whole of the recorded history of this region through:
   a) Production inputs
   b) Products
   c) Services
   d) Value added derivatives
   e) Wholesale farming solutions

ii. The following reasons positively impacted the patterns for international reach/activities of Bangladesh agricultural sector, specially jute:
   a) Favorable natural endowments
   b) Favorable climatic conditions
   c) Favorable position in the learning curve for production and value addition in jute
   d) Entrepreneurial capabilities of the population
   e) Social structure/composition of the population
   f) Administrative strength of the political / bureaucratic institutions
   g) Colonial regimes – starting with the Mughal invasion and leading through British Raj and Pakistan occupation
   h) Structured administrative architecture – leading to steady markets for both inputs and outputs

iii. The following reasons determine the shifts and changes in the international trade patterns for Bangladesh agricultural sector, especially jute:
   a) Adverse changes in the composition of natural endowments
   b) Impact of natural calamities
   c) Impact of man-made disasters/wars
   d) Rise of more favorable factor markets (i.e., input sources)
   e) Rise of alternative produce and substitutes
   f) Adverse changes in learning curve management
   g) Impact of the division of Indian sub-continent, especially, fragmentation of the natural value chains of the sub-continent
   h) Independence of Bangladesh and consequent divestiture by established jute merchants
   i) Impact of global, multilateral and regional trade negotiations
   j) Impact of inefficiency/inadequacy in policy formulation by Government (especially with nationalization of the jute sector)
   k) Impact of inefficient decision making by trade bodies (for inputs) led to the gradual degeneration of international trade in agriculture for Bangladesh, especially with regards to jute and jute derivatives
   l) Adverse impact of policy interventions by International Bodies, such as World Bank and IMF
   m) Adverse impact rising out of political instability in the country
   n) Adverse impact of politicization of the input and output markets
   o) Lack of technological innovation and adaptation in the jute sector
   p) Lack of marketing initiatives and branding for jute and jute derivatives
   q) Lack of working capital supply in the sector
   r) Lack of investment grade surplus for the sector

E:	Exports
i:	Country index
n:	Set of countries
j:	Commodity index
t:	Set of commodities

iv. For formulating a comprehensive scenario with regards to emerging trends in trade in agricultural sector, Bangladesh holds Revealed Comparative Advantage (RCA), in jute, in
   a) Factor inputs
   b) Learning Curve Position
   c) Mid-to-long term production sustainability
   d) Mid-to-long term absence of productive competitors
   e) Product variations
   f) Product varieties
   g) Product innovations/discoveries
   h) Agricultural services
   i) Wholesale operations/solutions through:
      i) Composite farms
      ii) Contract farming, and
      iii) Setting up Wholesale farms abroad in regions where factors of production suit the needs of the entrepreneurs.

2.4.1.3 Research Model (RCA and F-TOPSIS)

2.4.1.3.1 Description of the Model (RCA and F-TOPSIS)

Revealed Comparative Advantage (RCA) Data Tables are based on the index introduced by Béla Balassa (1965)[4]:

[4] Balassa, B. (1965), *Trade Liberalisation and Revealed Comparative Advantage*, The Manchester School, 33, 99-123

Equation 1: RCA Calculation

$RCA = (E_{ij} / E_{it}) / (E_{nj} / E_{nt})$,

where:

That is, the RCA is equal to the proportion of the specific export that are of the class under consideration (E_{ij} / E_{it}) divided by the proportion of world exports that are of that class (E_{nj} / E_{nt}).

Comparative advantage is the term used to describe the tendency for countries to export those commodities, which they are relatively adept at producing, vis-à-vis the rest of the world. In other words, if a country can produce a good at a lower relative cost than other countries, then with trade, that country should devote more of its scarce resources to the production of that particular good. Through trade, that country can obtain other goods at a lower price (opportunity cost), in exchange for the good in which it has a comparative advantage. A comparative advantage is "revealed" if RCA>1. If RCA is less than unity, the country is said to have a comparative disadvantage in the commodity or industry[5].

[5] Definitional parameters drawn from the article, titled, 'Revealed comparative advantage and competitiveness: a case study for India in horticultural products', by Ruma Bhattacharyya, contained in International Conference On Applied Economics – ICOAE 2011 (http://kastoria.teikoz.gr/icoae2/wordpress/wp-content/uploads/2011/10/003.pdf: accessed 1222 hrs: 14 June 2014).

The literature on Comparative advantage in general takes two discourses. If the goal is to test between competing static theories of international trade, then the preferred approach has been to use net factor flows or industry shares of GDP. If instead, the objective is to explain the effects of commercial policy, transport costs or other shocks on the competitive situation of a set of countries, the usual method has been the gravity model. A popular but recently contested approach to estimating the effect of technology and factor supplies on comparative advantage uses Balassa's (1965, 1979) measure of Revealed Comparative Advantage RCA. This measure reflects comparative advantage accurately for a given industry and period across countries. Much empirical research on trade has been devoted to testing theories of comparative advantage. A widely used approach is the technique pioneered by Leontief over a half century ago and extended more recently by Trefler (1993, 1995). Using input-output tables, Trefler calculated the net trade in the services of each production factor for a group of trading economies. Comparing these flows with factor abundance by country and allowing for differences in tastes and productivity, he was able to find empirical support for both the technological and factor endowments theories of comparative advantage. Unfortunately, this approach has little to say about international exchange of commodities as opposed to factors. In addition, since it does not take account of trade costs such as tariffs, non-tariff barriers and transport costs, it tends to overestimate the amount of trade. Harrigan (1997) proposed an alternative measure of comparative advantage, namely, the share of each industry in a country's GDP. Although his specification does not deal explicitly with intermediate inputs, it has the advantage of allowing productivity differentials to vary across industries. He too found that comparative advantage depends on both factor abundance and differences in productivity. However, as he himself admitted, his estimates had low predictive power. Harrigan and Zakrajsek (2000) obtained similar results using a larger and more varied sample of countries but without directly estimating technology differences. One problem with this approach is the assumption that trade costs have no effect on production patters. Two recent studies by Anderson and van Wincoop (2004) and Hanson (2004) have concluded that such costs can have a major impact on the goods a country produces. If the objective is to explain observed flows of commodities, the most frequently used approach has been the gravity equation. Here the dependent variable is the bilateral trade between two countries, either aggregated or by commodity. Evenett and Keller (2002) used a version of this technique in which trade flows are disaggregated by sector to test alternative trade theories. Although the gravity model provides a good explanation of bilateral trade flows, it is not easy to infer its implications for the determinants of a country's relative trading position. Balassa's (1965) index of Revealed Comparative Advantage seemed to provide a cure for these shortcomings, since the normalization should allow for comparisons over time and across industries.

The Balassa index is defined as the ratio of a country's share in world exports of a given industry divided by its share of overall world trade. It owes its popularity to several advantages it has compared with the others. As with the gravity model, the data are readily available. However, unlike the gravity model, the normalized dependent variable may be interpreted directly as a measure of a country's relative trading position. The Balassa index basically measures normalized export shares, with respect to the exports of the same industry in a group of reference countries. Although pros and cons of the Balassa index are still debated in the literature, it stands as the most widely used revealed comparative advantage index. In the literature numerous empirical studies have used the Balassa index to identify a country's strong sectors. The

The following data-table structure is replicated across the ten predefined product categories:

i. Tobacco
ii. Jute
iii. Tea
iv. Maize
v. Tomato
vi. Okra
vii. Aromatic Rice
viii. Mushroom
ix. Potato
x. Sweet Potato

Table 1: Product-wise RCA Calculation

1	2	3	4	5	6	7	8	9	10	11	12
Year	Export of the i-th	Total Country Export	E_{ij}/E_{it}	Total World Export	Total World Export	E_{nj}/E_{nt}	WORLD RCA of the i-th	Total South Asian	Total South Asian	E_{nj}^{SA}/E_{nt}^{SA}	SOUTH ASIAN RCA of

index is not satisfactory as a cardinal or ordinal measure but provides a useful tool in detecting comparative advantages of India in particular sectors.

Another index used to measure comparative advantage is the Comparative Export Performance (CEP) index. It is a slightly modified version of the Balassa index. It measures the export specialization of a country for particular product groups using the formula

$CEP = \ln (X_{iB} / X_B) / (X_{iA} / X_A)$,

Where,
X_{iB} : country B's exports of good i

X_B : country B's total merchandise exports

X_{iA} : total world exports of good i

X_A : total world merchandise exports

An index value of one country higher than the index value of any other country indicates relative comparative advantage of that country (i.e., the first country) against the other country.

Sources:

Balassa, B. (1965), —Trade Liberalisation an_Revealed' Comparative Advantage‖, The Manchester School,33, 99 -123.

Balassa, B. (1977), —'Revealed' Comparative Advantage Revisited‖, The Manchester School, 45, 3: -44.

Balassa, B. (1989), Comparative Advantage, Trade Policy and Economic Development, Harvester Wheatsheaf,New York

Harrigan, James, (1997). "Technology, Factor Supplies, and International Specialization: Estimating the Neoclassical Model,"

American Economic Review, American Economic Association, vol. 87(4), pages 475-94, September

Harrigan, James & Zakrajsek, Egon , (2000). "Factor supplies and specialization in the world economy," Finance and Economics

Discussion Series 2000-43, Board of Governors of the Federal Reserve System (U.S.)

	Item E_{ij}	of the i-th Item E_{it}		of the i-th Item E_{nj}	of the i-th Item E_{nt}		Item $\frac{E_{ij}/E_{it}}{E_{nj}/E_{nt}}$	Export of the i-th Item E_{nj}^{SA}	Export of the i-th Item E_{nt}^{SA}		the i-th Item $\frac{E_{ij}/E_{it}}{E_{nj}^{SA}/E_{nt}^{SA}}$

The resultant columns, i.e., column # 8 and # 12 is compared across product categories to come up with a comprehensive scenario analysis for data sets reaching to as early as possible (preferably one hundred years – if not, fifty years).

Having established the baseline parameters, the production function is analyzed using time series data of production inputs pitted against the output of both agricultural and semi-industrial produce across decadal slots.

The important point to note here is that Jute Value Chain Framework is NOT confined within the agricultural premise. Rather, it transcends the segmentation barriers and encompasses all sectors of the economy, i.e., primary (through the entire line of agricultural production), secondary (through the extensive range of processing and industrial output) and a whole set of tertiary (through credit, investment and transportation framework).

The first set of hypotheses under this area is:

i. <u>Bangladesh was an 'active' participant in international trade in agriculture, and especially jute, during the whole of the recorded history of this region through:</u>
   - **a) <u>Production inputs:</u>**
     - **i) <u>Land</u>**
     - **ii) <u>Labor</u>**
     - **iii) <u>Capital</u>**
   - **b) <u>Products</u>**
   - **c) <u>Services</u>**
   - **d) <u>Value added derivatives</u>**
   - **e) <u>Wholesale farming solutions</u>**

All data is **<u>normalized</u>** to represent fractions so that multivariate regression could be run to ascertain the coefficients which determine the trend in the aggregate profitability and return in the jute sector. Total Factor Productivity and Partial Factor Productivity in terms of unit investment would be analyzed with a Multivariate Regression Analysis.
The data parameters would be as follows:

- i) Land
  - (a) Land Availability
  - (b) Land Accretion
  - (c) Land Conversion
  - (d) Land Utilization
  - (e) Land Administration
- ii) Inputs
  - (a) Seed
  - (b) Fertilizer
  - (c) Irrigation
  - (d) Pest Control
- iii) Labour

(a) Cropping Pattern
(b) Farming Intensity
(c) Alternative usages of land
(d) Alternative employment options
(e) Position in the learning curve of agricultural production

iv) Capital
(a) Growth of the National Economy
(b) Credit Availability
(c) Working Capital Flow
(d) Public Investment in Agriculture (related to jute)
(e) Public Investment in Industry (related to jute)
(f) Private Investment in Agriculture (related to jute)
(g) Private Investment in Industry (related to jute)

v) Agricultural Value Addition
(a) Policy support from the State in agricultural production
(b) Agricultural Mechanization
(c) Research and Development
(d) Agricultural Extension
(e) Education and Learning
(f) Infusion of advanced technology in agriculture

vi) Industrial Value Addition
(a) Policy support from the State in industrial production
(b) Labor Employment
(c) Management Overhead
(d) Fixed Overhead
(e) Quality Control
(f) Research and Development in Production
(g) Product Variety
(h) Infusion of advanced technology in processing and manufacturing
(i) Position in the learning curve of industrial production

vii) Connectivity and Transportation
(a) Access to transport architecture
(b) Investment in transport architecture
(c) Connectivity to factor markets
(d) Connectivity to growth centers
(e) Efficiency in Utilizing distribution networks
(f) Connectivity to world markets

viii) Markets
(a) Development of substitutes
(b) Economy of substitutes
(c) Versatility of substitutes affecting consumer choice
(d) Development of complements
(e) Destination composition
(f) Development of new markets
(g) Economic health of the destination markets
(h) Established foreign distribution networks
(i) Loyalty of Foreign Distribution networks

ix) Climatic Conditions
(a) Adverse changes in climatic conditions
(b) Rainfall and availability of water
(c) Average temperature

x) Exogenous factors
   (a) Entrepreneurial Capability
   (b) Social stability
   (c) Social unrest
   (d) Bilateral agreements with foreign countries – affecting domestic production conditions
   (e) Regional agreements with foreign countries – affecting domestic production conditions
   (f) Global agricultural and commercial arrangements – affecting domestic production conditions
   (g) Bilateral agreements with foreign countries – affecting trade
   (h) Regional agreements with foreign countries – affecting trade
   (i) Global agricultural and commercial arrangements – affecting trade
   (j) Role of International Organizations (i.e., World Bank, IMF, ADB, et al)

xi) Advanced Derivatives
   (a) Product diversification
   (b) New usages for existing products
   (c) Branding
   (d) Composite farms
   (e) Contract farming
   (f) Wholesale farms abroad in regions where factors of production suit the needs of the entrepreneurs.
   (g) Portfolio investment
   (h) Securitizing agricultural and industrial sector through the stock market
   (i) Total Value Chain (TVC) Ownership

The second to fourth set of hypotheses would be tested using word association and Likert scale for ascertaining scores – which is normalized for deriving the F-TOPSIS in Jute Sector (aggregate).
Decision making problem is the process of finding the best option from all of the feasible alternatives. From among multicriteria models in making complex decisions and multiple attribute models for the most preferable choice, technique for order preference by similarity to ideal solution (TOPSIS) approach has been dealt with. In real-word situation, because of incomplete or non-obtainable information, the data (attributes) are often not so deterministic, there for they usually are fuzzy/imprecise. The idea is to categorize the perception prevailing in the field regarding the Jute sector in regards to the factors identified above. Once the scale results are identified and evaluated, a comprehensive scenario analysis based on F-TOPSIS is carried out[6]. Multi-criteria decision making has been one of the fastest growing areas during the last decades depending on the changings in the business sector. Decision maker(s) need a decision aid to decide between the alternatives and mainly excel less preferrable alternatives fast. With the help of computers the decision making methods have found great acceptance in all areas of the decision making processes. Since multicriteria decision making (MCDM) has found acceptance in areas of operation research and management science, the discipline has created several methodologies. Especially in the last years, where computer usage has increased significantly, the application of MCDM methods has considerably become easier for the users the decision makers as the application of most of the methods are corresponded with complex mathematics.

In discrete alternative multicriteria decision problems, the primary concern for the decision aid is the following:

[6] "Extension of the TOPSIS method for decision-making problems with fuzzy data", by G.R. Jahanshahloo, F. Hosseinzadeh Lotfi, M. Izadikhah, Applied Mathematics and Computation 181 (2006) 1544–1551; www.elsevier.com/locate/amc

(1) Choosing the most preferred alternative to the decision maker (DM),
(2) Ranking alternatives in order of importance for selection problems, or
(3) Screening alternatives for the final decision.

The general concepts of domination structures and non-dominated solutions play an important role in describing the decision problems and the decision maker's revealed preferences described above. So far, various approaches have been developed as the decision aid (see, for example [9]). That is, for many such problems, the decision maker wants to solve a multiple criteria decision making (MCDM) problem. In MCDM problems, there does not necessarily exist the solution that optimizes all objectives functions, and then the concept, which is called Pareto optimal solution (or efficient solution) is introduced. Usually, there exist a number of Pareto optimal solutions, which are considered as candidates of final decision making solution. It is an issue how decision makers decide one from the set of Pareto optimal solutions as the final solution. A MCDM problem can be concisely expressed in matrix format as:

	C_1	C_2	...	C_n
A_1	x_{11}	x_{12}	...	x_{1n}
A_2	x_{21}	x_{22}	...	x_{2n}
A_m	x_{m1}	x_{m2}	...	x_{mn}

$$W = [w_1, w_2, \ldots, w_n],$$

where A_1 ,A_2 , . . . ,A_m are possible alternatives among which decision makers have to choose, C_1 ,C_2 , . . . ,C_n are criteria with which alternative performance are measured, xij is the rating of alternative Ai with respect to criterion C_j , w_j is the weight of criterion C_j.

The main steps of multiple criteria decision making are the following:

(a) Establishing system evaluation criteria that relate system capabilities to goals;
(b) Developing alternative systems for attaining the goals (generating alternatives);
(c) Evaluating alternatives in terms of criteria (the values of the criterion functions);
(d) Applying a normative multicriteria analysis method;
(e) Accepting one alternative as ''optimal'' (preferred);
(f) If the final solution is not accepted, gather new information and go into the next iteration of multicriteria optimization[7].

[7] Steps (a) and (e) are performed at the upper level, where decision makers have the central role, and the other steps are mostly engineering tasks. For step (d), a decision maker should express his/her preferences in terms of the relative importance of criteria, and one approach is to introduce criteria weights. This weights in MCDM do not have a clear economic significance, but their use provides the opportunity to model the actual aspects of decision making (the preference structure). Technique for order performance by similarity to ideal solution (TOPSIS), one of known classical MCDM method, was first developed by Hwang and Yoon for solving a MCDM problem. TOPSIS, known as one of the most classical MCDM methods, is based on the idea, that the chosen alternative should have the shortest distance from the positive ideal solution and on the other side the farthest distance of the negative ideal solution. The TOPSIS-method is applied to a case study, which is described in detail. In classical MCDM methods, the ratings and the weights of the criteria are known precisely.

A survey of the methods has been presented in Hwang and Yoon. In the process of TOPSIS, the performance ratings and the weights of the criteria are given as exact values. Recently, Abo-sinna and Amer extend TOPSIS approach to solve multi-objective nonlinear programming problems. Jahanshahloo et al. extend the concept of TOPSIS to develop a methodology for solving multi-criteria decision-making problems with interval data. In real-word situation, because of incomplete or non-obtainable information, for example, human judgements including preferences are often vague and cannot estimate his preference with an exact numerical data, the data (attributes) are often not so deterministic, there for they usually are fuzzy/imprecise, so, we try to extend TOPSIS for fuzzy data.

TOPSIS (technique for order preference by similarity to an ideal solution) method is presented in Chen and Hwang, with reference to Hwang and Yoon. TOPSIS is a multiple criteria method to identify solutions from a finite set of alternatives. The basic principle is that the chosen alternative should have the shortest distance from the positive ideal solution and the farthest distance from the negative ideal solution.
The procedure of TOPSIS can be expressed in a series of steps:

(1) Calculate the normalized decision matrix. The normalized value n_{ij} is calculated as:

$$n_{ij} = x_{ij} \Big/ \sqrt{\sum_{i=1}^{m} x_{ij}^2}, \quad i = 1, \ldots, m, \quad j = 1, \ldots, n.$$

(2) Calculate the weighted normalized decision matrix. The weighted normalized value vij is calculated as $v_{ij} = w_j n_{ij}, \quad i = 1, \ldots, m, \quad j = 1, \ldots, n,$ where wj is the weight of the ith attribute or criterion, and $\sum_{j=1}^{n} w_j = 1$

(3) Determine the positive ideal and negative ideal solution

$$A^+ = \{v_1^+, \ldots, v_n^+\} = \{(\max_j v_{ij} | i \in I), (\min_j v_{ij} | i \in J)\},$$
$$A^- = \{v_1^-, \ldots, v_n^-\} = \{(\min_j v_{ij} | i \in I), (\max_j v_{ij} | i \in J)\},$$

where I is associated with benefit criteria, and J is associated with cost criteria.

(4) Calculate the separation measures, using the n -dimensional Euclidean distance. The separation of each alternative from the ideal solution is given as

$$d_i^+ = \left\{ \sum_{j=1}^{n} (v_{ij} - v_j^+)^2 \right\}^{\frac{1}{2}}, \quad i = 1, \ldots, m,$$

Similarly, the separation from the negative ideal solution is given as

$$d_i^- = \left\{ \sum_{j=1}^{n} (v_{ij} - v_j^-)^2 \right\}^{\frac{1}{2}}, \quad i = 1, \ldots, m,$$

(5) Calculate the relative closeness to the ideal solution. The relative closeness of the alternative A_i with respect to A^+ is defined as

$$R_i = d_i^- / (d_i^+ + d_i^-), \quad i = 1, \ldots, m.$$

Since $d_i^- \geqslant 0$ and $d_i^+ \geqslant 0$, then, clearly, $R_i \in [0, 1]$.

(6) Rank the preference order. For ranking alternatives using this index, we can rank alternatives in decreasing order.

The basic principle of the TOPSIS method is that the chosen alternative should have the ‘‘shortest distance’’ from the positive ideal solution and the ‘‘farthest distance’’ from the negative ideal solution. The TOPSIS method introduces two ‘‘reference’’ points, but it does not consider the relative importance of the distances from these points[8].

[8] This section draws heavily on writings from the following texts:
- M.A. Abo-Sinna, A.H. Amer, Extensions of TOPSIS for multi-objective large-scale nonlinear programming problems, Applied Mathematics and Computation 162 (2005) 243–256.
- S.J. Chen, C.L. Hwang, Fuzzy Multiple Attribute Decision Making: Methods and Applications, Springer, Berlin, 1992.

In real-word situation, because of incomplete or non-obtainable information, the data (attributes) are often not so deterministic, there for they usually are fuzzy/impresice[9].

- J.S. Dyer, P.C. Fishburn, R.E. Steuer, J. Wallenius, S. Zionts, Multiple criteria decision making, multiattribute utility theory: the next ten years, Management Science 38 (5) (1992) 645–654.
- C.L. Hwang, K. Yoon, Multiple Attribute Decision Making Methods and Applications, Springer, Berlin Heidelberg, 1981.
- G.R. Jahanshahloo, F. Hosseinzadeh Lotfi, M. Izadikhah, An algorithmic method to extend TOPSIS for decision-making problems with interval data, Applied Mathematics and Computation (2005).
- P. Korhonen, J. Wallenius, S. Zionts, Solving the discrete multiple criteria problem using convex cones, Management Science 30 (1981) 1336–1345.
- Y.J. Lai, T.Y. Liu, C.L. Hwang, TOPSIS for MODM, European Journal of Operational Research 76 (3) (1994) 486–500.
- Y.J. Lai, T.Y. Liu, C.L. Hwang, Fuzzy mathematical programming, methods and applications, Springer, Berlin/Heidelberg, 1992.
- D.L. Olson, Decision Aids for Selection Problems, Springer, New York, 1996.
- P.L. Yu, Multiple-Criteria Decision Making, Concepts, Techniques, and Extensions, Plenum Press, New York, 1985.
- L.A. Zadeh, Fuzzy sets, Information and Control 8 (1965) 338–353.

[9] Defining the Fuzzy Data (quoted in line with the article, titled, "Extension of the TOPSIS method for decision-making problems with fuzzy data", by G.R. Jahanshahloo, F. Hosseinzadeh Lotfi, M. Izadikhah, Applied Mathematics and Computation 181 (2006) 1544–1551; www.elsevier.com/locate/amc)

Let X be a classical set of objects, called the universe, whose generic elements are denoted by x. The membership in a crisp subset of X is often viewed as characteristic function μ_A from X to $\{0,1\}$ such that:

$$\mu_A(x) = \begin{cases} 1 & \text{if and only if } x \in A, \\ 0 & \text{otherwise,} \end{cases}$$

where $\{0,1\}$ is called a valuation set. If the valuation set is allowed to be the real interval $[0,1]$, A is called a fuzzy set and denoted by $\tilde{A}$ and $\mu_{\tilde{A}}(x)$ is the degree of membership of x in $\tilde{A}$.

Definition 1. If $\tilde{A}$ be a fuzzy set, then $\tilde{A}$ is completely characterized by the set of ordered pairs [8]:

$$\tilde{A} = \{(x, \mu_{\tilde{A}}(x)) | x \in X\}.$$

Definition 2 (*α-level set or α-cut*). The *α-cut* of a fuzzy set $\tilde{A}$ is a crisp subset of X and is denoted by [8]:

$$[\tilde{A}]_\alpha = \{x | \mu_{\tilde{A}}(x) \geqslant \alpha\},$$

where $\mu_{\tilde{A}}(x)$ is the membership function of $\tilde{A}$ and $\alpha \in [0,1]$.

The lower and upper points of any *α-cut*, $[\tilde{A}]_\alpha$, are represented by $\inf[\tilde{A}]_\alpha$ and $\sup[\tilde{A}]_\alpha$, respectively, and we suppose that both are finite. For convenient, we show $\inf[\tilde{A}]_\alpha$ with $[\tilde{A}]_\alpha^L$ and $\sup[\tilde{A}]_\alpha$ with $[\tilde{A}]_\alpha^U$ (see Fig. 1).

Definition 3 (*Normality*). A fuzzy set $\tilde{A}$ is normal if and only if $\sup_x \mu_{\tilde{A}}(x) = 1$.

Definition 4 (*Convexity*). A fuzzy set $\tilde{A}$ in X is convex if and only if for every pair of point x^1 and x^2 in X, the membership function of $\tilde{A}$ satisfies the inequality

$$\mu_{\tilde{A}}(\delta x^1 + (1-\delta)x^2) \geqslant \min(\mu_{\tilde{A}}(x^1), \mu_{\tilde{A}}(x^2)),$$

where $\delta \in [0,1]$. Alternatively, a fuzzy set is convex if all *α-level* sets are convex.

Definition 5 (*Fuzzy number*). A fuzzy number $\tilde{A}$ is a convex normalized fuzzy set $\tilde{A}$ of the real line $\mathbb{R}$ with continuous membership function.

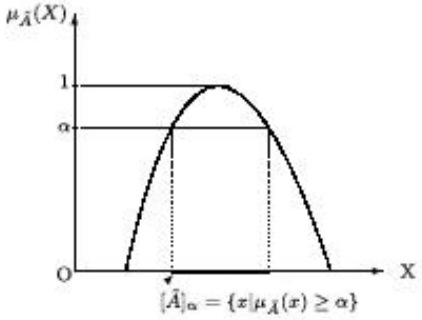


Fig. 1. An example of *α-cut*.

So, we try to extend TOPSIS for fuzzy data. Suppose $A_1, A_2, \ldots, A_m$ are m possible alternatives among which decision makers have to choose, $C_1, C_2, \ldots, C_n$ are criteria with which alternative performance are measured, $\tilde{x}_{ij}$ is the rating of alternative A_i with respect to criterion C_j and is a fuzzy number. A MCDM problem with fuzzy data can be concisely expressed in matrix format (namely, fuzzy decision matrix) as

	C_1	C_2	...	C_n
A_1	$\tilde{x}_{11}$	$\tilde{x}_{12}$	...	$\tilde{x}_{1n}$
A_2	$\tilde{x}_{21}$	$\tilde{x}_{22}$	...	$\tilde{x}_{2n}$
A_m	$\tilde{x}_{m1}$	$\tilde{x}_{m2}$	...	$\tilde{x}_{mn}$

$$\tilde{W} = [\tilde{w}_1, \tilde{w}_2, \ldots, \tilde{w}_n],$$

where $\tilde{w}_j$ is the weight of criterion C_j and is a normalized fuzzy number. The approach to extend the TOPSIS method to the fuzzy data is as follows[10]:

First step is, identification the evaluation criteria. Step 2 is, generating alternatives. Step 3 is, evaluating alternatives in terms of criteria (the values of the criterion functions which are fuzzy). Step 4 is, identifying the weight of criteria.

Step 5. Construct the fuzzy decision matrix. In fuzzy decision matrix, we suppose that, each $\tilde{x}_{ij}$ is triangular fuzzy number, i.e., $\tilde{x}_{ij} = (x_{ij}, \alpha_{ij}, \beta_{ij})$.

Step 6. We calculate the normalized fuzzy decision matrix as follows:

First, for each fuzzy number $\tilde{x}_{ij} = (x_{ij}, \alpha_{ij}, \beta_{ij})$, we calculate the set of **α**-cut as

$$\tilde{x}_{ij} = \left[[\tilde{x}_{ij}]_\alpha^L, [\tilde{x}_{ij}]_\alpha^U\right], \quad \alpha \in [0, 1].$$

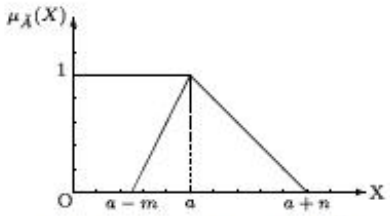


Fig. 2. A triangular fuzzy number $\tilde{A}$.

Definition 6 (*Triangular fuzzy numbers*). The triangular fuzzy numbers can be denoted as $\tilde{A} = (a, m, n)$, where a is the central value ($\mu_{\tilde{A}}(a) = 1$), m is the left spread and n is the right spread (see Fig. 2).

Definition 7 (*Multiplication of triangular fuzzy numbers*). Suppose that we have two triangular fuzzy numbers $\tilde{A}$ and $\tilde{B}$ such that $\tilde{A} = (a, m, n)$ and $\tilde{B} = (b, s, r)$, then, the multiplication of the fuzzy numbers $\tilde{A}$ and $\tilde{B}$ is defined as follows [8]:

$$\tilde{A}(\cdot)\tilde{B} = \begin{cases} (ab, as + bm - ms, ar + bn + nr) & \text{if } \tilde{A} > 0,\ \tilde{B} > 0, \\ (ab, -ar + bm + mr, as - bn + sn) & \text{if } \tilde{A} < 0,\ \tilde{B} > 0, \\ (ab, -ar - bn - nr, -as - bm + nr) & \text{if } \tilde{A} < 0,\ \tilde{B} < 0. \end{cases}$$

Definition 8. A fuzzy number $\tilde{A}$ is called positive fuzzy number if $\mu_{\tilde{A}}(x) = 0$ for all $x < 0$;

Definition 9. If $\tilde{A}$ is a triangular fuzzy number and $[\tilde{A}]_\alpha^L > 0$ and $[\tilde{A}]_\alpha^U \leqslant 1$ for $\alpha \in [0, 1]$, then $\tilde{A}$ is called a normalized positive triangular fuzzy number.

Definition 10. Let $\tilde{A} = (a, m, n)$, $\tilde{B} = (b, s, r)$ be two triangular fuzzy numbers, then the distance between them using vertex method is defined as

$$d(\tilde{A}, \tilde{B}) = \sqrt{\frac{1}{3}[(a-b)^2 + (a-b-m+s)^2 + (a-b+n-r)^2]}.$$

Remark 1. If $\tilde{A} = [[\tilde{A}]_\alpha^L, [\tilde{A}]_\alpha^U]$, then by choosing $\alpha = 1$ we can identify the central value of $\tilde{A}$, and by $\alpha = 0$ we can identify the left and right spreads of $\tilde{A}$.

[10] ibid

Therefore, each fuzzy number ~x_{ij} is transform to an interval, now by an approach proposed in Jahanshahloo et al[11], we can transform this interval in to normalized interval as follows:

$$[\tilde{n}_{ij}]_\alpha^L = [\tilde{x}_{ij}]_\alpha^L \Big/ \sqrt{\sum_{i=1}^{m}([\tilde{x}_{ij}]_\alpha^L)^2 + ([\tilde{x}_{ij}]_\alpha^U)^2}, \quad i = 1,\ldots,m,\ j = 1,\ldots,n,$$

$$[\tilde{n}_{ij}]_\alpha^U = [\tilde{x}_{ij}]_\alpha^U \Big/ \sqrt{\sum_{i=1}^{m}([\tilde{x}_{ij}]_\alpha^L)^2 + ([\tilde{x}_{ij}]_\alpha^U)^2}, \quad i = 1,\ldots,m,\ j = 1,\ldots,n$$

now, interval $[[\tilde{n}_{ij}]_\alpha^L, [\tilde{n}_{ij}]_\alpha^U]$ is normalized of interval $[[\tilde{x}_{ij}]_\alpha^L, [\tilde{x}_{ij}]_\alpha^U]$. According to Remark 1, we can transform this normalized interval in to a fuzzy number such as $\tilde{N}_{ij} = (n_{ij}, a_{ij}, b_{ij})$ such that, n_{ij} is obtained when a = 1 i.e.,

$n_{ij} = [\tilde{n}_{ij}]_{\alpha=1}^L = [\tilde{n}_{ij}]_{\alpha=1}^U$, also by setting a = 0 we have . $[\tilde{n}_{ij}]_{\alpha=0}^L = n_{ij} - a_{ij}$ and $[\tilde{n}_{ij}]_{\alpha=0}^U = n_{ij} + b_{ij}$ then

$a_{ij} = n_{ij} - [\tilde{n}_{ij}]_{\alpha=0}^L,$

$b_{ij} = [\tilde{n}_{ij}]_{\alpha=0}^U - n_{ij}$ and ~N_{ij} is a normalized positive triangular fuzzy number i.e., ~N_{ij} is normalized of fuzzy number ~x_{ij} . Now, we can work with these normalized fuzzy numbers.

Step 7. By considering the different importance of each criterion, we can construct the weighted normalized fuzzy decision matrix as:

$\tilde{v}_{ij} = \tilde{N}_{ij}.\tilde{w}_j,$ where ~w_j is the weight of j_{th} attribute or criterion.

Step 8. Now, each ~v_{ij} is normalized fuzzy numbers and their ranges is belong to [0, 1]. So, we can identify fuzzy positive ideal solution and fuzzy negative ideal solution as:

$\tilde{A}^+ = (\tilde{v}_1^+,\ldots,\tilde{v}_n^+),$

$\tilde{A}^- = (\tilde{v}_1^-,\ldots,\tilde{v}_n^-),$ where $\tilde{v}_i^+ = (1,0,0)$ and $\tilde{v}_i^- = (0,0,0),\ i = 1,\ldots,n$ or each criteria (benefit or cost criteria).

Step 9. The separation of each alternative from the fuzzy positive ideal solution, using the distance measurement between two fuzzy number (see Definition 8) can be currently calculated as:

$$\tilde{d}_i^+ = \sum_{j=1}^{n} d(\tilde{v}_{ij}, \tilde{v}_{ij}^+), \quad i = 1,\ldots,m.$$

Similarly, the separation from the fuzzy negative ideal solution can be calculated as:

$$\tilde{d}_i^- = \sum_{j=1}^{n} d(\tilde{v}_{ij}, \tilde{v}_{ij}^-), \quad i = 1,\ldots,m.$$

Step 10. A closeness coefficient is defined to determine the ranking order of all alternatives once the $\tilde{d}_i^+$ and $\tilde{d}_i^-$ of each alternative A_i has been calculated. The relative closeness of the alternative A_i with respect to ~A is defined as:

$\tilde{R}_i = \tilde{d}_i^- / (\tilde{d}_i^+ + \tilde{d}_i^-), \quad i = 1,\ldots,m.$

For each set of data, a graphical analogy is drawn, preferably in the following scheme, A^+ denotes the ideal point and A^- denotes the least desired point. Based on the 12-decade perception framework, a funnel-like diagram would be drawn to denote the gradual morphosis of the variable over time.

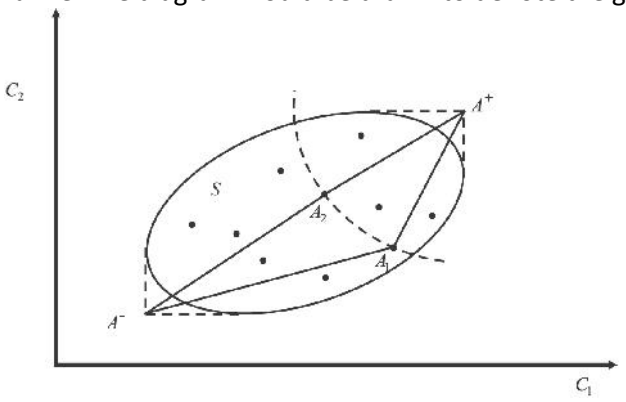


Figure 2: F-TOPSIS: Variable Shape

[11] ibid

Once each variable is graphed, the combined fractals would be assimilated to obtain a visual on the position of jute across the eleven constructs. A detailed description of the Fuzzy-TOPSIS model would be annexed with the master paper.

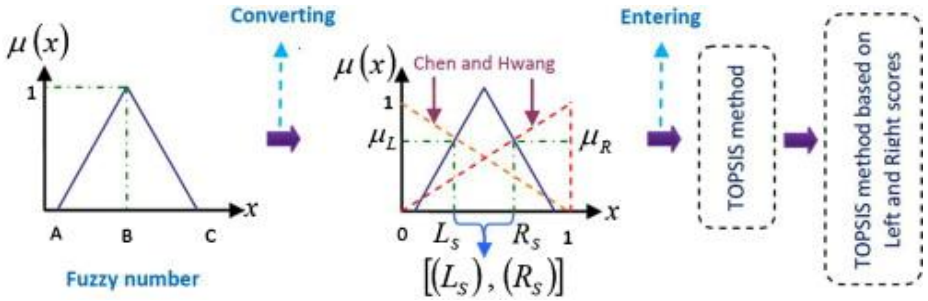


Figure 3: Fuzzy Conversion Set

The data acquired in this part of the paper sets the general tone for the later two segments as we search for the operations equation for jute. Data derived from this section is modeled on the basis of the best-possible and least-expected outcome values and a decade to decade multidimensional valuation of the variables are carried out to ascertain a passage through times and space of jute in the 'perception' of the experts.

2.4.1.4 Data Source, Sampling, Questionnaire Development

Primarily two sources of data have been utilized for the conduct of investigation in this area, Primary data and Secondary data. Secondary data – collected from various published and recorded (i.e., archived) sources have been collected and collated using detailed and in-depth study of the materials.

Primary data has been collected using a skillfully developed questionnaire. The questionnaire has been developed after pre-testing as has been detailed in the earlier communications recorded in the prefatory part of the paper.

As because the target sample for the study was widely scattered across the Indian sub-continent the sample size has been determined using the convenience method.

A data matrix is utilized for carrying out a decade-wise temporal trend analysis for each variable with a semantic differential spectrum. Each construct is sub-divided into a few component variables and each variable is qualified with necessary conditions. Once the data matrix is populated and coded, the subsequent sets of hypotheses are tested for validation and proof. A semantic differential spectrum with the range from Very High Positive Impact marked (+3) to Very High Negative Impact marked (-3) across the decades from 1900 to 2020 has been utilized in this regard.

The graphical representation of the data collection matrix is as follows:

Table 2: Construct-Variable Table

Serial	Construct	Variable
1L	Land	
1L1		Land Availability
1L2		Land Accretion
1L3		Land Conversion
1L4		Land Utilization
1L5		Land Administration

Serial	Construct	Variable
2IA	Input availability	
2IA1		Seed
2IA2		Fertilizer
2IA3		Irrigation
2IA4		Pest Control
3L	Labour	
3L1		Cropping Pattern
3L2		Farming Intensity
3L3		Alternative usages of land
3L4		Alternative employment options
3L5		Position in the learning curve of agricultural production
4C	Capital	
4C1		Growth of National economy
4C2		Credit Availability
4C3		Working Capital Flow
4C4		Public Investment in Jute Agriculture
4C5		Public Investment in Jute Industry
4C6		Private Investment in Jute Agriculture
4C7		Private Investment in Jute Industry
5AVA	Agricultural Value Addition	
5AVA1		Policy support from the State in agricultural production
5AVA2		Agricultural Mechanization
5AVA3		Research and Development
5AVA4		Agricultural Extension
5AVA5		Education and Learning
5AVA6		Infusion of advanced technology in agriculture
6IAV	Industrial Value Addition	
6IAV1		Policy support from the State in industrial production
6IAV2		Labour Employment
6IAV3		Management Overhead
6IAV4		Fixed Overhead
6IAV5		Quality Control
6IAV6		Research and Development in Production
6IAV7		Product Variety
6IAV8		Infusion of advanced technology in processing and manufacturing
6IAV9		Position in the learning curve of industrial production
7CAT	Connectivity and transportation	
7CAT1		Access to transport architecture
7CAT2		Investment in transport architecture
7CAT3		Connectivity to factor markets
7CAT4		Connectivity to growth centers
7CAT5		Efficiency in utilizing distribution networks
7CAT6		Connectivity to world markets
8M	Markets	
8M1		Development of substitutes
8M2		Economy of substitutes
8M3		Versatility of substitutes affecting consumer choice
8M4		Development of complements
8M5		Destination Composition
8M6		Development of New Markets
8M7		Economic Health of Destination Markets
8M8		Established foreign distribution networks
8M9		Loyalty of foreign distribution networks
9CC	Climatic Conditions	
9CC1		Adverse changes in Climatic Conditions
9CC2		Rainfall and availability of water
9CC3		Average Temperature
10EF	Exogenous Factors	
10EF1		Entrepreneurial Capability
10EF2		Social stability
10EF3		Social unrest
10EF4		Bilateral agreements with foreign countries – affecting domestic production conditions
10EF5		Regional agreements with foreign countries – affecting domestic production conditions
10EF6		Global agricultural and commercial arrangements – affecting domestic production

Serial	Construct	Variable
		conditions
10EF7		Bilateral agreements with foreign countries – affecting trade
10EF8		Regional agreements with foreign countries – affecting trade
10EF9		Global agricultural and commercial arrangements – affecting trade
10EF10		Role of International Organizations (i.e., World Bank, IMF, ADB, et al)
11AD	Advanced Derivatives	
11AD1		Product diversification
11AD2		New Usages for existing products
11AD3		Branding
11AD4		Composite farms
11AD5		Contract farming
11AD6		Wholesale farms abroad
11AD7		Portfolio investment
11AD8		Securitizing agricultural and industrial sector through the stock market
11AD9		Total Value Chain (TVC) Ownership

ii. The following reasons positively impacted the patterns for international reach/activities of Bangladesh agricultural sector, specially jute:
   a) Favorable natural endowments
   b) Favorable climatic conditions
   c) Favorable position in the learning curve for production and value addition in jute
   d) Entrepreneurial capabilities of the population
   e) Social structure/composition of the population
   f) Administrative strength of the political / bureaucratic institutions
   g) Colonial regimes – starting with the Mughal invasion and leading through British Raj and Pakistan occupation
   h) Structured administrative architecture – leading to steady markets for both inputs and outputs

iii. The following reasons determine the shifts and changes in the international trade patterns for Bangladesh agricultural sector, especially jute:
   a) Adverse changes in the composition of natural endowments
   b) Impact of natural calamities
   c) Impact of man-made disasters/wars
   d) Rise of more favorable factor markets (i.e., input sources)
   e) Rise of alternative produce and substitutes
   f) Adverse changes in learning curve management
   g) Impact of the division of Indian sub-continent, especially, fragmentation of the natural value chains of the sub-continent
   h) Independence of Bangladesh and consequent divestiture by established jute merchants
   i) Impact of global, multilateral and regional trade negotiations
   j) Impact of inefficiency/inadequacy in policy formulation by Government (especially with nationalization of the jute sector)
   k) Impact of inefficient decision making by trade bodies (for inputs) led to the gradual degeneration of international trade in agriculture for Bangladesh, especially with regards to jute and jute derivatives
   l) Adverse impact of policy interventions by International Bodies, such as World Bank and IMF
   m) Adverse impact rising out of political instability in the country
   n) Adverse impact of politicization of the input and output markets
   o) Lack of technological innovation and adaptation in the jute sector
   p) Lack of marketing initiatives and branding for jute and jute derivatives

q) Lack of working capital supply in the sector
r) Lack of investment grade surplus for the sector

iv. For formulating a comprehensive scenario with regards to emerging trends in trade in agricultural sector, Bangladesh holds Revealed Comparative Advantage (RCA), in jute, in
a) Factor inputs
b) Learning Curve Position
c) Mid-to-long term production sustainability
d) Mid-to-long term absence of productive competitors
e) Product variations
f) Product varieties
g) Product innovations/discoveries
h) Agricultural services
i) Wholesale operations/solutions through:
i) Composite farms
ii) Contract farming, and
iii) Setting up Wholesale farms abroad in regions where factors of production suit the needs of the entrepreneurs
j) Portfolio investment
k) Securitizing agricultural and industrial sector through the stock market
l) Total Value Chain (TVC[12]) Ownership

2.4.2 Broad Objective # 2

Defining a prioritized Agricultural Business Policy Framework for Bangladesh with respect to:
g) International Trading and
h) Homegrown competitive/comparative advantages using Fuzzy TOPSIS (Technique for Order Preference by Similarity to Ideal Solution) with specific reference to Jute - with RCA (Revealed Comparative Advantage).

[12] A comprehensive scenario-definition for the Value Chain is found at: http://economictimes.indiatimes.com/definition/value-chain (Accessed at 1254 hrs: 14 June 2014)

A value chain is the whole series of activities that create and build value at every step. The total value delivered by the company is the sum total of the value built up all throughout the company. Michael Porter developed this concept in his 1980 book 'Competitive Advantage'.

The significance of the value chain: The value chain concept separates useful activities (which allow the company as a whole to gain competitive advantage) from the wasteful activities (which hinder the company from getting a lead in the market). Focusing on the value-creating activities could give the company many advantages. For example, the ability to charge higher prices; lower cost of manufacture; better brand image, faster response to threats or opportunities. Porter defines the value chain as made of primary activities and support activities. Primary involves inbound logistics (getting the material in for adding value by processing it), operations (which are all the processes within the manufacturing), outbound (which involves distribution to the points of sale), marketing and sales (which go sell it, brand it and promote it) and service (which maintains the functionality of the product, post sales).

The support functions which feed into all the primary functions are the firm infrastructure, like MIS which allows managers to monitor the environment well; Human Resource, which develops the skills needed to steer the company well; procurement to buy/ source goods at the right price, which increasingly takes importance because of difficult economic conditions and technology, which could give the firm speed, accuracy and quality. Both these allow the firm to charge a margin, which partly comes from the value addition of the primary and support functions and partly from the advantage that the company gains due to communication of the value addition to the consumer (brand image, faith, trust and so on).

2.4.2.1 Specific Objective Set # 2

Analyzing markets, which could host (a) products, (b) services, and (c) farming solutions from Bangladesh in terms of: (a) revenue generating capabilities, (b) revenue sustainability, and (c) employment generation capabilities – in the backdrop of major multilateral and regional trade negotiations – using a muted form of General Gravity Model. While Jute forms the core analytical framework, the objective is attained by:

e) Documenting both the spatial and temporal distribution of markets for international trade in agricultural products, services and (wholesale) solutions – with special emphasis on Jute
f) Understanding temporal trends in international trade in agricultural products, services, and solutions – with special emphasis on Jute
g) Understanding how major multilateral and regional trade negotiations have impacted trade in agricultural products, services and solutions – with special emphasis on Jute
h) Understanding emerging trends in international trade in agricultural, especially Jute, products, services, and solutions specially with regards to
    i) Revenue generating capabilities
    ii) Revenue sustainability, and
    iii) Employment generation capabilities

2.4.2.2 Hypotheses Set # 2

For analyzing markets, which could host (a) products, (b) services, and (c) farming solutions from Bangladesh in terms of: (a) revenue generating capabilities, (b) revenue sustainability, and (c) employment generation capabilities – in the backdrop of major multilateral and regional trade negotiations – using a muted form of General Gravity Model. While Jute forms the core analytical framework, hypotheses spectrum is codified as below:

e) Multilateral trade negotiations have impacted international trade in agricultural products, services and solutions, especially, in the jute sector
f) Regional trade negotiations and treaties have impacted international trade in agricultural products, services and solutions, especially, in the jute sector
g) Bilateral trade negotiations have impacted international trade in agricultural products, services and solutions, especially, in the jute sector
h) Migration (or lack thereof) has impacted international trade in agriculture, especially in the jute sector
i) There exists in international trade in agricultural products, services, and solutions, 'venture-worthy-markets' with regards to
    i) Revenue generating capabilities
    ii) Revenue sustainability, and
    iii) Employment generation capabilities

2.4.2.3 Research Model: Gravity Model

The research model pursued in this section is based essentially on the data generated from broad area # 1. Index data calculated on the fifty-five plus variables over thirteen decades act as a baseline for the functional relationships built in this section.

Essentially, a muted form of General Gravity Model used in this section – especially for the first four sets of hypotheses. For testing these four groups of hypotheses, variants of the gravity model have been deployed to ascertain sanitized (read, normalized) scores, which then have been utilized to test validity of the hypotheses.

To analyse systematically the relationship between trade agreements and trade flows between the countries involved in the manufacturing and trade of jute and jute-derivatives, the standard method in this field, the gravity model, is employed[13]. For aggregate trade flows, it is used in its basic specification, and thus results are comparable to Accominotti and Flandreau (2008) and Rose (2004). For a starter, the gravity model relates bilateral trade flows between countries i and j at time t (here: bilateral imports IM_{ijt}) to the national incomes of importer (Y_i) and exporter (Y_j) and the economic distance that separates them[14]. Economic distance is proxied by geographic distance (D_{ij}) in kilometres. Per capita incomes (Y_i/Pop_i) of importers and exporters are included to model demand behaviour.

Hence, the thematic formulation for aggregate trade in jute is:

[13]This model has become very popular in the 1990s for two reasons. Firstly, due to its success in explaining bilateral trade flows among countries And secondly due to the fact that that the empirical specification of the model can be directly derived from several classical and new trade theories (Anderson, 1979; Bergstrand, 1985; Anderson and Van Wincoop, 2003). The basic model states that trade between two countries is proportional to the product of their economic sizes, which can be measured using their respective GDPs, and inversely proportional to the distance between them, which is considered as a proxy for trade costs.

Tinbergen (1962) and Pöyhönen (1963) were the first authors who applied this model to international trade flow analysis but this was widely criticized due to lack of theoretical foundation. However, with the emergence of the new trade theory at the end of the 1970s and the early 1980s, the theoretical foundation of the gravity equation was more than justified. Anderson (1979) was the first to provide clear micro foundations to the model based on the properties of expenditure systems, with the assumption that each nation produced a unique good imperfectly substitutable with another nation's goods. Bergstrand (1985) provides theoretical foundations based on factor endowments and bilateral trade, arguing that it is possible to approximate the theory-based price terms with various existing price indices. Later Bergstrand (1989) employed the Helpman-Krugman model, using available prices indices as a proxy for relative prices . Helpman (1987) used the gravity model within a differentiated product framework and Deardorff (1995)(Deardorff, A.V. (1984) Testing Trade Theories and Predicting Trade Flows, *Handbook of International Economics 1*, Amsterdam, North-Holland) showed that standard trade theories based on comparative advantage and differences in resource endowments also justify the gravity equation.

One of the most important recent contributions has been Anderson and van Wincoop (2003) (Anderson, J.E. and Wincoop E. V. (2003) Gravity with Gravitas: A Solution to the Border Puzzle, *The American Economic Review*, 93 (1), 170-92, Nashville.). They recommend accounting for "multilateral trade resistance" in the estimation of gravity equations. A way to control for it is adding time-varying, directional, country-specific dummies, because bilateral trade flows depend on bilateral trade costs relative to multilateral trade cost. In addition, Feenestra (2004) recommends including country fixed effects to model unobserved price indices.

Another important issue is that trade policy is not strictly exogenous and consequently the analyses of the effects of free trade agreements with the gravity equation can suffer from endogeneity bias, as pointed out by Baier and Bergstrand (2007). These authors recommend the use of panel data regression techniques and the inclusion of bilateral fixed effects (dyadic fixed effects) to capture unobservable time-invariant bilateral factors that can affect trade flowshey also include exporter-and-time and importer-and-time fixed effects to capture unobservable time-varying "multilateral price/resistance" terms of the exporter and importer countries.

The treatment of zeros and missing values in trade data is another important issue. Zero trades could be present due to rounding errors when the value of trade are very small an close to zero, could be missing data that are recorded as zero, or also could represent a real absence of trade between two countries. In the latter case, if we want estimate using the logarithmic form of the gravity equation we need to be sure that these zero values don not include relevant information about absence of trade between countries, because zero values will be droped from the estimation and we will be losing a valuable information. Hence, a good knowledge of the reason why there are zeros in our database is necessary to select the most appropriate estimation method.

[14] Income per capita is not a theoretically required part of the gravity equation, and introduced mainly for comparison. Its omission leads almost unchanged the other coefficients and especially does not influence qualitatively the estimated coefficient for jute, except that it becomes insignificantly positive in the PPML core estimate.

Equation 2: Basic Gravity Equation for Jute

$$ln(I_{Mijt}) = \beta_0 + \beta_1 \ln(Y_iY_j)_t + \beta_2 \ln(Y_i/Pop_i * Y_j/Pop_j)_t + \beta_3 \ln(D_{ij}) + \Sigma \beta_m \Sigma \ln(Z_{ijm})_t + \varepsilon_{ijt}$$

: Where, IM_{ijt} are bilateral imports of i from j in year t[15].

Dummies for common borders, common language, tariff reduction and trade access conventions/treaties, trade and tariff facilitation data, political and conflict (armed), are included as in the vector of additional control variables, $\Sigma \beta_m \Sigma \ln(Z_{ijm})_t$. Common borders and common languages are expected to influence trade positively due to direct trade routes and easier communication; these variables thus refine the concept of economic distance. Various wars in the observation period might have disrupted international trade flows, among which we distinguish the Two World Wars (affecting decades 1910 and 1940) and the Bangladesh War of Liberation (affecting the decade 1970). Physical distance is calculated using the (source)-port-to-port-(destination) distance.

2.4.2.4 Data Source, Sampling, Questionnaire Development

Primarily two sources of data have been utilized for the conduct of investigation in this area, Primary data and Secondary data. Secondary data – collected from various published and recorded (i.e., archived) sources have been collected and collated using detailed and in-depth study of the materials.

Primary data has been collected using a skillfully developed questionnaire. The questionnaire has been developed after pre-testing as has been detailed in the earlier communications recorded in the prefatory part of the paper.

As because the target sample for the study was widely scattered across the Indian sub-continent the sample size has been determined using the convenience method.

2.4.2.5 Data Sets

The data sets contain observations made from the fifty-five odd variables tested in the first part of the paper. Each variable is posited as either increasing or decreasing the economic distance between the existing countries with which Bangladesh is engaged in jute trade. The jute data sets are collected from the UN COMTRADE Database using the following HS codes:

420222.04: JUTE HAND BAGS / SHOPPING BAGS
530310.01: JUTE, RAW OR RETTED
530390.01: JUTE CUTTINGS
530710.01: YARN OF JUTE (SINGLE)
530710.09: YARN OF OTHER TEXTILE BAST FIBRE
530720.00: YARN OF JUTE (MULTIPLE)
531010.01: CARPET BACKING CLOTH
531010.02: SACKING CLOTH
531010.03: HESSIAN CLOTH
531010.04: JUTE CANVAS
531010.05: OTHER STANDARD WOVEN FABRIC OF 100% JUTE
531010.06: WOVEN BLENDED FAB. CONTAIN MORE THAN 50% & LESS THAN 100% JUTE
531010.08: FOOD GRADE QUALITY JUTE CLOTH

[15] Accominotti and Flandreau (2008) name this term **Xijt.** Rose (2004a) uses the mean of bilateral imports and exports as dependent variable

531010.09: OTHER STANDARD WOVEN FABRIC OF JUTE
531010.11: JUTE SCRIM CLOTH
531090.01: BLEACHED, DYED & PRINTED FABRIC
531090.02: DECORATIVE FABRIC OF JUTE OR BLENDED JUTE
531090.09: OTHER BLENDED STAND. WOVEN FAB. OF JUTE & OTHR. TEXTL BAST FIBRE
560229.02: JUTE (INCLUDING BLENDED/UNION JUTE) FELT (NOT FOR MACHINERY)
560710.01: CORDAGE, CABLE, ROPE & TWINE OF JUTE
560890.02: KNOTTED NETTING OF TWINE, CORDAGE/ROPE ETC OF JUTE
560900.03: YARN ARTICLES MADE UP OF JUTE
570500.05: CARPET, CARPETING & RUGS OF JUTE
570500.06: JUTE BLENDED CARPET
570500.07: MATS & MATTINGS OF JUTE
580500.02: TAPESTRIES OF JUTE
580639.03: JUTE WEBBING
580639.04: OTHER NARROW FABRICS OF JUTE
590492.01: FLOOR COVERING WITH JUTE BASE
590700.12: JUTE FABRICS, OTHERWISE IMPREGNATED/COATED ETC.
630190.02: JUTE BLANKETS (INCLUDING BLANKETS OF BLENDED JUTE)
630510.01: JUTE BAGGING FOR RAW COTTON
630510.02: JUTE CORN (GRAIN) SACKS
630510.03: JUTE HESSIAN BAG
630510.04: JUTE SACKING BAG
630510.05: JUTE WOOL SACKS
630510.06: PLASTIC COATED OR PAPER-CUM-POLYTHENE LINED JUTE BAGS & SACK
630510.07: PAPER LAMINATED HESSIAN BAG
630510.08: JUTE SOIL SAVER
630510.09: OTHER COATED OR IMPREGNTD. JUTE BAGS & SACKS NOT TRAVEL GOODS
630510.11: FOOD GRADE QUALITY JUTE BAG
630619.01: JUTE TARPAULIN (INCLUDING D.W. TARPAULIN)
630629.01: TENTS OF JUTE
631010.03: GUNNY CUTTINGS
670290.01: JUTE DECORATIVE PLANTS
999190.21: WALL HANGING OF JUTE
999190.22: OTHER DECORATIVE ARTICLES OF JUTE

The countries included in the study are:

Africa

Algeria
Cameroon
Cote d'Ivoire
Egypt
Ethiopia
Ghana
Kenya
Morocco
Nigeria
South Africa
Sudan
Tanzania

Tunisia
Zimbabwe

Asia
Bangladesh
Cambodia
China
India
Indonesia
Iran
Jordan
Japan
Malaysia
Myanmar
Nepal
Pakistan
Philippines
Saudi Arabia
South Korea
Sri Lanka
Syria
Thailand
Turkey
Vietnam
UAE
Uzbekistan

Europe

Austria
Belarus
Belgium
Belgium-Lux.
Bulgaria
Cyprus
Czech Republic
Denmark
Estonia
Finland
France
Germany
Greece
Hungary
Ireland
Italy
Latvia
Lithuania
Malta
Norway

Poland
Portugal
Romania
Russian Federation
Slovak Republic
Slovenia
Spain
Sweden
Switzerland
The Netherlands
United Kingdom (UK)
Yugoslavia
EU-27 Countries
Other EU

Latin America

Argentina
Brazil
Costa Rica
Cuba
El Salvador
Guatemala
Nicaragua
Uruguay

North America

Mexico
Canada
USA

Australasia
Australia
New Zealand

For the last set of hypotheses, i.e., "There exists in international trade in agricultural products, services, and solutions, 'venture-worthy-markets' with regards to: (i) Revenue generating capabilities; (ii) Revenue sustainability; and (iii) Employment generation capabilities", would be explained and tested with an extension of the Gravity Model.

Whether two countries trade with each other in a given year or not – referred to as an extensive margin of bilateral trade – can be explained with great success in terms of a function of whether they did so in prior periods or not. For a cross section of the major 171 countries in terms of their GDP over the time period 1992-2004, research findings suggest that 44% of the country-pairs display bilateral exports when they did so 3 years prior to that, 41% do not report exports when they did not have any exports 3 years prior to that, and 16% change their activity within 3 years on average[16]. Moreover, 21% of the country-pairs display bilateral exports in 2004 and they did so in 1992, 36% do not report exports in 2004 and they did not have any exports in 1992, and 44% change their activity from 1992 to 2004. There is a strong role for persistence to play both unconditional and, in qualitative terms, conditional on exogenous determinants of the extensive margin of trade[17].

What this implies is that a certain geo-spatial path distribution network may indeed be in operation so long as predictive capability of any given model is in question.

The basic Gravity Equation used in this part of the paper is:

Equation 3: Gravity Equation for Estimating Potential Trading Partners

$$x_{ij} = \frac{y_i y_j}{y^w}\left(\frac{t_{ij}}{P_i P_j}\right)^{1-\pm}$$

The above Gravity Equation can be converted to:

Equation 4: Log-linear derivative of the estimation equation for Gravity Model

$$\ln X_{ij} = {}_0{}^* + {}_1 \ln Y_i + {}_2 \ln Y_j + \sum_{m=1}^{M} {}_m \ln z_{ij}^m + (1-\pm)\ln P_i + (1-\pm)\ln P_j + £_{ij}$$

$$with \quad {}_0{}^* = \ln {}_0;$$

P_i and P_j are the multilateral resistance terms, capturing the resistance of country i and country j to trade with all regions. Highlighted by Anderson & Van Wincoop (2003) earlier gravity models were mispecified. These terms are not observable (function of trade barriers and consumer prices)

Equation 5: Multilateral Resistance Term

$$P_j = \left[\sum_i \left(t_{ij} \big/ \Pi_i\right)^{1-\pm} ¤_i\right]^{\frac{1}{1-\pm}}$$

P_i and P_j are estimated using country fixed effects (dummy variables):

[16] Ibid

[17] Structural Estimation of Gravity Models with Market Entry Dynamics; Peter Egger, Andrea Leiter, and Michael Pfaffermayr; 13th August 2010

Equation 6: Log-linear correlation

$$\ln X_{ij} = \ _0 * + \ _1 \ln Y_i + \ _2 \ln Y_j + \sum_{m=1}^{M} \ _m \ln z_{ij}^m + \ln t_{ij} + \sim_i + \sim_j + £_{ij}$$

This implies for a cross-section model, that the equation can only include bilateral variables (perfect correlation between country fixed effects and any other country specific variable).

Equation 7: Country specific variables and fixed effcts

$$\ln(X_{ij} / Y_i \cdot Y_j) = \ _0 + \sum_{m=1}^{M} \ _m \ln z_{ij}^m + \ln t_{ij} + \sim_i + \sim_j + £_{ij}$$

Where the bis-panel data can be derived into:

Equation 8: Bis-Panel Data Estimation

$$\ln X_{ijt} = \ _0 * + \ _1 \ln Y_{it} + \ _2 \ln Y_{jt} + \sum_{m=1}^{M} \ _m \ln z_{ijt}^m + \ln t_{ijt} + \sim_i + \sim_j + £_{ij}$$

Some practical and conceptual problems in the above formulation include:

- Colinearity[18]
- Heteroscedaticity[19]
- Zero values (Ln(0))[20]
- Endogeneity & simultaneity: RTA, conflicts[21]
- Autocorrelation: (pannel models)
- Data availability and reliability[22]: production at the industry-level, SPS/TBT, FDI, export subsidies

Therefore, Estimation by Pseudo Maximum Likelihood (PML) is utilized and the derivative equation is as follows:

Equation 9: PML Indicator

$$X_{ijk} = \sim_i + \sim_j + \ _0 + \ _1 \ln D_{ij} + \ _2 \ln Tariff_{ijk} + \ _3 Border_{ij} + \ _4 Language_{ij} + \ _5 \ln Conflict_{ij} + \ _6 Geo_{ij} + £_{ij}$$

where:

i : the exporting country

[18] Affects the estimated parameters (elasticities and their variances) not so much a problem if the focus is on the fitted values and residuals the model can include many variables

[19] Affects the estimated variances;
- For a log-log model, the elasticities are also affected

The expected value of the log of a random variable is different from the log of its expected value. Jensen inequality: $E(\ln \varepsilon) \neq \ln E(\varepsilon)$

Silva and Tenreyro (2005) proposed to use a pseudo-maximum likelihood (PML) technique to estimate gravity models
- Alternative solution: robust estimation techniques (robust option in stat-a)

[20] Concern in particular large data samples (many counries and sectoral data)
Throwing observations
Ln(Xij + 0.0001)
(Tobit) with (Xij + 1) as a dependent variable (inconsistent estimator)
(Pseudo-Maximum Likelihood (PML). Proposed by Silva & Tenreyro (2005)

[21] RTA, cultural factors and borders (neighbouring countries and countries with the same official language often belong to the same regional block); Conflicts & trade. (conflicts have a negative impact on trade. In addition, a nation will avoid to enter into a conflict with a significant trading partner, trade has also a positive impact on conflict); Use of instrumental variables (2SLS and 3SLS) and use of dynamic models (panel data in first difference, Baier & Bergstrand 2005)

[22] Trade data: 2 observations (exp i->j, imp j-> i), aspects of reliability and transhipments should be taken into account; Production at the industry-level: only available for a limited number of countries; SPS/TBT, quotas; FDI (stock); Export subsidies

j: the importing country
k: sector
X_{ij} : trade from country *i* to country *j*
D_{ij}: distance between *i* and *j*
$Border_{ij}$: *i* and *j* are neighbouring countries (=1) or not (=0)
$Tariff_{ij}$: bilateral market access measure (for trade from *i* to *j*)
$Language_{ij}$: bilateral measure of common language
$Conflict_{ij}$: bilateral measure of conflict
Geo_{ij} : bilateral measure of geographical location
: multilateral resistance terms in form of fixed effects. Capture both industrial production and multilateral resistance

2.4.2.6 Reasons for using the gravity model in analyzing international trading pattern[23]

The foreign trade sector of Bangladesh constitutes an important part of its economy. The trade-GDP ratio increased to 36.88 percent in 2001 (World Bank 2004) from 16.41 percent in 1980 (World Bank 2001). However, despite its gradual importance, this sector has been suffering from a chronic deficit over the years. The trade relations of Bangladesh with other countries do not show any hopeful sign of them providing a desirable contribution to the country's economic development. This is mainly due to low export trade of Bangladesh compared to its import trade. Therefore, it is essential to find out the determining factors of Bangladesh's exports in order to help policy makers and planners to undertake appropriate measures to improve the trade performance.

The use of the gravity model to study international trade flows is now well established in economic literature[24]. For more than four decades the model has been used by many researchers such as

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[23] Section heavily draws on data and information presented in the article, titled, "The Causative Factors of Bangladesh's Exports: Evidence from the Gravity Model Analysis", by Mohammad Mafizur Rahman, Lecturer in Economics, School of Accounting, Economics and Finance, Faculty of Business, University of Southern Queensland, Toowoomba, QLD 4350, AUSTRALIA.

The paper dishes out a theoretical justification for using the gravity model in the analysis of bilateral trade under either perfectly competitive or monopolistic market structure. It then applies a generalized gravity model to analyze Bangladesh's export trade pattern using the panel data estimation technique. The estimated results reveal that the main contributors of the Bangladesh's exports are the exchange rate, partner countries' total import demand, openness of Bangladesh economy and multilateral resistance factors. All affect the country's exports positively. Transportation costs affect Bangladesh's exports negatively. The country specific effects show that neighbouring countries' influence on Bangladesh's exports is more than the influence of other distant countries.

[24] This model originates from the Newtonian physics notion. The gravity model of trade basically states that trade flows between two countries are determined positively by their income and negatively by the distance between them. This formulation can be generalized to

$X_{ij} = \alpha Y_i^{\beta} Y_j^{\gamma} D_{ij}^{\delta}$

where X_{ij} is the flow of exports from country i into country j , Y_i and Y_j are country i's and country j's GDPs and D_{ij} is the geographical distance between the countries' capitals; δ is expected to be negative.

The linear form of the model is as follows:

$\log (X_{ij}) = \alpha + \beta \log (Y_i) + \gamma \log (Y_j) + \delta \log (D_{ij})$

When estimated, this baseline model gives relatively good results. However, there are other factors that influence trade levels as well.

Tinbergen (1962), Pöyhönen (1963) and Linnemann (1966), Anderson (1979), Bergstrand[25] (1985 and 1989), Helpman[26] and Krugman[27] (1985), Eaton[28] and Kortm (1997), Deardorff[29] (1998), Evenett and Keller (1998), Haveman and Hummels[30] (2004) and others. Surveying the existing literature, in this research, we have argued that the use of the gravity model to analyse bilateral trade patterns is theoretically justified as the gravity equation can be derived assuming either perfect competition or monopolistic market structure.

The Newton's gravity law is the first justification of the gravity model of trade. The second justification for the gravity equation can be analysed in the light of a partial equilibrium model of export supply and import demand as developed by Linneman (1966). Based on some simplifying assumptions the gravity equation turns out, as Linneman argues, to be a reduced form of this model. However, Bergstrand (1985) and others point out that this partial equilibrium model could not

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Most estimates of gravity models add a certain number of dummy variables to that test for specific effects, for example being a member of a trade agreement, sharing a common land border, speaking the same language and so on.

Assuming that we wish to test for p distinct effects (Gs), the model then becomes:

$$\text{Log}(X_{ij}) = \alpha + \beta \log(Yi) + \gamma \log(Yj) + \delta \log(D_{ij}) + \sum_{s=1}^{p} \lambda s Gs$$

[25] Bergstrand J.H. (1989) The Generalised Gravity Equation, Monopolistic Competition, and the Factor Proportion Theory in International Trade, *Review of Economics and Statistics*, 143-53.

Bergstrand, J.H., (1985) The Gravity Equation in International Trade: Some Microeconomic Foundations and Empirical Evidence, *The Review of Economics and Statistics*, 67, 474-81. Harvard University Press.

[26] Other sources from the same author include:
Helpman, E., (1981) International Trade in the Presence of Product Differentiation, Economies of Scale and Monopolistic Competition: A Chamberlin Heckscherlin-Ohlin Approach, *Journal of International Economics*, 11, 305-40.

Helpman, E. (1984) Increasing Returns, Imperfect Markets, Trade Theory, in *Handbook of International Economics 1* (Eds) W. J. Ronald and B. K. Peter, Amsterdam, North-Holland.

Helpman, E. (1987) Imperfect Competition and International Trade: Evidence from fourteen Industrial Countries, *Journal of Japanese and International Economics*, 1, 62-81.

Helpman, E. (1989) Monopolistic Competition in Trade Theory, *Frank Graham Memorial Lecture,* 1989 special paper 16, International Finance Section, Princeton University, Princeton, N.J.

Helpman, E. and Krugman P.R. (1985) *Market Structure and Foreign Trade: Increasing Return, Imperfect Competition, and International Economy,* Cambridge, USA.

Helpman, E. and Krugman, P.R. (1989) *Trade Policy and Market Structure*, Cambridge Mass: MIT Press.

[27] Helpman, E and Krugman, P. (1985) *Market Structure and Foreign Trade*, Cambridge, MA: MIT Press.

[28] Eaton, J. and Kortum, S. (1997) Technology and Bilateral Trade. *NBER Working Paper*, No. 6253, Cambridge, MA: National Bureau of Economic Research.

[29] Deardorff, A., (1998) Determinants of Bilateral Trade: Does Gravity Work in a Classical World? In *The Regionalization of the World Economy* (Ed.) J. Frankel, Chicago: University of Chicago Press.

[30] Haveman, J. and Hummels, D. (2001) Alternative Hypotheses and the Volume of Trade: The Gravity Equation and the Extent of Specialization, *Working Paper*, Federal Trade Commission (Downloaded on 3 August '04 from Google).

explain the multiplicative form of the equation and also left some of its parameters unidentified mainly because of the exclusion of price variables. With the simplest form of the gravity equation, Linneman's justification for exclusion of prices seems to be consistent (Jakab *et al*. 2001).

Using a trade share expenditure system Anderson[31] (1979) also derives the gravity model which postulates identical Cobb-Douglas or constant elasticity of substitution (CES) preference functions for all countries as well as weakly separable utility functions between *traded* and *non-traded* goods. The author shows that utility maximization with respect to income constraint gives *traded goods* shares that are functions of *traded goods* prices only. Prices are constant in cross-sections; so using the share relationships along with trade balance / imbalance identity, country j's imports of country i's goods are obtained. Then assuming log linear functions in income and population for traded goods shares, the gravity equation for aggregate imports is obtained.

After considering the endogeneity between income and trade variables, Anderson (ibid.) follows the Instrumental Variable (IV) approach and thereby proposes two alternative solutions. Using different instruments either a lagged value of income can be used as instrument or first stage estimation of shares by OLS can be used and income values obtained from estimated shares can be substituted for a second stage re-estimation of the gravity equation. For many goods, the aggregate gravity equation is obtained only by substituting a weighted average for the actual shares in the second stage (Krishnakumar 2002).

The third justification for the gravity model approach is based on the Walrasian general equilibrium model, with each country having its own supply and demand functions for all goods. Aggregate income determines the level of demand in the importing country and the level of supply in the exporting country (Oguledo and Macphee 1994). While Anderson's (ibid.) analysis is at the aggregate level, Bergstrand (1985, 1989) develops a microeconomic foundation to the gravity model. He opines that a gravity model is a reduced form equation of a general equilibrium of demand and supply systems. In such a model the equation of trade demand for each country is derived by maximizing a constant elasticity of substitution (CES) utility function subject to income constraints in importing countries. On the other hand, the equation of trade supply is derived from the firm's profit maximization procedure in the exporting country, with resource allocation determined by the constant elasticity of transformation (CET). The gravity model of trade flows, proxied by value, is then obtained under market equilibrium conditions, where demand for and supply of trade flows are equal. (Karemera *et al.* 1999). Bergstrand argues that since the reduced form eliminates all endogenous variables out of the explanatory part of each equation, income and prices can also be used as explanatory variables of bilateral trade. Thus instead of substituting out all endogenous variables, Bergstrand (ibid.) treats income and certain price terms as exogenous and solves the general equilibrium system retaining these variables as explanatory variables. The resulting model is termed a "generalized" gravity equation (Krishnakumar 2002). Bergstrand's analysis is based on the assumptions of nationwide product differentiation by monopolistic competition and identical preferences and technology for all countries. With N countries, one aggregate tradable good, one domestic good and one internationally immobile factor of production in each country, Bergstrand's (1985) model becomes a general equilibrium model of world trade. Bergstrand's (1989) later model is an extension of his earlier work. In this model production is added under monopolistic competition among firms that use labour and capital as factors of production. Firms are assumed to produce differentiated products under increasing returns to scale. Based on some simple assumptions on taste and technology Bergstrand again derives the general form of the gravity equation.

[31] Anderson, J.E. (1979) A Theoretical Foundation for the Gravity Equation, *The American Economic Review*, 69, 106-16.

The micro-foundations approach also alleges that the crucial assumption of perfect product substitutability of the 'conventional' gravity model is unrealistic as recent evidence shows that trade flows are differentiated by place of origin. So exclusion of price variables leads to misspecification of the gravity model. Anderson (1979), Bergstrand (1985, 1989), Thursby and Thursby (1987), Helpman & Krugman (1985) and others share this view. These studies show that price variables, in addition to the conventional gravity equation variables, are also statistically significant in explaining trade flows among participating countries (Oguledo and Macphee 1994). Generally a commodity moves from a country where prices are low to a country where prices are high. Therefore, export trade flows are positively related to changes in export prices, and import trade flows are negatively related to changes in import prices (Karemera *et al*. 1999). Hence prices of a particular commodity in trading countries are important. However, price and exchange rate variables can be omitted only when products are perfect substitutes in consumer preferences and when they can be transported without cost between markets, which are the basic assumptions behind the standard Heckscher-Ohlin (H-O) model (Jakab 2001[32]).

Eaton and Kortum (1997) also derive the gravity equation from a Ricardian framework, while Deardorff (1998) derives it from a H-O perspective. Deardorff opines that the H-O model is consistent with the gravity equations. He argues that gross trade flows will follow a gravity equation if trade is frictionless, producers and consumers are indifferent and markets are settled randomly among all possibilities. Deardorff also proves that, if trade is impeded and each good is produced by only one country, the H-O framework will result in the same bilateral trade pattern as the model with differentiated products. If there are transaction costs of trade, distance should also be included in the gravity equation. As shown by Evenett and Keller (1998)[33], the standard gravity equation can be obtained from the H-O model with both perfect and imperfect product specialization. Some assumptions different from increasing returns to scale, of course, are required for the empirical success of the model (Jakab *et al.* 2001). Economies of scale and technology differences are the explanatory factors of the comparative advantage instead of considering factor endowment as a basis of this advantage as in the H-O model (Krishnakumar 2002). Evenett and Keller (ibid) note that the volume of trade is determined by the extent of product specialization, and argue that the increasing returns to scale model rather than the perfect specialization version of the H-O model is more likely to be a candidate for explaining the success of the gravity equation. Furthermore, they reveal that models with imperfect product specialization, compared to models with perfect product specialization, can explain variations better in the volume of trade. Extending this analysis Feenstra [34]*et al*. (2001) observe that when tested within the differentiated product category the monopolistic competition models of international trade account for the success of the equation (Carrillo and Li 2002)[35].

Haveman and Hummels (2001 and 2004) note that the gravity equation can be generated from a model with complete and incomplete specialization (see Appendix 3). The works of Anderson (1979), Bergstrand (1985), Deardorff (1998), and Helpman and Krugman (1985) are examples of complete specialization model. Derivation of the gravity equation under the complete specialization model implies that each good is produced in only one country; consumers highly value variety and

[32] Jakab,Z.M. et. al (2001) How Far Has Trade Integration Advanced?: An Analysis of the Actual and Potential Trade of Three Central and Eastern European Countries*, Journal of Comparative Economics,* 29, 276-92.

[33] Evenett, S.J. and Keller, W. (1998) On the Theories Explaining the Success of the Gravity Equation, *NBER Working Paper*, No. 6529, Cambridge, MA: National Bureau of Economic Research.

[34] Feenstra, R. (2003) *Advanced International Trade: Theory and Evidence*. Chapter 5, Princeton University Press.

[35] Carrillo, C. and Li, C. A. (2002) Trade Blocks and the Gravity Model: Evidence from Latin American Countries, *Working Paper* (downloaded*)*, Department of Economics, University of Essex, UK.

therefore import all goods that are produced. On the other hand, the incomplete specialization model implies that importers buy from only a small fraction of available sources. As a result, trade levels predicted under the complete specialization model are much higher than the incomplete specialization model (Haveman and Hummels 2004).

To test for the relevance of monopolistic competition in international trade Hummels and Levinsohn (1993) use intra-industry trade data. Their results show that much intra-industry trade is specific to country pairings. So their work supports a model of trade with monopolistic competition (Jakab *et al.* 2001).

Therefore, the gravity equation can be derived assuming either perfect competition or a monopolistic market structure. Also neither increasing returns nor monopolistic competition is a necessary condition for its use if certain assumptions regarding the structure of both product and factor market hold (Jakab *et al*. 2001).

Analysing the theoretical foundations of gravity equations, Evenett and Keller (1998) mention three types of trade models. These models differ in the way specialisation is obtained in equilibrium. They are:

(1) Technology differences across countries in the Ricardian model,
(2) Variations in terms of countries' different factor endowments in the H-O model,
(3) Increasing returns at the firm level in the model of Increasing Returns to Scale (IRS).

These are the perfect specialization models, and are considered as limiting cases for a model of imperfect specialisation. But empirically imperfect product specialisation is important. In real life, though technologies and factor endowments are different in different countries, they change over time and can be transferred between countries. Trade theories just explain why countries trade in different products but do not explain why some countries' trade links are stronger than others and why the level of trade between countries tends to increase or decrease over time. This is the limitation of trade theories in explaining the size of trade flows. Therefore, while traditional trade theories cannot explain the extent of trade, the gravity model is successful in this regard. It allows more factors to be taken into account to explain the extent of trade as an aspect of international trade flows (Paas 2000).

Trade occurs because of differences across countries in technologies (Ricardian theory), in factor endowments (H-O theory), differences across countries in technologies as well as continuous renewal of existing technologies and their transfer to other countries (Posner 1961 and Vernon 1966). Quoting from Dreze (1961) [36], Mathur (1999) says that country size and scale economies are important determinants of trade (Paas 2000).

Production will be located in one country if economies of scale are present. Economies of scale also induce producers to differentiate their product. The larger the country is in terms of its GDP/GNP, for instance, the larger the varieties of goods offered. The more similar the countries are in terms of GDP/ GNP, the larger is the volume of this bilateral trade. Thus with economies of scale and differentiated products, the volume of trade depends in an important way on country size in terms of its GDP/GNP (Paas 2000). This is the concept of new theories of international trade[37], and it

[36] Dreze, J. (1961) Leo Exportation Intra-CEE en 1958 et al Position Belge, *Recherches Economiques de Louvain* (louvin), 27, 7171-738.

[37] Among the contributors of these new theories, Krugman (1979), Lancaster (1980), Helpman (1981, 1984, 1987 and 1989), Helpman and Krugman (1985, 1989), and Deardorff (1984) warrant special mention in the context of their explaining trade both empirically and theoretically (Mathur 1999). These theories implicitly assume similar technologies and factor endowments across countries (Pass 2000).

provides a better explanation of the empirical facts of international trade in terms of their pattern, direction and rate of growth. As a result, the traditional trade theories have been supplemented, if not replaced, by the new trade theories in recent years, based on the assumption of product differentiation and economies of scale.

The H-O and Ricardian theories of trade contradict with trade in the real world. In the H-O model the larger the differences in the factor endowments between two countries, the larger will be the trade. Therefore, based on this ground we would expect little trade between the developed countries of Western Europe since these countries have similar factor endowments and more trade between developing and developed countries. This is contrary to empirical fact. This is evident from the international trade statistics that both intra-industry trade and trade between developed countries are conspicuously large.

Linder's (1961) hypothesis of trade seems to be more relevant in real life. This hypothesis suggests that the presence of increasing returns in production causes the production of each good to be located in either of the countries but not in both of them. It is also suggested that countries with similar per capita income will have a similar demand structure. So the more similar the countries are in per capita income, the larger is likely to be their bilateral trade. That is, the "absolute value of the difference" of per capita income in any two countries will have a negative effect on their bilateral trade. This should explain the trade pattern between developed countries (Mathur 1999).

However, Deardorff (1998) argues that a certain kinship to Heckscher-Ohlin can be viewed in the gravity model. According to the H-O theory, capital intensive goods are produced by capital-rich countries. So, as Markusen (1986) has already shown, if high- income consumers tend to consume larger budget shares of capital intensive goods, then it follows that (1) capital rich countries will trade more with other capital rich countries than with capital poor countries, and (2) capital poor countries will trade more with their own kind. These are the same predictions as those of the Linder hypothesis (Frankel 1997[38]).

From the discussion above it is clear that there are two views of trade theorems: supply side and demand side. Differences in technology, factor endowments, economies of scale, etc., are the supply side theorems of trade. On the other hand, Linder's hypothesis and intra-industry trade are the demand side explanations of trade. The use of the gravity model in analyzing the bilateral trade flows is a good choice as it contains elements of both demand and supply side explanations of trade.

While GNP is being taken as a variable, the reason for taking 'per capita GNP' as a separate independent variable is that it indicates the level of development. If a country develops, consumers demand more exotic foreign varieties that are considered superior goods. Further, the process of development may be led by the innovation or invention of new products that are then demanded as exports by other countries. Also it is true that more developed countries have more advanced transportation infrastructures which facilitate trade.

Transportation cost is an important factor of trade. Production of the same good in two or more countries in the presence of transport costs is inconsistent with factor price equalization. Moreover, different trade models might behave differently in the presence of transport cost and differences in demand across countries (Paas 2000, quoted from Davis and Weinstein 1996[39]).

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[38] Frankel, J.A. (1997) *Regional Trading Blocs in the World Economic System*, Institute for International Economics, Washington, D.C.

[39] Davis, D. and Weinstein, D. (1996) Does Economic Geography Matter for International Specialisation? *NBER Working Paper*, No. 5706, Cambridge Mass: National Bureau of Economic Research.

Transport costs are proxied by distance. So distance between a pair of countries naturally determines the volume of trade between them. Studies based on a general equilibrium approach, (Tinbergen 1962, Pöyhönen 1963, Bergstrand 1985, 1989 etc.) conclude that incomes of trading partners and the distances between them are statistically significant and expect positive and negative signs, respectively (Oguledo and Macphee 1994, Karemera *et al.* 1999[40]). Three kinds of costs are associated with doing business at a distance: (i) physical shipping costs, (ii) time-related costs and (iii) costs of (cultural) unfamiliarity. Among these costs, shipping costs are obvious (Frankel 1997 quoted from Linneman 1966).

The majority of the general equilibrium studies have found the population sizes of the trading countries to have a negative and statistically significant effect on trade flows (Linneman 1966, Sapir 1981, Bikker 1987) although a few exceptions have also been found in literature (Brada and Mendez 1983 for example). Trade barriers such as tariffs have a statistically significant negative effect on trade flows between countries. On the other hand, preferential arrangements are found to be trade enhancing and statistically significant (Oguledo and Macphee 1994). The reason is that trade group member countries are more likely to have incentives for trade with each other as their cultures or cultural heritages and patterns of consumption and production are likely to be similar. Also countries with common borders are likely to have more trade than countries without common borders (Karemera *et al*. 1999).

The control vector can and is expected to be further elaborated with the introduction of variables such as, proximity to the current trading locations, ancient trade route connections and incentivized trading policies.

Five-year interval data is utilized to project a graphical image of Bangladesh Jute sector's trading potential with the rest of the world in a two-country trading pair formation.

2.4.2.7 On Structural Estimation of Gravity Models with Market Entry Dynamics[41]

Whether two countries trade with each other in a given year or not – referred to as an extensive margin of bilateral trade – can be explained with great success in terms of a function of whether they did so in prior periods or not. In one study, for a cross section of the major 171 countries in terms of their GDP over the time period 1992-2004, 44% of the country-pairs display bilateral exports when they did so 3 years prior to that, 41% do not report exports when they did not have any exports 3 years prior to that, and 16% change their activity within 3 years on average. Moreover, 21% of the country-pairs display bilateral exports in 2004 and they did so in 1992, 36% do not report exports in 2004 and they did not have any exports in 1992, and 44% change their activity from 1992 to 2004. There is a strong role for persistence to play both unconditional and, in qualitative terms, conditional on exogenous determinants of the extensive margin of trade. This paper delivers a structural empirical model, which is capable of analyzing both the extensive and the intensive margin of aggregate bilateral goods trade with a path-dependent extensive margin of trade (e.g., due to learning of firms about fixed market entry costs). In particular, the work by Evenett and Venables (2002), Albornoz, Calvo Pardo, Corcos, and Ornelas (2010), and others points to such path dependence at the extensive margin of trade.

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[40] Karemera, D. et al (1999) A Gravity Model Analysis of the Benefits of Economic Integration in the Pacific Rim, *Journal of Economic Integration*, 14 (3), 347-67, September.

[41] Peter Egger, Andrea Leiter and Michael Pfaffermayr**,** 13th August 2010 (accessed on 06 June 2014)

A salient feature of the aforementioned general equilibrium models is that they are designed for empirical cross section analysis. Hence, they do not distinguish between short-run and long-run responses of outcome to changes in fundamental variables. In principal, it is of course possible with such models to simply index endogenous and exogenous variables by time and analyze empirically a series of cross sections. Yet, there is no salient role for history to play in the sense that, conditional on the contemporaneous exogenous variables, those cross sections would be independent of each other. Hence, such theoretical work suggests that the analysis of time series data on bilateral trade matrices can be performed for each period separately without any loss of insight.
In line with recent structural empirical work on aggregate bilateral trade flows, we model nominal bilateral goods trade as a function of an exporting country's supply potential, an importing country's demand potential, and trade barriers. In line with Melitz (2003), Chaney (2005), or Helpman, Melitz, and Rubinstein (2008), the latter contain elements, which are tied to the quantity of goods shipped (variable trade costs) and ones that entail fixed import market access costs (fixed trade costs). Apart from contemporaneous fundamentals, we allow the extensive margin of bilateral trade to depend on bilateral export status prior to a given point in time. For instance, this is consistent with a firms' learning about fixed market access costs for a given importing country. This leads to a dynamic model of import market selection, which is stochastically related to export demand.
Researchers have formulated a deterministic and a stochastic version of that model and applied it to data on bilateral aggregate trade flows of the aforementioned 171 countries in three-year intervals between 1992 and 2004. Researchers have asked the question about the main drivers of world trade for that period, which in the context of the model are (fixed and variable) trade costs, labor endowments, and total factor productivity. In a different context, Baier and Bergstrand (2001) have asked a similar question in a non-structural model with tariffs, non-tariff trade costs, and GDP growth as the main drivers of trade in a static model. They found that 67% of total growth of trade flows for 16 OECD countries over 1958-1960 and 1986-1988 could be explained by GDP growth, 26% by tariff reductions, and 8% by changes in non-tariff trade costs. Hence, the lion's share is attributed to GDP growth, the latter being exogenous there but endogenous in general equilibrium models of trade and itself a function of tariffs and trade costs among other factors (such as total factor productivity and factor endowments). In particular, we shed light on the short-run and the long-run responses – and hence, of path-dependence – of trade in general equilibrium to the changes of these fundamentals[42]. We do so in a fully nonlinear model as well as linearized versions which represent generalizations of the framework of Baier and Bergstrand (2009) for the case of zero trade flows. Our findings suggest that the average three-year change in (fixed and variable) trade costs – a reduction thereof – per country-pair between 1992 and 2004 triggered positive short-run and long-run effects on nominal bilateral exports. Similarly, the increases in labor endowments and total factor productivity raised bilateral exports in the short run and the long run, respectively.

2.4.2.8 Lessons from Causes and Effects of International Trade Regimes – The Cobden-Chevalier-Network (c. 1860-1877)[43]

The *Cobden-Chevalier-Treaty* (1860) closed by France and the UK in 1860 was succeeded by more than fifty bilateral treaties of similar form and content. Its outstanding importance stems from the share of its members in world trade and from its institutionalisation: in difference to today's formal multilateralism, formally it was entirely bilateral. Despite this, the network displayed a distinctly

[42] Lee, H., D. Roland-Holst, and D. van der Mensbrugghe. 2001. General Equilibrium Assessments of Trade Liberalization in APEC Countries. In M. Dutta et al., eds. Restructuring of Asian Economies for the New Millennium . Volume 9B. Amsterdam: Elsevier.

[43] Taken from "Causes and Effects of International Trade Regimes –The Cobden-Chevalier-Network (c. 1860-1877)", by Markus Lampe (University of Münster), outcome document of a project funded by the Fritz Thyssen Stiftung and supervised by Ulrich Pfister and Carsten Burhop

multilateral quality: All treaties contained most of the following stipulations: 1) repeal of import and export duties, 2) maximum duties (25-30% of value), 3) concessions on specific duties, 4) freedom of transit, 5) duration of ten to twelve years, 6) mutual concession of most-favoured nation (MFN) status, 7) a variety of concessions promoting freedom of commerce. In an increasing number of treaties sealed after 1862, contracting partners explicitly transferred concessions granted in former ones.

Contrary to the UK, France did not generalize its concessions from the original treaty to all trading partners. Thus, the latter aimed at overcoming this implicit discrimination in comparison to Britain and sought to conclude similar treaties with France to support their export industries. Thereby, they caused the discrimination of further outsiders and created incentives for the spreading of the network among their trading partners. On the other hand, all previous contractual partners with MFN status benefited as free-riders from new concessions granted in subsequent negotiations. This facilitated the fast spread of the network, but also caused uncertainties regarding its sustainability: firstly, because the treaties were limited in time, and secondly, because the possibility of free-riding made governments more and more unwilling to grant further concessions. In fact, many of the later treaties contained MFN clauses only, and no further tariff reductions. At the end of the 1870s, a marked tendency towards the revision of concessions could be observed. It was mainly motivated by a cyclical downturn and increasing imports of cheap grain from Russia and the Americas. Although the treaty network persisted until WWI, it lost much of its original free trade character due to revisions and renegotiations after 1875. Therefore, we focus on the years between 1860 and 1877 (see Accominotti/Flandreau 2006, Marsh 1999, Irwin[44] 1993, Brawley 2005[45]).

Our central question is whether an expansion in international trade in the 1860s can be attributed to the treaty network. According to ACCOMINOTTI/FLANDREAU (2006), the first paper to comprehensively quantify the effects of the treaty network on international trade, the notion of free trade-bilateralism to have been successful, "a deeply rooted belief among economists and economic historians", has to be rejected. They estimate a variety of gravity models for 21 countries and every five years from 1850 to 1870.

In their results, the conclusion of commercial treaties from 1860 on turns up as having had no systematic effect on international trade. Together with similar findings by ROSE[46] (2004) on the quantitative non-significance of post-WWII GATT/WTO for rising trade volumes of their members, this might lead one to the conclusion that commercial diplomacy and international trade institutions do not merit the attention they receive by the public and the social sciences.

To see if there are hidden insights underneath the macro-level of "overall trade", we re-examine the network applying the same method, but in addition to investigating effects on aggregate trade flows we also look at the industry level and exploratively check the distribution of gains between countries at the industry level.

Our method, the gravity equation, relies on an empirically well proven and theoretically justified model that relates bilateral trade flows between countries i and j at time t (bilateral imports IM_{ijt}) to the incomes of exporter and importer ($Y_i * Y_j$) and the "economic distance" that separates them, which is proxied by geographic distance between capitals (D_{ij}). For comparability with the cited

[44] Irwin, DA (1993), »Multilateral and Bilateral Trade Policies in the World Trading System: An Historical Perspective«, in: J. de Melo/A. Panagarriya (eds.), *New Dimensions in Regional Integration*, Cambridge, 90-119.

[45] Brawley, M (2005): *Power, Trade and Money*, Peterborough (chapter 11).

[46] Rose, AK (2004), »Do We Really Know That the WTO Increases Trade?«, *AER* 94, 98-114.

studies, we use the following specification that adds GDP per capita as an additional parameter to proxy demand structures:

$$\ln (Im_{ijt}) = \beta_0 + \beta_1 \ln(Y_i Y_j)_t + \beta_2 * \ln(Y_i/Pop_i * Y_j/Pop_j)_t + \beta_3 * \ln(D_{ij}) + \ldots + \varepsilon_{ijt}$$

We add time effects and time-invariant import-country dummies to account for time trends and unobserved country characteristics. To account for "cultural distance" not embodied in D_{ij}, we add dummies for common border and common language. Other frequently used independent variables such as "colonial ties", "island" and "landlocked" are omitted because they proved to be of negligible importance.

The Cobden-Chevalier network is modelled by dummy variables that take the value of 1 when a country pair has a most-favoured nation treaty in force and 0 otherwise. In the basic model of aggregate trade, we call this variable "COBDEN"; it should be identical to the Accominotti-Flandreau specification. For the models at commodity group level, we code a corresponding variable "CONCESSION" that receives a "1" if concessions on products of the specific industry are granted by an importer in a treaty, explicitly or by MFN. As the MFN clause leads to indirect concessions that are not effectively exploited by producers from particular countries, an additional variable "ORIGINAL CONCESSION" was coded that only receives a "1" if products of a commodity group are explicitly mentioned in the actual bilateral treaty, excluding concessions via MFN.

To investigate the effects of commercial treaties at the commodity level, we constructed a detailed, "bottom-up" bilateral trade dataset. At the moment, it contains the values of bilateral imports between UK, US, France, Netherlands, Belgium, Austria-Hungary, and "Germany" on a biannual basis for 1859 to 1869. It comprises data on 21 commodity groups that were established by matching contemporary classifications on today's *Harmonised System*. The commodity groups cover goods like wheat, rye, wool, different sorts of yarns and textiles, iron and steel (see appendix) and an average of 50-65 per cent of the countries' foreign trade. We exclude "tropical" goods (guano, indigo, cotton, tobacco, etc.) as well as sugar and raw minerals (zinc, copper, coal, etc.). The free ports of Germany (Hanse Towns) and Austria-Hungary (Trieste) were treated as entrepôts and have been incorporated into their *hinterland* customs area (Zollverein, Austria-Hungary). The countries of origin and destination of maritime trade of the Zollverein and Austria-Hungary that passed these ports were assigned using the official statistics of Hamburg, Bremen and Trieste.

National statistics of the Netherlands, the Zollverein, and (partly) Austria-Hungary were corrected for known shortcomings in the valuation of goods. We compared unit values of bilateral imports and exports and re-estimated values based on partner countries' records that contemporaries affirmed to be reliable (Bremen, Hamburg, UK), and on contemporary estimates for the Zollverein. In a feasibility study, we tested with data for 1865 if the corresponding records on the same bilateral trade flow by importer and exporter matched satisfactorily. The tests confirmed the reliability of the data, showing high correlation coefficients and no systematic differences between importer and exporter data (as measured by Wilcoxon Signed Rank Pair Tests).[47]

For contemporaries it was common knowledge that the "countries of origin" recorded mainly referred to the last land border crossed or the ultimate port visited. Therefore, a comprehensive "transit correction" has been undertaken to avoid that bilateral trade volumes of neighbouring countries appear as systematically higher than appropriate. Using transit and re-export statistics, we calculated the proportion of partner countries' special exports (from the home marked) to transit and used this figure to calculate the share of both flows in the importer's recorded values. Among

[47] Results can not be reproduced here, but more detailed information is available (in German) on request from the author.

others, this allowed to allot British imports of silk ribbons from the Netherlands as originating from the Zollverein, and a big portion of British imports of grain from Prussia as originating from Russia.

The data for income, income per capita and distance was taken from the same sources as used in ACCOMINOTTI/FLANDREAU[48] (2006),[49] except for Germany, where the BURHOP/WOLFF[50] (2005) NNP compromise estimate was used. A list of treaties was assessed from GLIER[51] (1905); treaty texts were obtained from the *Consolidated Treaty Series*.

Overall, our "bottom-up" approach confirmed the findings on the none-fostering of international trade by the network at the macro level and showed that increased trade has to be related mainly to income growth. However, we were able to show that for certain commodity groups specific concessions were accompanied by an increase in international trade. Especially, exporters of some countries in manufacturing industries and alcoholic beverages benefited. This confirms that commercial diplomacy did not lead to overall and uniformly distributed gains from bilateral liberalization, as free traders would have preferred, but suggests that export lobbies did matter.

2.4.3 Broad Objective # 3

Defining a prioritized Agricultural Business Policy Framework for Bangladesh with respect to:

a) International Trading and
b) Homegrown competitive/comparative advantages using Fuzzy TOPSIS (Technique for Order Preference by Similarity to Ideal Solution) with specific reference to Jute - with RCA (Revealed Comparative Advantage).

2.4.3.1 Specific Objective Set # 3

Using Factor Analysis and Analytic Hierarchy Process (AHP), analyze how Bangladesh, and specifically, jute, would be able to provide/complement the markets identified (at) above through:

a) Areas: i.e., connecting spatial distribution of products and services from Bangladesh to specific region(s) of the world
b) Products: i.e., product/production specialization for providing complements to the international markets in agricultural sector
c) Services: i.e., service specialization for providing complements to the international markets in agricultural sector, and
d) Operations/solutions through:
    i) Composite farms
    ii) Contract farming, and
    iii) Setting up Wholesale farms abroad in regions where factors of production suit the needs of the entrepreneurs.

[48] Accominotti, O/M Flandreau (2006): *Does bilateralism promote trade? Nineteenth century liberalization revisited*, CEPR Discussion Paper 5423.

[49] Prof. Marc Flandreau provided the dataset, of which GDP data was used here.

[50] Burhop, C/GB Wolff (2005). »A Compromise Estimate of Net National Product, 1851-1913, and its Implications for Growth and Business Cycles«, *JEH* 85, 615-657.

[51] Glier, L (1905), *Die Meistbegünstigungs-Klausel*, Berlin.

2.4.3.2 Hypotheses Set # 3

(Using Factor Analysis and Analytic Hierarchy Process (AHP)) For analyzing how Bangladesh, and specifically, jute, would be able to provide/complement the markets identified (at) above with:

a) Areas (i.e., connecting spatial distribution of products and services from Bangladesh to specific region(s) of the world): there are specific areas of Bangladesh, especially with regards to jute and in relation to the ancient value-chains existing between and amongst regions of the world, which could be connected to the international factor input and exchange markets for providing
   i) Products
   ii) Services
   iii) Wholesale solutions
b) Products (i.e., product/production specialization for providing complements to the international markets in agricultural sector): there are specific value added products in which Bangladesh Jute holds competitive and/or comparative advantages for complementing international markets over the period 2010 – 2030 (i.e., identification of products)
c) Services (i.e., service specialization for providing complements to the international markets in agricultural sector): there are specific services which Bangladesh holds competitive and/or comparative advantages for complementing international markets over the period 2010 – 2030 (i.e., identification of service areas)
d) Bangladesh can complement the international markets by providing comprehensive operations/solutions in jute farming and jute derivatives through:
   i) Composite farms
   ii) Contract farming, and
   iii) Setting up wholesale farms abroad in regions where factors of production suit the needs of the entrepreneurs.

2.4.3.3 Research Model: Analytic Hierarchy Process

The Research Model pursued in this section of the paper is based on two very intrusive marketing intelligence analyzers: Factor Analysis and Analytic Hierarchy Process (AHP).

The Principal Factor Analysis variant is used for identifying and streamlining the variables into factor-loadings so that the underlying importance and scree is documented. Each of the four areas under consideration for the hypotheses testing is further sub-divided into variables, which then are measured with a market survey instrument (i.e., questionnaire) and tested for variance under condition of *varimax*. Definition-wise, Factor analysis is a statistical method used to describe variability among observed, correlated variables in terms of a potentially lower number of unobserved variables called factors. For example, it is possible that variations in four observed variables mainly reflect the variations in two unobserved variables. Factor analysis searches for such joint variations in response to unobserved latent variables. The observed variables are modeled as linear combinations of the potential factors, plus "error" terms. The information gained about the interdependencies between observed variables can be used later to reduce the set of variables in a dataset. Computationally this technique is equivalent to low rank approximation of the matrix of observed variables.

Please note that here in this part of the paper four areas are under observation, i.e.,

(a) Areas

(b) Products
(c) Services
(d) Composite solutions.

2.4.3.4 Data Source, Sampling, Questionnaire Development

Primarily two sources of data have been utilized for the conduct of investigation in this area, Primary data and Secondary data. Secondary data – collected from various published and recorded (i.e., archived) sources have been collected and collated using detailed and in-depth study of the materials.

Primary data has been collected using a skillfully developed questionnaire. The questionnaire has been developed after pre-testing as has been detailed in the earlier communications recorded in the prefatory part of the paper.

As because the target sample for the study was widely scattered across the Indian sub-continent the sample size has been determined using the convenience method.

The construct-wise fifty-five variables set is reproduced below to see whether the four principal factors emerge as the dominant factors which can account for the maximum variance as long as market expansion, market consolidation or new market acquisition are concerned. However, the consequent survey instrument is devised to test the suitability of the specific variable to its overall contribution to heightening the competitive edge and profitability of the jute sector (i.e., (a) area-of-production, (b) product, (c) service and (d) wholesale solution-wise) with regards to foreign trade.

A semantic differential spectrum using points from 7 to 1 distributed as per the appreciation of Very High Positive Impact to Very High Negative Impact with the positive being 7 and the negative being 1 has been utilized. The AHP values have been used distributed as follows:

a. 100 points distributed amongst all constructs as to how important the individual construct is found to be amongst the entire set.
b. 100 points distributed amongst each of the variables in accordance to the perceived appreciation of the importance of the variable in relations to the rest of the variables.

Table 3: Factor Analysis Content Table and AHP Value Pivot

Serial	Construct / Variable
1L	Land
1L1	Land Availability in premium jute production areas affect the competitive edge of jute in international trade
1L2	Land Accretion in premium jute production areas affect the competitive edge of jute in international trade
1L3	Land Conversion from jute to other usages affect the competitive edge of jute in international trade
1L4	Land Utilization of premium jute growing areas by usages other than jute affect the competitive edge of jute in international trade
1L5	Land Administration of the country adds to the competitive edge of jute in international trade
2IA	Input availability
2IA1	Seed availability affects the competitive edge of jute in international trade
2IA2	Fertilizer availability affect the competitive edge of jute in international trade
2IA3	Irrigation, access and ease, affect the competitive edge of jute in international trade
2IA4	Pest Control, access and expenditure (subsidy) affect the competitive edge of jute in international trade
3L	Labour
3L1	Cropping Pattern and its current structure in Bangladesh affect the competitive edge of jute in international trade
3L2	Farming Intensity of the jute growers affect the competitive edge of jute in international trade
3L3	Alternative usages of land affect the competitive edge of jute in international trade
3L4	Alternative employment options of the jute farmers and workers in the field affect the competitive edge of jute in international trade
3L5	Position in the learning curve of agricultural production curve of the jute grower affect the competitive edge of jute in

Serial	Construct / Variable
	international trade
4C	Capital
4C1	Growth of National economy affect the competitive edge of jute in international trade
4C2	Credit Availability affect the competitive edge of jute in international trade
4C3	Working Capital Flow affect the competitive edge of jute in international trade
4C4	Public Investment in Jute Agriculture affect the competitive edge of jute in international trade
4C5	Public Investment in Jute Industry affect the competitive edge of jute in international trade
4C6	Private Investment affect the competitive edge of jute in international trade in Jute Agriculture
4C7	Private Investment in Jute Industry affect the competitive edge of jute in international trade
5AVA	Agricultural Value Addition
5AVA1	Policy support from the State in agricultural production affect the competitive edge of jute in international trade
5AVA2	Agricultural Mechanization affect the competitive edge of jute in international trade
5AVA3	Research and Development achieved in jute production affect the competitive edge of jute in international trade
5AVA4	Agricultural Extension work affect the competitive edge of jute in international trade
5AVA5	Education and Learning of the jute farmer and farm worker affect the competitive edge of jute in international trade
5AVA6	Infusion of advanced technology in agriculture affect the competitive edge of jute in international trade
6IAV	Industrial Value Addition
6IAV1	Policy support from the State in industrial production affect the competitive edge of jute in international trade
6IAV2	Labour Employment in jute mills and jute-based industry affect the profitability (affecting competitive edge) of jute in international trade
6IAV3	Management Overhead in the jute mills and jute-based manufacturing units affect the competitive edge of jute in international trade
6IAV4	Proportion of Fixed Overhead charges and its trend affect the competitive edge of jute in international trade
6IAV5	Quality Control in the jute mills and jute-based production units affect the competitive edge of jute in international trade
6IAV6	Research and Development in Production at the jute mills and jute based manufacturing units affect the competitive edge of jute in international trade
6IAV7	Product Variety of the finished goods affect the competitive edge of jute in international trade
6IAV8	Infusion of advanced technology in processing and manufacturing affect the competitive edge of jute in international trade
6IAV9	Position in the learning curve of industrial production at the jute mills and at the jute-based production facilities affect the competitive edge of jute in international trade
7CAT	Connectivity and transportation
7CAT1	Access to transport architecture leading to easy trans-shipment to destination markets affect the competitive edge of jute in international trade
7CAT2	Investment in transport architecture affect the competitive edge of jute in international trade
7CAT3	Enhanced Connectivity to factor markets affect the competitive edge of jute in international trade
7CAT4	Connectivity to domestic growth centers affect the competitive edge of jute in international trade
7CAT5	Efficiency in utilizing distribution networks affect the competitive edge of jute in international trade
7CAT6	Connectivity to world markets affect the competitive edge of jute in international trade
8M	Markets
8M1	Development of substitutes affect the competitive edge of jute in international trade
8M2	Economy of substitutes affect the competitive edge of jute in international trade
8M3	Versatility of substitutes affecting consumer choice affect the competitive edge of jute in international trade
8M4	Development of complements affect the competitive edge of jute in international trade
8M5	Destination Composition affect the competitive edge of jute in international trade
8M6	Development of New Markets affect the competitive edge of jute in international trade
8M7	Economic Health of Destination Markets affect the competitive edge of jute in international trade
8M8	Established foreign distribution networks affect the competitive edge of jute in international trade
8M9	Loyalty of foreign distribution networks affect the competitive edge of jute in international trade
9CC	Climatic Conditions
9CC1	Adverse changes in Climatic Conditions affect the competitive edge of jute in international trade
9CC2	Rainfall and availability of water affect the competitive edge of jute in international trade
9CC3	Average Temperature and its morphosis affect the competitive edge of jute in international trade
10EF	Exogenous Factors
10EF1	Entrepreneurial Capability of the population affect the competitive edge of jute in international trade
10EF2	Social stability of the country affect the competitive edge of jute in international trade
10EF3	Social unrests affect the competitive edge of jute in international trade
10EF4	Bilateral agreements with foreign countries – affecting domestic production conditions affect the competitive edge of jute in international trade
10EF5	Regional agreements with foreign countries – affecting domestic production conditions affect the competitive edge of jute in international trade
10EF6	Global agricultural and commercial arrangements – affecting domestic production conditions affect the competitive edge of jute in international trade
10EF7	Bilateral agreements with foreign countries – affecting trade affect the competitive edge of jute in international trade
10EF8	Regional agreements with foreign countries – affecting trade affect the competitive edge of jute in international trade
10EF9	Global agricultural and commercial arrangements – affecting trade affect the competitive edge of jute in international trade

Serial	Construct / Variable
10EF10	Role of International Organizations (i.e., World Bank, IMF, ADB, et al) affect the competitive edge of jute in international trade
11AD	Advanced Derivatives
11AD10	Product diversification affect the competitive edge of jute in international trade
11AD11	There exists enough avenue for product diversification in the jute sector to attain global significance
11AD12	The market is ripe for product diversification in the jute sector to attain higher competitive margins in foreign trade
11AD13	The domestic production field is prepared for product diversification
11AD14	The domestic factor endowments are sufficient for product diversification
11AD15	Foreign markets require diversified jute products
11AD16	Foreign markets are ready and willing to bear premium (prices) for advanced and value added jute products
11AD20	New Usages for existing products affect the competitive edge of jute in international trade
11AD21	There exists enough avenue for finding new usages of the existing jute products to attain global significance
11AD22	The market is ripe for finding alternative usages for the existing products in the jute sector to attain higher competitive margins in foreign trade
11AD23	The domestic production field is prepared for finding new usages for the existing product for attaining higher margins in the international markets
11AD24	The domestic industrial production capabilities are sufficient for finding new usages for existing product
11AD25	Foreign markets require diversifying the existing jute products
11AD26	Foreign markets are ready and willing to bear premium (prices) for advanced and value added diversification of the existing jute products
11AD30	Branding affect the competitive edge of jute in international trade
11AD31	There exists enough avenue for branding jute products to attain global significance
11AD32	The market is ripe for branding jute products in to attain higher competitive margins in foreign trade
11AD33	The domestic production field is prepared for hosting (i.e., supplying) branded jute products for attaining higher margins in the international markets
11AD34	The domestic industrial production capabilities are sufficient for finding branding and expectation fulfillments
11AD35	Foreign markets require a brand-push for market entry into higher value addition segments
11AD36	Foreign markets are ready and willing to bear premium (prices) for advanced and value added brands in jute
11AD40	Composite farms are a positive new measure for attaining a global competitive edge of jute in international trade
11AD41	There exists enough avenue for creating composite farms for jute products to attain global significance
11AD42	The market is ripe for composite farms in the jute sector to attain higher competitive margins in foreign trade
11AD43	The domestic production field is prepared for advanced jute based products from composite farms for attaining higher margins in the international markets
11AD44	The domestic industrial production capabilities are sufficient for creating and sustaining composite farms
11AD45	Foreign markets could be penetrated and captured in an easier way with composite farms
11AD46	Foreign markets are ready and willing to bear premium (prices) for advanced and value added diversification of jute products from composite farms
11AD50	Contract farming is a positive new measure for attaining a global competitive edge of jute in international trade
11AD51	There exists enough avenue for creating contract farming solutions for jute products to attain global significance
11AD52	The market is ripe for contract farming solutions in the jute sector to attain higher competitive margins in foreign trade
11AD53	The domestic production field is prepared for advanced jute based products from contract farming solutions for attaining higher margins in the international markets
11AD54	The domestic industrial production capabilities are sufficient for creating and sustaining contract farming solutions abroad
11AD55	Foreign markets could be penetrated and captured in an easier way with contract farming solutions
11AD56	Foreign markets are ready and willing to bear premium (prices) for advanced and value added diversification of jute products from contract farming solutions
11AD60	Wholesale farms abroad is a positive new measure for attaining a global competitive edge of jute in international trade
11AD61	There exists enough avenue for creating Wholesale farms abroad for jute products to attain global significance
11AD62	The market is ripe for Wholesale farms abroad in the jute sector to attain higher competitive margins in foreign trade
11AD63	The domestic production field is prepared for advanced jute based products from Wholesale farms abroad for attaining higher margins in the international markets
11AD64	The domestic industrial production capabilities are sufficient for creating and sustaining Wholesale farms abroad
11AD65	Foreign markets could be penetrated and captured in an easier way with Wholesale farms abroad
11AD70	Portfolio investment a positive new measure for attaining a global competitive edge of jute in international trade
11AD71	Portfolio investment in jute is preferred by the intelligent investor
11AD72	Credit markets are prepared for Portfolio investment in jute
11AD80	Securitizing agricultural and industrial sector through the stock market a positive new measure for attaining a global competitive edge of jute in international trade
11AD81	Foreign markets are prepared for participating in the securitization and risk-based ownership of the jute sector
11AD90	Total Value Chain (TVC) Ownership is a positive new measure for attaining a global competitive edge of jute in international trade
11AD91	There exists enough avenue for creating Total Value Chain (TVC) Ownership for jute products to attain global significance
11AD92	The market is ripe for Total Value Chain (TVC) Ownership in the jute sector to attain higher competitive margins in foreign trade
11AD93	The domestic production field is prepared for advanced jute based products from Total Value Chain (TVC) Ownership for attaining higher margins in the international markets
11AD94	The domestic industrial production capabilities are sufficient for creating and sustaining Total Value Chain (TVC) Ownership

Serial	Construct / Variable
11AD95	Foreign markets could be penetrated and captured in an easier way with Total Value Chain (TVC) Ownership
11AD96	Foreign markets are ready and willing to bear premium (prices) for advanced and value added diversification of jute products from Total Value Chain (TVC) Ownership

2.4.3.5 Justification for utilizing the AHP in the model

The analytic hierarchy process (AHP) is a structured technique for organizing and analyzing complex decisions, based on mathematics and psychology. It was developed by Thomas L. Saaty in the 1970s and has been extensively studied and refined since then. It has particular application in group decision making, and is used around the world in a wide variety of decision situations, in fields such as government, business, industry, healthcare, and education[52].

Users of the AHP first decompose their decision problem into a hierarchy of more easily comprehended sub-problems, each of which can be analyzed independently. The elements of the hierarchy can relate to any aspect of the decision problem—tangible or intangible, carefully measured or roughly estimated, well or poorly understood—anything at all that applies to the decision at hand.

Theoretically, once the hierarchy is built, the decision makers systematically evaluate its various elements by comparing them to one another two at a time, with respect to their impact on an element above them in the hierarchy. In making the comparisons, the decision makers can use concrete data about the elements, but they typically use their judgments about the elements' relative meaning and importance. It is the essence of the AHP that human judgments, and not just the underlying information, can be used in performing the evaluations. The AHP converts these evaluations to numerical values that can be processed and compared over the entire range of the problem. A numerical weight or priority is derived for each element of the hierarchy, allowing diverse and often incommensurable elements to be compared to one another in a rational and consistent way. This capability distinguishes the AHP from other decision-making techniques.
In the final step of the process, numerical priorities are calculated for each of the decision alternatives. These numbers represent the alternatives' relative ability to achieve the decision goal, so they allow a straightforward consideration of the various courses of action.

Analytic Hierarchy Process will be carried out after the factor loadings are found from the steps mentioned above. Each Factor will be tested at different combinations to arrive at a sample mean and weightage distributed from the Factor Loading Table and coupled with the AHP values.

Decision situations to which the AHP can be applied include:
Choice – The selection of one alternative from a given set of alternatives, usually where there are multiple decision criteria involved.
Ranking – Putting a set of alternatives in order from most to least desirable
Prioritization – Determining the relative merit of members of a set of alternatives, as opposed to selecting a single one or merely ranking them
Resource allocation – Apportioning resources among a set of alternatives
Benchmarking – Comparing the processes in one's own organization with those of other best-of-breed organizations

[52] Rather than prescribing a "correct" decision, the AHP helps decision makers find one that best suits their goal and their understanding of the problem. It provides a comprehensive and rational framework for structuring a decision problem, for representing and quantifying its elements, for relating those elements to overall goals, and for evaluating alternative solutions.

Quality management – Dealing with the multidimensional aspects of quality and quality improvement
Conflict resolution – Settling disputes between parties with apparently incompatible goals or positions

2.4.4 Broad Objective # 4

Defining a prioritized Agricultural Business Policy Framework for Bangladesh with respect to:

a) International Trading and
c) Homegrown competitive/comparative advantages using Fuzzy TOPSIS (Technique for Order Preference by Similarity to Ideal Solution) with specific reference to Jute - with RCA (Revealed Comparative Advantage).

2.4.4.1 Specific Objective Set # 4 and 5

iv. Identifying the hindrances affecting the performance of Bangladesh agricultural sector with regards to international trade – with specific reference to Jute in production, value addition, trade and advanced economic programming

v. Using Quantitative SWOT – AHP (Analytic Hierarchy Process), Preparing a staged action plan for Agricultural products and services, with specific reference to jute, for
   a) Government
   b) Trade Bodies (i.e., Federations/Chambers/Associations)
   c) Established Business Houses, and
   d) Entrepreneurial/Green-Field institutions to take advantage of the situation identified above
   - Leading to the formation of a value-chain framework, specifically for the sector and generally (read, generic) for Bangladesh, which would securely lock the country into the world market for inputs and outputs

2.4.4.2 Hypotheses Set # 4 and 5

vi. For identifying the hindrances affecting the performance of Bangladesh agricultural sector with regards to international trade, it is implied that the following impact in a direct way:
   a) Technological inferiority
   b) Management inefficiency
   c) Absence of advanced marketing focus/control
   d) Input unavailability
   e) Adverse changes in the environment/ecological factors, through:
      i) Internal displacement/relocation of people/business
      ii) External movement of people/business
      iii) Changes in the factor endowments for agriculture
   f) Trans-boundary (i.e., across national borders) movement of factors of production and especially natural persons
   g) (Trans)-Migration of personnel and service providers
   h) Priority areas for intervention and support include:
      i) Increasing agricultural productivity, diversification, and value addition
      ii) Improving factor markets, access to assets and natural resource management (including, but not limited to:
         (1) Agricultural land
         (2) Agricultural inputs
         (3) Rural finance
         (4) Water resources management, and

(5) Natural resource management
(6) Strengthening Rural Institutions and Livelihood Support
(7) Re-establishing connections to pre-existing (and now cut-off/disjointed) production and distribution points and channels (emphasis added)

vii. An action plan is needed for preparing a 'Value-Chain Framework' for international trade in agricultural sector, especially in jute, for:
a) The Government
b) The Trade Bodies (i.e., Federations/Chambers/Associations)
c) The Established Business Houses, and
d) The Entrepreneurial/Green-Field institutions to take advantage of the situation identified above.

2.4.4.3 Research Model: Q-SWOT

This section is the last of the structured quantitative studies and leads directly onto a Case Study with an actual, firm-level, real-time value chain.

The quantitative method deployed under this section is the Q-SWOT - Analytic Hierarchy Process (AHP).

The new SWOT analysis is different from that of the previous one as it takes into account more concepts than that of the previous ones. The concepts under this analysis are—

S_s = Short-term Strength
S_l = Long-term Strength
W_s= Short-term Weakness
W_l= Long-term Weakness
O_s=Short-term opportunity
O_l= Long-term opportunity
T_s= Short-term Threat
T_l= Long-term Threat

And finally, all these concepts boil down to *competitive position* and *competitive attractiveness to be calculated as follows—*

$$\varphi_s = (S_s - W_s) + (O_s - T_s)$$
$$\varphi_l = (S_l - W_l) + (O_l - T_l)$$

The factors upon which this paper wishes to find out the impact of merger (both from a short and long term perspective) are:
The data parameters would be as follows:

i) Land
   (a) Land Availability
   (b) Land Accretion
   (c) Land Conversion
   (d) Land Utilization
   (e) Land Administration
ii) Inputs
   (a) Seed
   (b) Fertilizer
   (c) Irrigation
   (d) Pest Control
iii) Labour
   (a) Cropping Pattern

(b) Farming Intensity
(c) Alternative usages of land
(d) Alternative employment options
(e) Position in the learning curve of agricultural production

iv) Capital
(a) Growth of the National Economy
(b) Credit Availability
(c) Working Capital Flow
(d) Public Investment in Agriculture (related to jute)
(e) Public Investment in Industry (related to jute)
(f) Private Investment in Agriculture (related to jute)
(g) Private Investment in Industry (related to jute)

v) Agricultural Value Addition
(a) Policy support from the State in agricultural production
(b) Agricultural Mechanization
(c) Research and Development
(d) Agricultural Extension
(e) Education and Learning
(f) Infusion of advanced technology in agriculture

vi) Industrial Value Addition
(a) Policy support from the State in industrial production
(b) Labor Employment
(c) Management Overhead
(d) Fixed Overhead
(e) Quality Control
(f) Research and Development in Production
(g) Product Variety
(h) Infusion of advanced technology in processing and manufacturing
(i) Position in the learning curve of industrial production

vii) Connectivity and Transportation
(a) Access to transport architecture
(b) Investment in transport architecture
(c) Connectivity to factor markets
(d) Connectivity to growth centers
(e) Efficiency in Utilizing distribution networks
(f) Connectivity to world markets

viii) Markets
(a) Development of substitutes
(b) Economy of substitutes
(c) Versatility of substitutes affecting consumer choice
(d) Development of complements
(e) Destination composition
(f) Development of new markets
(g) Economic health of the destination markets
(h) Established foreign distribution networks
(i) Loyalty of Foreign Distribution networks

ix) Climatic Conditions
(a) Adverse changes in climatic conditions
(b) Rainfall and availability of water
(c) Average temperature

x) Exogenous factors

(a) Entrepreneurial Capability
(b) Social stability
(c) Social unrest
(d) Bilateral agreements with foreign countries – affecting domestic production conditions
(e) Regional agreements with foreign countries – affecting domestic production conditions
(f) Global agricultural and commercial arrangements – affecting domestic production conditions
(g) Bilateral agreements with foreign countries – affecting trade
(h) Regional agreements with foreign countries – affecting trade
(i) Global agricultural and commercial arrangements – affecting trade
(j) Role of International Organizations (i.e., World Bank, IMF, ADB, et al)

xi) Advanced Derivatives
(a) Product diversification
(b) New usages for existing products
(c) Branding
(d) Composite farms
(e) Contract farming
(f) Wholesale farms abroad in regions where factors of production suit the needs of the entrepreneurs.
(g) Portfolio investment
(h) Securitizing agricultural and industrial sector through the stock market
(i) Total Value Chain (TVC) Ownership

The primary analysis technique for this part of the paper has been selected as the Q-SWOT analysis. The reasons are simple and justified. Specific analysis techniques have been developed to analyze different situations and phenomena. The SWOT or the STRENGTH[s], WEAKNESS[es], OPPORTUNITY [ies], and THREATs faced by any particular organization, functional area, service type, or a set of the overall determinant variables of a total set inflicting causal efforts on the environment of the organization or the like.

The vision of the firm must be translated into pragmatic and concrete guidelines for developing the strategic proposals of the business and the major functions of the firm. The vision of the firm is expressed in its strategic posture, which must be distilled from the vision of the firm and an analysis of the external and internal environment. An environmental scan is a must to identify the position of any particular business within a particular industry.

It is an attempt to diagnose the general health of the industrial sector relevant to the businesses of the corporation. It assesses the macro environment that affects the corporation. This assessment should be conducted, first, from a historical perspective to determine how well the firm has mobilized its resources to meet the challenges presented by the external environment, and then, with a view o the future, to forecast the future trends in the environment and to reposition the firm's internal resources in order to those trends.

A second important component of the environmental scan is a projection of global trends in the primary markets in which the firm operates and competes with others. Although a more detailed

analysis of the industry and firm's competition must be conducted at the business level, it is important that some macro-trends be agreed upon by corporate officers and key business managers in order to assure consistency in formulating business strategy and actual programs.

Besides technical, economic and market changes that take place within any particular industry, a fourth question that deserves attention is the availability and quality of the supply of human resources particularly necessary for the smooth operation of the firm. Finally, the environmental scan must address a set of subtle but crucial issues pertaining to the macro-environment, such as, unionization, minority concerns, and so on.

As another factor of prime importance, corporate thrusts are powerful mechanisms that translate the broad direction the firm wants to follow. We define strategic thrusts as the primary issues the firm has to address during the next three or five years to establish a healthy competitive position in the key markets in which it participates. Strategic thrusts should contain specific and meaningful planning challenges for each of the business units of the firm.

Most of the people in the business research areas know of the traditional SWOT analysis of the general order and subjective criteria determination. But the Q-SWOT analysis depicts a very quantified outlook to project in to the future as holds true for portraying the future.
Q-SWOT in its quantitative form gives us a strategic direction: what the future holds for the specified variable (or factor) under consideration.

Please note that here in this part of the paper four areas are under observation, i.e.,

(a) Areas
(b) Products
(c) Services
(d) Composite solutions.

The construct-wise fifty-five variables set is reproduced below to ascribe short or long term SWOT positioning. However, the consequent survey instrument is devised to test the suitability of the specific variable to its overall contribution to heightening the competitive edge and profitability of the jute sector (i.e., (a) area-of-production, (b) product, (c) service and (d) wholesale solution-wise) with regards to foreign trade.

2.4.4.4 Data Source, Sampling, Questionnaire Development

Primarily two sources of data have been utilized for the conduct of investigation in this area, Primary data and Secondary data. Secondary data – collected from various published and recorded (i.e., archived) sources have been collected and collated using detailed and in-depth study of the materials.

Primary data has been collected using a skillfully developed questionnaire. The questionnaire has been developed after pre-testing as has been detailed in the earlier communications recorded in the prefatory part of the paper.

As because the target sample for the study was widely scattered across the Indian sub-continent the sample size has been determined using the convenience method.

The construct-wise fifty-five variables set is reproduced below to see whether the four principal factors emerge as the dominant factors which can account for the maximum variance as long as market expansion, market consolidation or new market acquisition are concerned. However, the consequent survey instrument is devised to test the suitability of the specific variable to its overall contribution to heightening the competitive edge and profitability of the jute sector (i.e., (a) area-of-production, (b) product, (c) service and (d) wholesale solution-wise) with regards to foreign trade.

A semantic differential spectrum using points from 7 to 1 distributed as per the appreciation of Very High Positive Impact to Very High Negative Impact with the positive being 7 and the negative being 1 has been utilized. The SWOT attributes – divided in short-term and long-term schedules and with importance level from 3 as high and 1 as low have been utilized.

Serial	Construct / Variable	Semantic Differential Spectrum							SWOT Attribute	Importance		
		Very High Positive Impact 7	High Positive Impact 6	Low Positive Impact 5	No Impact 4	Low Negative Impact 3	High Negative Impact 2	Very High Negative Impact 1	S_t=Short-term Strength O_t=Short-term opportunity S_l=Long-term Strength O_l=Long-term opportunity W_t=Short-term Weakness T_t=Short-term Threat W_l=Long-term Weakness T_l=Long-term Threat	High 3	Medium 2	Low 1

The following pivot table is used for collecting and collating data to ascribe SWOT values to each of the variables. Later, all aggregate data and standard scores are projected onto an AHP Module.

Table 4: Q-SWOT Value Pivot

Serial	Construct / Variable
1L	Land
1L1	Land Availability in premium jute production areas affect the competitive edge of jute in international trade
1L2	Land Accretion in premium jute production areas affect the competitive edge of jute in international trade
1L3	Land Conversion from jute to other usages affect the competitive edge of jute in international trade
1L4	Land Utilization of premium jute growing areas by usages other than jute affect the competitive edge of jute in international trade
1L5	Land Administration of the country adds to the competitive edge of jute in international trade
2IA	Input availability
2IA1	Seed availability affects the competitive edge of jute in international trade
2IA2	Fertilizer availability affect the competitive edge of jute in international trade
2IA3	Irrigation, access and ease, affect the competitive edge of jute in international trade
2IA4	Pest Control, access and expenditure (subsidy) affect the competitive edge of jute in international trade
3L	Labour
3L1	Cropping Pattern and its current structure in Bangladesh affect the competitive edge of jute in international trade
3L2	Farming Intensity of the jute growers affect the competitive edge of jute in international trade
3L3	Alternative usages of land affect the competitive edge of jute in international trade
3L4	Alternative employment options of the jute farmers and workers in the field affect the competitive edge of jute in international trade
3L5	Position in the learning curve of agricultural production curve of the jute grower affect the competitive edge of jute in international trade
4C	Capital
4C1	Growth of National economy affect the competitive edge of jute in international trade
4C2	Credit Availability affect the competitive edge of jute in international trade
4C3	Working Capital Flow affect the competitive edge of jute in international trade
4C4	Public Investment in Jute Agriculture affect the competitive edge of jute in international trade
4C5	Public Investment in Jute Industry affect the competitive edge of jute in international trade
4C6	Private Investment affect the competitive edge of jute in international trade in Jute Agriculture
4C7	Private Investment in Jute Industry affect the competitive edge of jute in international trade
5AVA	Agricultural Value Addition
5AVA1	Policy support from the State in agricultural production affect the competitive edge of jute in international trade
5AVA2	Agricultural Mechanization affect the competitive edge of jute in international trade
5AVA3	Research and Development achieved in jute production affect the competitive edge of jute in international trade
5AVA4	Agricultural Extension work affect the competitive edge of jute in international trade
5AVA5	Education and Learning of the jute farmer and farm worker affect the competitive edge of jute in international trade
5AVA6	Infusion of advanced technology in agriculture affect the competitive edge of jute in international trade
6IAV	Industrial Value Addition
6IAV1	Policy support from the State in industrial production affect the competitive edge of jute in international trade
6IAV2	Labour Employment in jute mills and jute-based industry affect the profitability (affecting competitive edge) of jute in international trade
6IAV3	Management Overhead in the jute mills and jute-based manufacturing units affect the competitive edge of jute in international trade
6IAV4	Proportion of Fixed Overhead charges and its trend affect the competitive edge of jute in international trade
6IAV5	Quality Control in the jute mills and jute-based production units affect the competitive edge of jute in international trade
6IAV6	Research and Development in Production at the jute mills and jute based manufacturing units affect the competitive edge of jute in international trade
6IAV7	Product Variety of the finished goods affect the competitive edge of jute in international trade
6IAV8	Infusion of advanced technology in processing and manufacturing affect the competitive edge of jute in international trade
6IAV9	Position in the learning curve of industrial production at the jute mills and at the jute-based production facilities affect the competitive edge of jute in international trade
7CAT	Connectivity and transportation
7CAT1	Access to transport architecture leading to easy trans-shipment to destination markets affect the competitive edge of jute in international trade
7CAT2	Investment in transport architecture affect the competitive edge of jute in international trade

Serial	Construct / Variable
7CAT3	Enhanced Connectivity to factor markets affect the competitive edge of jute in international trade
7CAT4	Connectivity to domestic growth centers affect the competitive edge of jute in international trade
7CAT5	Efficiency in utilizing distribution networks affect the competitive edge of jute in international trade
7CAT6	Connectivity to world markets affect the competitive edge of jute in international trade
8M	Markets
8M1	Development of substitutes affect the competitive edge of jute in international trade
8M2	Economy of substitutes affect the competitive edge of jute in international trade
8M3	Versatility of substitutes affecting consumer choice affect the competitive edge of jute in international trade
8M4	Development of complements affect the competitive edge of jute in international trade
8M5	Destination Composition affect the competitive edge of jute in international trade
8M6	Development of New Markets affect the competitive edge of jute in international trade
8M7	Economic Health of Destination Markets affect the competitive edge of jute in international trade
8M8	Established foreign distribution networks affect the competitive edge of jute in international trade
8M9	Loyalty of foreign distribution networks affect the competitive edge of jute in international trade
9CC	Climatic Conditions
9CC1	Adverse changes in Climatic Conditions affect the competitive edge of jute in international trade
9CC2	Rainfall and availability of water affect the competitive edge of jute in international trade
9CC3	Average Temperature and its morphosis affect the competitive edge of jute in international trade
10EF	Exogenous Factors
10EF1	Entrepreneurial Capability of the population affect the competitive edge of jute in international trade
10EF2	Social stability of the country affect the competitive edge of jute in international trade
10EF3	Social unrests affect the competitive edge of jute in international trade
10EF4	Bilateral agreements with foreign countries – affecting domestic production conditions affect the competitive edge of jute in international trade
10EF5	Regional agreements with foreign countries – affecting domestic production conditions affect the competitive edge of jute in international trade
10EF6	Global agricultural and commercial arrangements – affecting domestic production conditions affect the competitive edge of jute in international trade
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11AD35	Foreign markets require a brand-push for market entry into higher value addition segments
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11AD61	There exists enough avenue for creating Wholesale farms abroad for jute products to attain global significance
11AD62	The market is ripe for Wholesale farms abroad in the jute sector to attain higher competitive margins in foreign trade
11AD63	The domestic production field is prepared for advanced jute based products from Wholesale farms abroad for attaining higher margins in the international markets
11AD64	The domestic industrial production capabilities are sufficient for creating and sustaining Wholesale farms abroad
11AD65	Foreign markets could be penetrated and captured in an easier way with Wholesale farms abroad
11AD70	Portfolio investment a positive new measure for attaining a global competitive edge of jute in international trade
11AD71	Portfolio investment in jute is preferred by the intelligent investor
11AD72	Credit markets are prepared for Portfolio investment in jute
11AD80	Securitizing agricultural and industrial sector through the stock market a positive new measure for attaining a global competitive edge of jute in international trade
11AD81	Foreign markets are prepared for participating in the securitization and risk-based ownership of the jute sector
11AD90	Total Value Chain (TVC) Ownership is a positive new measure for attaining a global competitive edge of jute in international trade
11AD91	There exists enough avenue for creating Total Value Chain (TVC) Ownership for jute products to attain global significance
11AD92	The market is ripe for Total Value Chain (TVC) Ownership in the jute sector to attain higher competitive margins in foreign trade
11AD93	The domestic production field is prepared for advanced jute based products from Total Value Chain (TVC) Ownership for attaining higher margins in the international markets
11AD94	The domestic industrial production capabilities are sufficient for creating and sustaining Total Value Chain (TVC) Ownership
11AD95	Foreign markets could be penetrated and captured in an easier way with Total Value Chain (TVC) Ownership
11AD96	Foreign markets are ready and willing to bear premium (prices) for advanced and value added diversification of jute products from Total Value Chain (TVC) Ownership

3.0 LITERATURE REVIEW

3.1 An Anthology on the WTO Negotiations on Agriculture

As Roberto Azevedo from Brazil – supported by BRICS – positions himself to take over the post of Director General of WTO from Pascal Lamy, there is much enthusiasm these days for reviving the ailing WTO. There is also a high density narrative which suggests that the South needs to rise and give the organziation the shape it really needs. If there is anything which matters most for the South to rise it is practically the agreements (and consequently, the bindings) on agriculture and movement of service providers (theoratically). Therefore, it is considered important to know how the negotiations proceeded, from where and exactly where it stands.

The World Trade Organization (WTO) is an organization that intends to supervise and liberalize international trade. The organization officially commenced on January 1, 1995 under the Marrakech Agreement, replacing the General Agreement on Tariffs and Trade (GATT), which commenced in 1948. The organization deals with regulation of trade between participating countries; it provides a framework for negotiating and formalizing trade agreements, and a dispute resolution process aimed at enforcing participants' adherence to WTO agreements, which are signed by representatives of member governments and ratified by their parliaments. Most of the issues that the WTO focuses on derive from previous trade negotiations, especially from the Uruguay Round (1986–1994).

3.2 Trade policies prior to the WTO

Although agriculture has always been covered by the GATT, prior to the WTO there were several important differences with respect to the rules that applied to agricultural primary products as opposed to industrial products. The GATT 1947 allowed countries to use export subsidies on agricultural primary products whereas export subsidies on industrial products were prohibited. The only conditions were that agricultural export subsidies should not be used to capture more than an "equitable share" of world exports of the product concerned (Article XVI:3 of GATT). The GATT rules also allowed countries to resort to import restrictions (e.g. import quotas) under certain conditions, notably when these restrictions were necessary to enforce measures to effectively limit domestic production (Article XI:2(c) of GATT). This exception was also conditional on the maintenance of a minimum proportion of imports relative to domestic production. However, in practice many non-tariff border restrictions were applied to imports without any effective counterpart limitations on domestic production and without maintaining minimum import access. In some cases this was achieved through the use of measures not specifically provided for under Article XI. In other cases it reflected exceptions and country-specific derogations such as grandfather clauses, waivers and protocols of accession. In still other cases non-tariff import restrictions were maintained without any apparent justification. The result of all this was a proliferation of impediments to agricultural trade, including by means of import bans, quotas setting the maximum level of imports, variable import levies, minimum import prices and non-tariff measures maintained by state trading enterprises. Major agricultural products such as cereals, meat, dairy products, sugar and a range of fruits and vegetables have faced barriers to trade on a scale uncommon in other merchandise sectors. Furthermore, in the aftermath of the Second World War many governments were concerned primarily with increasing domestic agricultural production so as to feed their growing populations. With this objective in mind and in order to maintain a certain balance between the development of rural and urban incomes, many countries, particularly in the developed world, resorted to market price support — farm prices were administratively raised. Import access barriers ensured that domestic production could continue to be sold. In response to these measures and as a result of productivity gains, self-sufficiency rates rapidly increased. In a number of cases, expanding domestic production of certain agricultural products not only replaced imports completely but resulted in structural surpluses. Export subsidies were increasingly used to dump surpluses onto the world market, thus depressing world market prices. On the other hand, this factor, plus the effects of overvalued exchange rates, low food price policies in favor of urban consumers and certain other domestic measures, reduced in a number of developing countries the incentive for farmers to increase or even maintain their agricultural production levels[53]. The effect of these subsidies is to flood global markets

[53] Inspired by the article, "Strategic Trade, Competitive Industries and Agricultural Trade Disputes" by Kyle Bagwell and Robert W. Staiger (February, 2001). The article notes that the primary predictions of strategic-trade theory are not

with below-cost commodities, depressing prices and undercutting producers in poor countries – a practice known as dumping[54].

3.3 Agreement on Agriculture

The AoA, Agreement on Agriculture – as it is known, has three central concepts, or "pillars": domestic support, market access and export subsidies.

The first pillar of the AoA is "domestic support". The AoA structures domestic support (subsidies) into three categories or "boxes": a Green Box, an Amber Box and a Blue Box. The Green Box contains fixed payments to producers for environmental programs, so long as the payments are "decoupled" from current production levels. The Amber Box contains domestic subsidies that governments have agreed to reduce but not eliminate. The Blue Box contains subsidies which can be increased without limit, so long as payments are linked to production-limiting programs[55]. The AoA's domestic support system currently allows Europe and the USA to spend $380 billion every year on agricultural subsidies alone. "It is often still argued that subsidies are needed to protect small farmers but, according to the World Bank, more than half of EU support goes to 1% of producers while in the US 70% of subsidies go to 10% of producers, mainly agri-businesses"[56].

"Market access" is the second pillar of the AoA, and refers to the reduction of tariff (or non-tariff) barriers to trade by WTO member-states. The 1995 AoA required tariff reductions of: (i) 36% average reduction by developed countries, with a minimum per tariff line reduction of 15% over five years; and (ii) 24% average reduction by developing countries with a minimum per tariff line reduction of 10% over nine years. Least Developed Countries (LDCs) were exempted from tariff reductions, but either had to convert non–tariff barriers to tariffs—a process called tariffication—or "bind" their tariffs, creating a "ceiling" which could not be increased in future.

"Export subsidies" is the third pillar of the AoA. The 1995 AoA required developed countries to reduce export subsidies by at least 35% (by value) or by at least 21% (by volume) over the five years to 2000.

While the volume of world agricultural exports has substantially increased over recent decades, its rate of growth has lagged behind that of manufactures, resulting in a steady decline in agriculture's share in world merchandise trade. In 1998, agricultural trade accounted for 10.5 per cent of total merchandise trade — when trade in services is taken into account, agriculture's share in global exports drops to 8.5 per cent. However, with respect to world trade, agriculture is still ahead of

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restricted to imperfectly-competitive markets. This suggests that the ongoing agricultural trade disputes may be best interpreted from the perspective of strategic-trade theory. The writers have presented a model of strategic trade (modified from Brander, J. and B. Spencer, 1985, Export Subsidies and Market Share Rivalry; Journal of International Economics 18, 83-100.) that applies for markets with competitive characteristics. The writers conclude with some final thoughts as regards the treatment of export subsidies in GATT and now the WTO. The model suggests that exporting countries prefer a limit on export subsidies in order to stem the rivalry in subsidies that otherwise occurs. Importing countries and the world as a whole lose if exporting countries are successful in this endeavor. From this perspective, the perplexing manner in which GATT and the WTO treat export subsidies may represent conflicting consequences that restrictions on export subsidies have for exporting and importing governments. To the extent that the prohibition of export subsidies has been effective, this policy may correspond to a victory for exporting governments at the expense of importing government - and world - welfare. Perhaps, as Jackson (Jackson, J., 1997, The World Trading System: Law and Policy of International Economic Relations, 2nd edition (The MIT Press, Cambridge), pp. 298-99) emphasizes, if the costs and benefits of a subsidization program are kept within national borders, and thus not shifted onto trading partners, then the program should not be a matter of concern for the WTO. But while this may be a sound principle, cross-border effects are indeed expected when export subsidies are used. The authors point out that theoretical models, motivated in terms of actual export-subsidy disputes, are of particular value. Such models can clarify the key cost-shifting effects and thereby contribute importantly toward a better understanding of the appropriate manner in which to treat export subsidies within the WTO. This paper is intended as a step in this general direction.

[54] Institute for Agriculture and Trade Policy, WTO Agreement on Agriculture: A Decade of Dumping, Feb 2005.
[55] Text of the Agreement on Agriculture

[56] Institute for Agriculture and Trade Policy, Agreement on Agriculture Basics 2003.

sectors such as mining products, automotive products, chemicals, textiles and clothing or iron and steel. Among the agricultural goods traded internationally, food products make up almost 80 per cent of the total. The other main category of agricultural products is raw materials. Since the mid-1980s, trade in processed and other high value agricultural products has been expanding much faster than trade in the basic primary products such as cereals. Agricultural trade remains in many countries an important part of overall economic activity and continues to play a major role in domestic agricultural production and employment. The trading system also plays a fundamentally important role in global food security, for example by ensuring that temporary or protracted food deficits arising from adverse climatic and other conditions can be met from world markets[57].

3.3.1 Uruguay Round agricultural negotiations

The present rules and commitments on agriculture are often called the "Uruguay Round reform programme" — they were negotiated in the Uruguay Round and they include reductions in subsidies and protection as well as other disciplines on the trade.

In preparing for the Uruguay Round negotiations, it became increasingly evident that the causes of disarray in world agriculture went beyond import access problems which had been the traditional focus of GATT negotiations. To get to the roots of the problems, disciplines with regard to all measures affecting trade in agriculture, including domestic agricultural policies and the subsidization of agricultural exports, were considered to be essential. Clearer rules for 'Sanitary and Phytosanitary' (SPS) measures were also considered to be required, both in their own right and to prevent circumvention of stricter rules on import access through unjustified, protectionist use of food safety as well as animal and plant health measures. The agricultural negotiations in the Uruguay Round were by no means easy — the broad scope of the negotiations and their political sensitivity necessarily required much time in order to reach an agreement on the new rules, and much technical work was required in order to establish sound means to formalize commitments in policy areas beyond the scope of prior GATT practice. The Agreement on Agriculture and the Agreement on the Application of Sanitary and Phytosanitary Measures were negotiated in parallel, and a Decision on Measures Concerning the Possible Negative Effects of the Reform Programme on Least-developed and Net Food-importing Developing Countries also formed part of the overall outcome.

3.3.2 Relationship with other WTO Agreements

In principle, all WTO agreements and understandings on trade in goods apply to agriculture, including the GATT 1994 and WTO agreements on such matters as customs valuation, import licensing procedures, pre-shipment inspection, emergency safeguard measures, subsidies and technical barriers to trade. However, where there is any conflict between these agreements and the Agreement on Agriculture, the provisions of the Agreement on Agriculture prevail. The WTO Agreements on Trade in Services and on Trade-Related Aspects of Intellectual Property rights are also applicable to agriculture.

3.3.3 Product coverage

The Agreement defines in its Annex 1 agricultural products by reference to the harmonized system of product classification — the definition covers not only basic agricultural products such as wheat, milk and live animals, but the products derived from them such as bread, butter and meat, as well as

[57] Paragraph encouraged by article titled, "Five Simple Principles for World Trade" by Dani Rodrik (November 22, 1999) retrieved from his internet database. The article notes that (i) Trade is a means to an end, not an end in itself; (ii) Trade rules have to allow for diversity in national institutions and standards; (iii) Non-democratic countries cannot count on the same trade privileges as democratic ones; (iv) Countries have the right to protect their own social arrangements and institutions; but that … (v) they do not have the right to impose their institutional preferences on others.

all processed agricultural products such as chocolate and sausages. The coverage also includes wines, spirits and tobacco products, fibers such as cotton, wool and silk, and raw animal skins destined for leather production. Fish and fish products are not included, nor are forestry products.

3.3.4 Rules and commitments

The Agreement on Agriculture establishes a number of generally applicable rules with regard to trade-related agricultural measures, primarily in the areas of market access, domestic support and export competition. These rules relate to country-specific commitments to improve market access and reduce trade-distorting subsidies which are contained in the individual country schedules of the WTO Members and constitute an integral part of the GATT.

3.3.5 Premised Implementation period

The implementation period for the country-specific commitments is the six-year period commencing in 1995. However, developing countries have the flexibility to implement their reduction and other specific commitments over a period of up to 10 years. Members had the choice of implementing their concessions and commitments on the basis of calendar, marketing (crop) or fiscal years. A WTO Member's implementation year for tariff reductions may thus differ from the one applied to export subsidy reductions. For the purpose of the peace clause, the implementation period is the nine-year period commencing in 1995.

3.3.6 Committee on Agriculture

The Agreement established a Committee on Agriculture. The Committee oversees the implementation of the Agreement on Agriculture and affords Members the opportunity of consulting on any matter relating to the implementation of commitments, including rule-based commitments. For this purpose, the Committee usually meets four times per year. Special meetings can be convened if necessary.

3.3.7 Market access

Under the reform programme, members have converted their non-tariff measures to equivalent bound tariffs. Some additional market access is provided through tariff rate quotas, and the tariffs are being reduced. Contingency protection is provided through special safeguards, and transparency works through notifications.

On the market access side, the Uruguay Round resulted in a key systemic change: the switch from a situation where a myriad of non-tariff measures impeded agricultural trade flows to a regime of bound tariff-only protection plus reduction commitments. The key aspects of this fundamental change have been to stimulate investment, production and trade in agriculture by (i) making agricultural market access conditions more transparent, predictable and competitive, (ii) establishing or strengthening the link between national and international agricultural markets, and thus (iii) relying more prominently on the market for guiding scarce resources into their most productive uses both within the agricultural sector and economy-wide.

In many cases, tariffs were the only form of protection for agricultural products before the Uruguay Round — the Round which led to the "binding" in the WTO of a maximum level for these tariffs. For many other products, however, market access restrictions involved non-tariff barriers. This was

frequently, though not only, the case for major temperate zone agricultural products. The Uruguay Round negotiations aimed to remove such barriers. For this purpose, a "tariffication" package was agreed which, amongst other things, provided for the replacement of agriculture-specific non-tariff measures with a tariff which afforded an equivalent level of protection. The tariffs resulting from the tariffication process account, on average of the developed country Members, for around one fifth of the total number of agricultural tariff lines. For the developing country Members, this share is considerably smaller. Following the entry into force of the Agreement on Agriculture, there is now a prohibition on agriculture-specific non-tariff measures, and the tariffs on virtually all agricultural products traded internationally are bound in the WTO.

3.3.8 Schedule of tariff concessions

Each WTO Member has a "schedule" of tariff concessions covering all agricultural products. These concessions are an integral part of the results of the Uruguay Round, are formally annexed to the Marrakesh Protocol and have become an integral part of the GATT 1994. The schedule sets out for each individual agricultural product, or, in some cases agricultural products defined more generally, the maximum tariff that can be applied on imports into the territory of the Member concerned. The tariffs in the schedules include those that resulted from the tariffication process, which, in many cases, are considerably higher than industrial tariffs, reflecting the incidence of agriculture-specific non-tariff measures prior to the WTO. Many developing countries have bound their previously unbound tariffs at "ceiling" levels, i.e. at levels higher than the applied rates prior to the WTO. Developed country members have agreed to reduce their tariffs by 36 per cent on all agricultural products on an average, with a minimum cut of 15 per cent for any product over a six-year period beginning in 1995. For developing countries, the cuts are 24 and 10 per cent, respectively, to be implemented over ten years. Those developing country Members which bound tariffs at ceiling level did not, in many cases, undertake reduction commitments. Least-developed country Members were required to bind all agricultural tariffs, but not to undertake tariff reductions.

As part of the tariffication package, WTO Members were required to maintain, for tariffied products, current import access opportunities at levels corresponding to those existing during the 1986-88 base period. Where such "current" access had been less than 5 per cent of domestic consumption of the product in question in the base period, an (additional) minimum access opportunity had to be opened on a Most-Favored-Nation (MFN) basis. This was to ensure that in 1995, current and minimum access opportunities combined represented at least 3 per cent of base-period consumption and are progressively expanded to reach 5 per cent of that consumption in the year 2000 (developed country Members) or 2004 (developing country Members), respectively. The current and minimum access opportunities are generally implemented in the form of tariff quotas. While the vast majority of tariff quotas in agriculture have their origin in the Uruguay Round negotiations, a number of such commitments were the result of accessions to the WTO. As on July 1999, 37 Members had tariff quotas specified in their schedules. In total, there are 1374 individual tariff quotas. These tariff quotas constitute binding commitments as opposed to autonomous tariff quotas which Members may establish at any time, for example, in order to stabilize the domestic price after a poor harvest.

3.3.9 The prohibition of non-tariff border measures

Article 4.2 of the Agreement on Agriculture prohibits the use of agriculture-specific non-tariff measures. Such measures include quantitative import restrictions, variable import levies, minimum import prices, discretionary import licensing procedures, voluntary export restraint agreements and non-tariff measures maintained through state-trading enterprises. All similar border measures other

than "normal customs duties" are also no longer permitted. Although Article XI:2(c) of the GATT continues to permit non-tariff import restrictions on fisheries products, it is now inoperative as regards agricultural products because it is superseded by the Agreement on Agriculture. However, Article 4.2 of the Agreement on Agriculture does not prevent the use of non-tariff import restrictions consistent with the provisions of the GATT or other WTO agreements which are applicable to traded goods generally (industrial or agricultural). Such measures include those maintained under balance-of-payments provisions (Articles XII and XVIII of GATT), general safeguard provisions (Article XIX of GATT and the related WTO agreement), general exceptions (Article XX of GATT), the Agreement on the Application of Sanitary and Phytosanitary Measures, the Agreement on Technical Barriers to Trade or other general, non-agriculture-specific WTO provisions.

3.3.10 Special treatment

The Agreement on Agriculture contains a "special treatment" clause (Annex 5), under which four countries were permitted, subject to strictly circumscribed conditions, to maintain non-tariff border measures on certain products during the period of tariff reductions (with the possibility of extending the special treatment, subject to further negotiations). As one of the conditions, market access in the form of progressively increasing import quotas has to be provided for the products concerned. The products and countries concerned are: rice in the case of Japan, Korea and the Philippines; and cheese and sheep-meat in the case of Israel. As of 1 April 1999, Japan has ceased to apply special treatment.

3.3.11 The special safeguard provisions

As a third element of the tariffication package, Members have the right to invoke for tariffied products the special safeguard provisions of the Agreement on Agriculture (Article 5), provided that a reservation to this effect ("SSG") appears beside the products concerned in the relevant Member's schedule. The right to make use of the special safeguard provisions has been reserved by 38 Members, and for a limited number of products in each case. The special safeguard provisions allow the imposition of an additional tariff where certain criteria are met. The criteria involve either a specified surge in imports (volume trigger), or, on a shipment by shipment basis, a fall of the import price below a specified reference price (price trigger). In case of the volume trigger, the higher duties only apply until the end of the year in question while in case of the price trigger, any additional duty can only be imposed on the shipment concerned. The additional duties cannot be applied to imports taking place within tariff quotas.

3.3.12 Notification obligations

The bound agricultural tariffs and the tariff quota commitments are contained in Members' schedules. There is no requirement for Members to notify their tariffs to the Committee on Agriculture. Applied tariffs are, however, to be submitted to other bodies of the WTO, including the Committee on Market Access and in the context of the Trade Policy Review mechanism.

Members with tariff quotas and the right to use the special safeguard provisions are required to make both ad hoc and annual notifications to the Committee on Agriculture. At the beginning of the implementation period, an "up-front" notification was due, setting out how each tariff quota is to be administered. An ad hoc notification is required if the method of allocation under any tariff quota changes. At the end of each year, a notification of the quantity of imports entering under each tariff quota is required (tariff quota fill).

Members with the right to use the special safeguard provisions must notify its first use in order to allow its trading partners to establish the parameters of the special safeguard action. In the case of

the price trigger, an upfront notification of the relevant reference prices has also been possible. In addition, an annual summary notification of the use of the special safeguard is required.

3.3.13 Domestic support

The agricultural package of the Uruguay Round has fundamentally changed the way domestic support in favor of agricultural producers was treated under the GATT 1947. A key objective has been to discipline and reduce domestic support while at the same time leaving great scope for governments to design domestic agricultural policies in the face of, and in response to, the wide variety of the specific circumstances in individual countries and individual agricultural sectors. The approach agreed upon is also aimed at helping ensure that the specific binding commitments in the areas of market access and export competition are not undermined through domestic support measures. The main conceptual consideration is that there are basically two categories of domestic support — support with no, or minimal, distortive effect on trade on the one hand (often referred to as "Green Box" measures) and trade-distorting support on the other hand (often referred to as "Amber Box" measures. Under the Agreement on Agriculture, all domestic support in favor of agricultural producers is subject to rules.

3.3.14 The Green Box

The Agreement on Agriculture sets out a number of general and measure-specific criteria which, when met, allow measures to be placed in the Green Box (Annex 2). These measures are exempt from reduction commitments and, indeed, can even be increased without any financial limitation under the WTO. The Green Box applies to both developed and developing country Members but in the case of developing countries special treatment is provided in respect of governmental stockholding programmes for food security purposes and subsidized food prices for urban and rural poor. The general criteria are that the measures must have no, or at most minimal, trade-distorting effects or effects on production. They must be provided through a public-funded government programme (including government revenue foregone) not involving transfers from consumers and must not have the effect of providing price support to producers.

3.3.14.1 Government service programmes

The Green Box covers many government service programmes including general services provided by governments, public stockholding programmes for food security purposes and domestic food aid -as long as the general criteria and some other measure-specific criteria are met by each measure concerned. The Green Box thus provides for the continuation (and enhancement) of programmes such as research, including general research, research in connection with environmental programmes, and research programmes relating to particular products; pest and disease control programmes, including general and product-specific pest and disease control measures; agricultural training services and extension and advisory services; inspection services, including general inspection services and the inspection of particular products for health, safety, grading or standardization purposes; marketing and promotion services; infrastructural services, including electricity reticulation, roads and other means of transport, market and port facilities, water supply facilities, etc; expenditures in relation to the accumulation and holding of public stocks for food security purposes; and expenditures in relation to the provision of domestic food aid to sections of the population in need. Many of the regular programmes of governments are thus given the "green light" to continue.

3.3.14.2 Direct payments to producers

The Green Box also provides for the use of direct payments to producers which are not linked to production decisions, i.e. although the farmer receives a payment from the government, this payment does not influence the type or volume of agricultural production ("decoupling"). The conditions preclude any linkage between the amount of such payments, on the one hand, and production, prices or factors of production in any year after a fixed base period. In addition, no production shall be required in order to receive such payments. Additional criteria to be met depend on the type of measure concerned which may include: decoupled income support

measures; income insurance and safety-net programmes; natural disaster relief; a range of structural adjustment assistance programmes; and certain payments under environmental programmes and under regional assistance programmes.

3.3.14.3 Other exempt measures

In addition to measures covered by the Green Box, two other categories of domestic support measures are exempt from reduction commitments under the Agreement on Agriculture (Article 6). These are certain developmental measures in developing countries and certain direct payments under production-limiting programmes. Furthermore, so-called de minimis levels of support are exempted from reduction.

3.3.14.4 Developmental measures

The special and differential treatment under the Green Box aside, the type of support that fits into the developmental category are measures of assistance, whether direct or indirect, designed to encourage agricultural and rural development and that are an integral part of the development programmes of developing countries. They include investment subsidies which are generally available to agriculture in developing country Members, agricultural input subsidies generally available to low-income or resource-poor producers in developing country Members, and domestic support to producers in developing country Members to encourage diversification from growing illicit narcotic crops.

3.3.15 Blue Box

Direct payments under production limiting programmes (often referred to as "Blue Box" measures) are exempt from commitments if such payments are made on fixed areas and yield or a fixed number of livestock. Such payments also fit into this category if they are made on 85 per cent or less of production in a defined base period. While the Green Box covers decoupled payments, in the case of the Blue Box measures, production is still required in order to receive the payments, but the actual payments do not relate directly to the current quantity of that production.

3.3.16 De minimis

All domestic support measures in favor of agricultural producers that do not fit into any of the above exempt categories are subject to reduction commitments. This domestic support category captures policies, such as market price support measures, direct production subsidies or input subsidies. However, under the de minimis provisions of the Agreement there is no requirement to reduce such trade-distorting domestic support in any year in which the aggregate value of the product-specific support does not exceed 5 per cent of the total value of production of the agricultural product in question. In addition, non-product specific support which is less than 5 per cent of the value of total agricultural production is also exempt from reduction. The 5 per cent threshold applies to developed countries whereas in the case of developing countries the de minimis ceiling is 10 per cent.

3.3.17 Reduction commitments

Twenty-eight Members (counting the EC as one) had non-exempt domestic support during the base period and hence reduction commitments specified in their schedules. The reduction commitments are expressed in terms of a "Total Aggregate Measurement of Support" (Total AMS), which includes all product-specific support and non-product-specific support in one single figure. Members with a Total AMS have to reduce base period support by 20 per cent over 6 years (developed country Members) or 13 per cent over 10 years (developing country Members). In any year of the implementation period, the Current Total AMS value of non-exempt measures must not exceed the scheduled Total AMS limit as specified in the schedule for that year. In other words, the maximum levels of such support are bound in the WTO.

In the case of Members with no scheduled reduction commitments, any domestic support not covered by one or another of the exception categories outlined above, must be maintained within the relevant "product-specific" and "non-product-specific" de minimis levels.

3.3.18 Aggregate Measurement of Support (AMS)

Price support measures have been the most important type of policy measure within the non-exempt category. Price support can be provided either through administered prices (involving transfers from consumers) or through certain types of direct payments from governments. For the purpose of Current Total AMS calculations, price support is generally measured by multiplying the gap between the applied administered price and a specified fixed external reference price ("world market price") by the quantity of production eligible to receive the administered price. Calculation details are specified in Annexes 3 and 4 of the Agreement on Agriculture and also incorporated into Members' schedules by way of references to Supporting Material. For each product, the implicit subsidy of price support measures is added to other product-specific subsidies — a product-specific fertilizer subsidy, for example — to arrive at a product-specific AMS, which is then evaluated against the applicable de minimis threshold. Non-product-specific subsidies are calculated separately and, as in the former case, are included in the Current Total AMS only if they exceed the relevant de minimis level.

3.3.18.1 Equivalent Measurement of Support

Where it is not practicable to calculate a product-specific AMS as set out in the Agreement, provisions are made of an "Equivalent Measurement of Support" (EMS). The EMS is generally calculated on the basis of budgetary outlays — the money spent by governments to support a product, for example, rather than market price support calculated with respect to a fixed external reference price.

3.3.18.2 Notification obligations

All Members must notify the Committee on Agriculture the extent of their domestic support measures. This requires a listing of all measures that fit into the exempt categories: the Green Box, developmental measures, direct payments under production limiting programmes (Blue Box) and de minimis levels of support. In addition, where the existence of measures requires it, AMS calculations must be undertaken by Members that have scheduled domestic support reduction commitments and the Current Total AMS must be notified. Where a Member without such scheduled commitments has support measures which are not covered by one or other of the exempt categories, a notification must be made showing that such non-exempt support is within the relevant de minimis levels. Special formats have been developed by the Committee on Agriculture in order to facilitate compliance with the notification obligations. The requirement to notify is annual, except in the case of least-developed country Members which are only required to notify every other year. Developing country Members can also request the Committee to set aside the annual notification requirement for measures other than those falling into the Green Box or the developmental or Blue Box categories. In addition to the annual notification obligations, all Members must notify any modifications of existing or any introduction of new measures in the exempt categories. These notifications too are examined by the Committee on Agriculture on a regular basis.

3.3.19 Export competition/subsidies

The core of the reform programme on export subsidies is the commitments to reduce subsidized export quantities, and the amount of money spent subsidizing exports. The Agriculture Agreement also looks at anti-circumvention questions.

The right to use export subsidies is now limited to four situations: (i) export subsidies subject to product-specific reduction commitments within the limits specified in the schedule of the WTO Member concerned; (ii) any excess of budgetary outlays for export subsidies or subsidized export volume over the limits specified in the schedule which is covered by the "downstream flexibility" provision of Article 9.2(b) of the Agreement on Agriculture; (iii) export subsidies consistent with the special and differential treatment provision for developing country Members (Article 9.4 of the Agreement); and (iv) export subsidies other than those subject to reduction commitments provided that they are in conformity with the anti-circumvention disciplines of Article 10 of the Agreement on Agriculture. In all other cases, the use of export subsidies for agricultural products is prohibited (Articles 3.3, 8 and 10 of the Agreement).

3.3.20 Reduction commitments

3.3.20.1 Definition of measures

Under the Agreement on Agriculture export subsidies are defined as referring to "subsidies contingent on export performance, including the export subsidies listed in detail in Article 9 of [the] Agreement". As specified in more detail in Article 9.1 of the Agreement, this list covers most of the export subsidy practices which are prevalent in the agricultural sector, notably:

i. Direct export subsidies contingent on export performance;
ii. Sales of non-commercial stocks of agricultural products for export at prices lower than comparable prices for such goods on the domestic market;
iii. Producer financed subsidies such as government programmes which require a levy on all production which is then used to subsidize the export of a certain portion of that production;
iv. Cost reduction measures such as subsidies to reduce the cost of marketing goods for export: this can include upgrading and handling costs and the costs of international freight, for example;
v. Internal transport subsidies applying to exports only, such as those designed to bring exportable produce to one central point for shipping; and
vi. Subsidies on incorporated products, i.e. subsidies on agricultural products such as wheat contingent on their incorporation in export products such as biscuits.

All such export subsidies are subject to reduction commitments, expressed in terms of both the volume of subsidized exports and the budgetary outlays for these subsidies.

3.3.20.2 Product categories

The reduction commitments are shown in the schedules of WTO Members on a product-specific basis. For this purpose, the universe of agricultural products was initially divided into 23 products or product groups, such as wheat, coarse grains, sugar, beef, butter, cheese and oilseeds. Some Members took commitments on a more disaggregated level. The volume and budgetary outlay commitments for each product or group of products specified in a Member's schedule are individually binding. The reduction commitments on "incorporated products" (last item in the Article 9 list) are expressed in terms of budgetary outlays only. The ceilings specified in the schedules must be respected in each year of the implementation period although limited "over-shooting" in the second to fifth year of implementation is permitted ("downstream flexibility"). By the last year of the implementation period, Members must be within their final export subsidy ceilings.

3.3.20.3 Rates of cut

Developed country members are required to reduce the base-period volume of subsidized exports by 21 per cent; and the corresponding budgetary outlays for export subsidies by 36 per cent in equal annual steps over a period of 6 years. In the case of developing country Members, the required cuts are 14 per cent over 10 years with respect to volumes, and 24 per cent over the same period with respect to budgetary outlays. Developing countries may, during the implementation period, make use of a special and differential treatment provision of the Agreement (Article 9.4) which allows them to grant marketing cost subsidies and internal transport subsidies, provided that these are not applied in a manner that would circumvent export subsidy reduction commitments. All in all, 25 Members (counting the EC as one) have export subsidy reduction commitments specified in their schedules, with a total of 428 individual reduction commitments.

3.3.21 Products with no specific reduction commitment

The Agreement on Agriculture prohibits the use of Article 9.1 export subsidies on any agricultural product which is not subject to a reduction commitment as specified in the relevant part of the Member's schedule (with the exception, during the implementation, period of those benefiting from special and differential treatment).

3.3.22 Anti-circumvention

In addition to the provisions directly related to the reduction commitments, the Agreement on Agriculture contains provisions which are designed to prevent the use of export subsidies that are not specifically listed in Article 9 of the Agreement in such a way as to circumvent reduction on other export subsidy commitments (Article 10). The anti-circumvention provisions include a definition of food aid in order that transactions claimed to be food aid, but not meeting the criteria in the Agreement, cannot be used to undermine commitments. The Agreement also calls for the development of internationally agreed disciplines on export credits and similar measures in recognition that such measures could also be used to circumvent commitments. Any Member which claims that any quantity exported in excess of a reduction commitment level is not subsidized must establish that no export subsidy, whether listed in Article 9 or not, has been granted in respect of the quantity of exports in question.

3.3.23 Notification obligations

All Members must notify the Committee on Agriculture annually with respect to export subsidies. For the vast majority of Members — those without reduction commitments — this involves only a statement to the effect that export subsidies on agricultural products have not been used (or a listing of those measures that may be used by developing country Members under Article 9.4 of the Agreement if this has been the case). For Members with reduction commitments in their schedules, the annual notification must contain the annual use of subsidies in terms of both volume and budgetary outlays. In addition, as part of the anti-circumvention provisions, Members must notify the use of food aid on an annual basis if such aid is granted. Likewise, total exports of agricultural products must be notified by Members with reduction commitments as well as by a number of other "significant exporters" as defined by the Committee. As in other areas, the export subsidy notifications form part of the basis for reviewing the progress in the implementation of the commitments by the Committee on Agriculture.

3.4 On Agricultural Production Pattern and Distortion

Paul Wolfowitz, during his tenure as the President of the World Bank, had some experts to think that he was actually baffling the entire intellectual community by pitching the line that a new WTO agreement was the best way to help the world's poor[58] - when he maintained that protectionist barriers and subsidies in rich countries, especially in agriculture, were hugely harmful to the world's poor. One analysis showed that the worldwide gains would be $54 billion a year. This might sound impressive, until one starts to realize that it is equal to approximately 0.1 percent of world income. According to this model, approximately 1.9 percent of the gains would go to the world's poor, or close to $2 billion a year. With 1 billion poor people, this translates into an average gain of $2 a year. Even this might be too optimistic. Some of the world's poor might end up as losers from a WTO agreement. Cutting back subsidies to rich country farmers could be good news to the farmers who compete with them in the developing world, but it is surely bad news to consumers of these crops. They will have to pay more for their food. Some developing countries are net importers of agricultural products. They will end up as losers because they will be paying higher prices for their imports, with little or no gain on their exports[59].

[58] Ideas drawn from Global Policy Forum online resource titled, "The WTO and the World's Poor" by Dean Bakeron "truthout" on July 12, 2006

[59] An OECD study on the agricultural policies of member-states shows that the most heavily protected farmers in 2005 were in Switzerland, where 68 per cent of farmers' income came in government support, Norway (64 per cent), Korea (63 per cent), Japan (56 per cent) and European Union (EU) countries (32 per cent). Most of the support – more than half – was in the form of measures to boost the prices of farm products including import tariffs, export subsidies and domestic output subsidies, which "badly distort production, markets and trade", says the study. In the European Union, 80 per cent of the money goes to 20 per cent of enterprises, often large agri-businesses. The day the Doha talks broke down the US agriculture secretary admitted 60 per cent of US farmers receive "virtually nothing" from the US Farm Bill. (From Global Policy Forum online resource "The Enduring Racket: Why the Rich Won't Budge on 'Farm' Subsidies" by John Madeley; Panos London; July 28, 2006)

The standard models also assume that the work force will remain fully employed. In the real world, workers who lose their jobs in the agricultural sector in developing countries may not be able to simply find new employment elsewhere. The mass displacement in Mexico's agricultural sector that followed in the wake of NAFTA has been one of the factors driving immigration into the United States.

The standard models also employ a bit of economic chicanery. They assume that the tariff revenue that developing countries lose when they cut their tariffs is made up from a "lump sum" tax. Lump sum taxes can be a useful modeling tool, but they actually means that the government effectively sucks money out of the economy to pay its bills.

Using lump sum taxes in trade models is dishonest, because lump sum taxes do not lead to economic distortions. Real world taxes, like income taxes, sales taxes, or value-added taxes all lead to economic distortions – i.e., reduce income. In other words, if the models assumed that the lost tariff revenue from a WTO agreement was made up through any real world tax, the projected gains would be even less than 0.1 percent of income[60]. In short, there is little reason to believe that the world's poor stand much to gain from a new WTO agreement[61].

It wouldn't be difficult to design policies to aid the world's poor, if anyone cared. For starters, we could exempt them from US-type patent and copyright protections. This would mean that poor countries could always import generic versions of any drug, saving themselves both money and/or the time needed to arrange lower cost shipments from the drug industry. This could potentially save millions of lives as well. Exempting poor countries from patent and copyright rules would save developing countries money on everything from computers and software to books and recorded music and videos. The gains from this policy would vastly exceed even the most optimistic projections of gains from a new WTO agreement[62].

3.5 Doha Development Round

The Ministerial Conference is the apex body of the WTO. The biennial Ministerial Conferences are the most important events of WTO regime and the world of multilateral trade. The first two WTO Ministerial

[60] Michael Hart of the Britain-based Small and Family Farms Alliance points out that while agriculture in Britain contributes only about 1 per cent to national income, farms cover almost 80 per cent of Britain's land. "The tourist industry rides on the back of the agricultural landscape," says Hart. "If land is not farmed it will return to wilderness." But the OECD study argues that high levels of support are not necessary to ensure the quality of the environment and prosperity in rural areas. CAP, and other Northern government support programmes like the US Farm Act, have thwarted progress in WTO talks on ending subsidies. The failure of the US and EU to make significant concessions on farm supports was largely responsible for the suspension of the WTO's Doha round in July. Along with continued international pressure, it will take a radical shift in domestic public opinion in the North to get them to change their position.

[61] On the other hand, for example, India's position on farm subsidies is a consequence of the current crisis in the country's agriculture sector. More than half of India's one billion-plus population depends on agriculture though the sector's share in the national GDP has declined to 20 percent from 40 percent over the last decade. In recent years, India's agricultural production has been increasing by less than two percent a year whereas the economy as a whole has been growing by eight percent. India's federal agriculture minister Sharad Pawar confirmed in May that between 1993 and 2003, at least 100,000 farmers had killed themselves because of their inability to repay loans. The Indian media continues to regularly report on suicides in the Vidarbha region in the western part of the country, where 655 farmers have killed themselves mostly by consuming pesticides, in the last two months alone. Pawar has gone on record stating that as many as 16,000 farmers continue to commit suicide each year in 32 vulnerable districts in western and southern India in the provinces of Maharashtra, Andhra Pradesh, Karnataka and Kerala. "The Indian government's decision to refuse to negotiate further on the issue of farm subsidies was a correct one," said Dhar. "What was on offer in the negotiations was way below our minimum expectations. No deal is better than a bad deal," he said, adding that the total quantum of farm subsidies given by the developed OECD (Organization of Economic Cooperation and Development) countries works out to 340 billion US dollars a year or almost a billion dollars a day. Retrieved from Global Policy Forum online resource "Rare Unity Against West's Farm Subsidies" by Paranjoy Guha Thakurta (Inter Press Service; July 27, 2006)

[62] However, the U.S. has come in for severe criticism in India and elsewhere for its intransigence on the issue of reducing subsidies to its farmers. ActionAid's international director John Samuel was quoted in an IPS report saying: "The interests of 90 percent of poor farmers were being threatened for the sake of 2 per cent of the rich farmers." He said that the deadlock marked only a "semicolon in the process of multilateral world trade talks, not a full stop".

Conferences in Singapore (1996)[63] and Geneva (1998) did not have large agendas and little to decide because they were held in the aftermath of the Uruguay Round (1986-94), the most comprehensive round of MTNs under the aegis of the General Agreement of Tariffs and Trade (GATT). Therefore, they succeeded. However, the third one held in Seattle (1999) imploded ignominiously and that in Cancún (2003) collapsed among acrimonious disagreements and confusion (Das, 2003). The inconclusive end of the Cancún Ministerial essentially eliminated the prospects of Doha Round ending by January 1, 2005, the scheduled completion date. As opposed to them, the 4th Ministerial Conference held in Doha, Qatar (2001), succeeded with a mandate for a new round of MTNs from the WTO members. This Ministerial Conference had to succeed due to several reasons. One of them was the September 11 terrorist attack in New York. At this point in time, the global community sorely needed a tangible symbol of success of cooperation and solidarity. Besides, a failure in Doha—on the heels of the debacle in Seattle—would have been a serious setback to the multilateral trade regime and put it under a question mark. Many developing economies were less enthusiastic about a fresh round of MTNs essentially because they were having difficulties in implementing the recommendations of the Uruguay Round. Development objective was made an intrinsic part of it for the first time. The round was assigned a pro-development mandate, with integration of the developing economies into the multilateral trading system as one of its objectives. The WTO secretariat labeled it the "Doha Development Agenda" or the DDA, the official title of the round. At the time of its launch, it was billed as more than another round of MTNs. A total of 149 WTO members participated in the sixth Ministerial Conference held in Hong Kong SAR in mid-December 2005. If it was not a failure, it did not achieve much of substance and was not a success either. Mattoo (2006) described the Doha Round as "a stagnant whole"; it is hard to take issue with this assessment. Disappointing as it was, the fact that it did not collapse was its valuable accomplishment. While it did not energize the Doha Round negotiations in any notable manner, it did not leave the MTNs eviscerated.

The Framework Agreement, or the so-called July Package, or the July Framework Agreement of 2004 (WTO, 2004) was the most important event preceding the Hong Kong Ministerial, which provided a firm step forward in the form of a framework for negotiations. Retaining an element of continuity since the launch of the Doha Round, it reiterated the importance of development as a corner stone of the on-going MTNs as well as stressed the pressing need for reform in agricultural trade. Notwithstanding the July Framework Agreement, the MTNs were indubitably stagnating. In view of the disparity of positions among the large trading economies and country groups, major participants had forewarned months before the Conference to keep expectations from the Hong Kong Ministerial low, rendering them easy to meet. Therefore, the Ministerial Conference commenced on a less sanguine note and kept its objectives so low that they can be achieved without difficulty. The targeted low-level equilibrium was indeed achieved at Hong Kong where few bold decisions were taken. Many long-awaiting decisions were put off for the future. Success in Hong Kong was possible and could have been achieved by thoughtful, pragmatic and clairvoyant negotiations on the one hand and political will of the member governments on the other.

Although there were a host of important areas under negotiations, trade in agriculture was, and continues to be, the primary. It was also the most contentious issue, which had succeeded in casting a pall of stagnation over the Doha Round of MTNs. The most important secondary issues included industrial tariffs, services and development. Very little of value was achieved in these areas in Hong Kong. The harvest of decisions taken was meager because most of the politically difficult decisions were shelved for 2006. That negotiations on agricultural are as important as they are politically sensitive was evident in the Cancún Ministerial Conference also, where the developing economies, led by the Group-of-Twenty (G-20), had made it clear that further progress in the MTNs was not possible without industrial economies agreeing to lower their agricultural subsidies, particularly on cotton. The acrimonious disarray in Cancún was followed by an intense period of negotiations, which culminated in July 2004, providing an outline regarding how the Doha agreement can be restructured. This resulted in the above-noted July Framework Agreement[64].

[63] The most important contribution of the Singapore Ministerial Conference was the addition of four "new" issues to the agenda of the World Trade organization (WTO), which were subsequently christened the Singapore issues. They were (1) investment, (2) competition, (3) transparency in government procurement, and (4) trade facilitation.

[64] Developing countries led by Indonesia, India, and China issued a strong message to the World Economic Forum under way here that they will not allow attempts to dilute the agricultural negotiations in the Doha Round of trade talks by certain industrialised countries, especially the United States.

In negotiations on trade in agriculture, there are three principal areas of negotiations, namely, export subsidies, domestic support and market access. In the so-called Framework Agreement of July 2004, members had agreed to eliminate export subsidies on farm exports, albeit no deadline was agreed (Das, 2005)[65]. The core achievement in Hong Kong was agreement on a date, end of 2013, for the elimination of export subsidies. The EU, which accounted for 90 percent of these subsidies, accepted this date. The US, the developing economies—both the G-20 and the Group-of-Ninety (G-90)—and the Cairns Group had unsuccessfully tried to move this date back to 2010. The EU had impeded negotiations in the other areas of MTNs as well. Therefore, in the interest of progress in the MTNs, the 2013 had to be reluctantly accepted. What was more disappointing was that negotiations on market access or tariffs on agricultural products, and trade-distorting domestic support payment completely failed to make progress. These were more difficult areas of negotiations in agriculture than export subsidies. Any decision on them was deferred for 2006.

The US pledged to end export subsidies to its cotton farmers. Cotton exports are of special interest to farmers in Benin, Burkina Faso, Mali, Chad and Senegal, referred to as the Cotton-4. All of them were low-income least-developed countries (LDCs) and had stringently protested against the US subsidies for years. Ironically, the US was obliged to repeal them because it was challenged by Brazil on this issue in the WTO. In early 2005, the dispute settlement panel had given an adverse ruling. The US Congress was expected to repeal the subsidy within days of this promise. Once the final agreement is reached and implementation of the Doha Round recommendations begins, these countries would be provided duty-free, quota-free access of their cotton exports.

Regarding the non-agricultural market access (NAMA), the Hong Kong declaration made small progress, albeit left specifics of the modality decision to be taken between April and July 2006, which for all appearances seemed an unrealistic target[66]. The Hong Kong declaration locked in the progress of the Framework Agreement of July 2004 and members agreed to reduce or eliminate (a) tariff peaks, (b) high tariffs and (c) tariff escalation. The so-called Swiss formula for slashing industrial tariff was adopted which, for a given set of parameters, cuts higher tariff rates proportionately more than the lower tariff rates. As no coefficients were mentioned in the declaration, the agreement was made mild. Mention of a higher coefficient for the industrial economies and lower one for the developing economies in the agreement would have made the NAMA related declaration more consequential.

Of the 50-odd LDCs, 32 are members of the WTO. According to the Hong Kong declaration, these members would be provided duty-free and quota-free market access for most—at least 97 percent of tariff lines—of their export products by 2008, or no later than the start of the implementation period. There is a probability of excluding sugar and textiles from this concession to the TDCs. A small undertaking on "aid for trade" is also a part of the Hong Kong proposal. This is an offer to assist small developing economies lack the infrastructure for trade. They also lose out due to competition. The industrial economies offered them deals in the area of capacity building and debt relief. Pledges for aid for trade were made by the EU, Japan and the US. One analyst regarded them as a mere bauble, a trivial give away (Halle, 2006)[67]. In the services trade the Hong Kong declaration set the deadline for negotiations, requiring member countries to make offers to open their markets in financial services, telecommunications, computer and related services, distribution, and energy services by July 2006 and final offers by October 2006. The agreement in Hong Kong established little in this important area of negotiations. Stalemate in services negotiations continued.

The opportunity that the Doha Round offers to the global economy, particularly the trading economies, is that of multilateral, non-preferential, legally-binding partial liberalization. A reasonably successful Hong Kong Ministerial would have resulted in welfare gains for the global economy, and its different regions and sub-regions. Estimates of gains from partial reforms promised under the Doha Round inter alia were made by Anderson et al (2006) and Anderson and Martin (2006)[68]. The principal conclusions of these empirical studies,

[65] Das, Dilip K. 2005. The Doha Round of Multilateral Trade Negotiations: Arduous Issues and Strategic Responses. Houndmills, Hampshire, UK. Palgrave Macmillan Ltd.

[66] The term modality implies schedules, formulas and other criteria for implementing tariff and subsidy reduction rates as well as the time table.

[67] Halle, M.2006. "Is Let's Make a Deal Now Dead at the WTO?" IISD Commentary. Geneva. International Institute of Sustainable Development. January 6.

that utilized a newly released database on protection and the latest version of the World Banks Linkage model, are as follows[69]:

- If one were to take under consideration merely the static benefits, potential gains from liberalization of trade under the Doha Round are large. In addition, there will be dynamic gains stemming from increased scale economies and competition, which is value-creating.
- While the developing economies' share of the global GDP is 20 percent, their gains from the Doha Round liberalization will be 30 percent of the total. This would lead to 0.8 percent rise in welfare in the developing economies, compared to 0.6 percent rise in the welfare in the industrial economies.
- Complete liberalization of merchandise trade would result in 45 percent of the global welfare gains going to developing economies. Their welfare could increase as much as 1.2 percent compared to an increase of 0.6 percent rise for the industrial economies.
- The proportion of welfare gains going to the developing economies is higher because their tariff barriers are relatively higher. Reforms would lead to higher efficiency gains in the developing economies. Also, their agricultural and textile exports face much higher tariffs in the industrial economies' markets than do exports from the industrial economies.
- Reforms and liberalization by the developing economies in their own economies will be as meaningful in terms of economic benefits as those in the industrial economies. By delaying reforms in their own economies, the developing economies will fail to realize the full potential gains from the Doha Round.
- Trade in agricultural products is the newest frontier of trade liberalization. This sector still suffers the stigma of the highest bound tariffs and largest subsidies, and needs large cuts in both.
- Trade liberalization in agriculture is of crucial importance, although importance of agriculture in the global GDP has been on a decline. Trade liberalization measures in agriculture will have far reaching implications for developing economies as well as the global economy. Approximately two-thirds of the total gains from the Doha Round are likely to come from agricultural liberalization, compared to almost a quarter from textiles and apparel and a tenth from other merchandise trade liberalization[70].

Broadly speaking, there are substantive gains from liberalization of merchandise trade in the Doha Round of MTNs, particularly that in agricultural trade. The on-going MTNs are likely to culminate in partial trade reforms of the multilateral trade regime. The old assessment of global gains from partial trade reforms was $400 billion in 2015, which was computed with the help of the World Bank's LINKAGE model (WB, 2004). Revised estimates of global gains have been scaled down to $290 billion in 2015 (van der Mensbrugghe, 2004)[71]. There were three reasons for this difference in the two estimates. First, a new Global Trade Analysis Project (GTAP) dataset was used to compute the second estimates, which had a different base year (2001) from the earlier computations (1997). The new data set also incorporated the trade policy reforms undertaken between 1997 and 2001. It also reflected the non-reciprocal tariff preferences, which the previous data set did not incorporate. Second, the new data set successfully reflected the transformations that came about in the global economy, particularly the changing value of the dollar vis-à-vis other major currencies after 1997 and rising importance of several Asian economies as traders of global significance. Third, the new bench mark also

[68] Anderson, K., W. J. Martin and D. van der Mensbrugghe.2006. "Market and Welfare Implications of the Doha Round Scenario" in K. Anderson and W. Martin (eds.) Agricultural Trade Reform and the Doha Development Agenda, London and Washington Palgrave Macmillan Ltd and the World Bank. pp. 333-399.
Anderson, K. and W. J. Martin. 2006. "Agriculture, Trade reform and the Doha Agenda" in Anderson, K. and W. J. Martin (eds) Agricultural Trade Reform and the Doha Agenda. London and Washington. Palgrave Macmillan Ltd and the World Bank. pp. 3-35.

[69] Please refer to the WTO text on Hong Kong Ministerial No: WT/MIN(05)/W/3, issued on 7 December 2005 to see how these expectations were flouted in a virtually inactive/inconclusive set of declarations (to be) made at the aftermath of the HK meeting.

[70] Ideas and concepts heavily drawn from the article, "The Politics of Trade Liberalization in the Presence of FDI Incentives", by Andréa M. Maechler (Swiss National Bank; Last Revised: July 14, 2000). The paper examines whether inward FDI incentives can soften the political constraints associated with trade liberalization. After introducing the role of capital inflows into the political economy of trade framework pioneered by Grossman and Helpman (1994, 1995 and 1996), the paper traces the effects of FDI incentives on the politically sustainable equilibrium level of trade protection.

[71] van der Mensbrugghe,D.2004. "Linkage Technical Reference Document: Version 6.0". Washington DC. The World Bank http://siteresources.worldbank.org/INTPROSPECTS/Resources/334934-1100792545130/LinkageTechNote.pdf.

included major global economies developments like China's WTO accession and liberalization commitments, implementation of the Uruguay Round commitments, of which dismantling of the multi-fiber agreement (MFA) was an important part, and the expansion of EU from 15 to 25 members that took place in May 2004. Together these developments have had an appreciable impact over the multilateral trade regime and the global economy. The value of welfare gains stemming from them was estimated to be $70 billion to the global economy in 2015. As they were incorporated into the new baseline, they cannot be expected to make a renewed contribution to the estimates of welfare gains from the on-going round of MTNs.

Using a global model, Anderson et al (2005)[72] estimated potential consequences from a successful Doha Round agreement. According to their estimates, it could annually generate income gains for the global economy between $95 billion and $126 billion. While making these estimates, it was assumed that no exemptions were being made for sensitive and special agricultural products. Agriculture trade liberalization was found to have the largest impact. Reforms in this one sector will be responsible for 60 percent of the total gains from merchandise trade liberalizations. On the whole, larger income gains were estimated to go to the industrial economies because they were assumed to undertake more aggressive trade reforms in the Doha Round. As the developing economies suffer from a large binding overhang, and negotiations are based on bound tariffs, not applied tariffs, the reforms undertaken by them will only have a minor impact in terms of genuine liberalization of the trade regime[73]. Given this scenario, the industrial economies would achieve between 40 percent and 45 percent of what they could under full merchandise trade reforms. Similarly, the developing economies will achieve approximately 20 percent of what could be achieved under full merchandise trade reforms. Adding these gains, total global welfare gains that are likely to be achieved come to one-third of those from freeing global merchandise trade totally.

Developing economies have more to gain from full elimination of merchandise trade barriers. As trade reforms engender positive externalities in the form of improved productivity in the economy, the gains to developing economies could increase up to $200 billion in 2015 (Anderson et al, 2005)[74]. The state of MTNs at the time of the Hong Kong Ministerial Conference clearly indicated that liberalization measures adopted in agriculture and manufactures can be realistically expected to be modest, albeit improvements in the market access in agricultural market in the industrial economies is well within the realm of possibility. Empirical evidence is available to show that trade liberalization contributes to poverty alleviation[75]. Also, estimates of impact of trade liberalization under the DDA on poverty came to a positive result. This was essentially due to the fact that the existing pattern of global protection favours skilled labour and capital relative to unskilled workers. Therefore, reduction or elimination of barriers in merchandise trade would lift the unskilled wages, the primary source of income for many of the world's poor. In real terms this wage increase was found to be modest. Hertel and Winters (2006)[76] show that the poorest in the developing economies can potentially benefit most from the liberalization endeavours during the Doha Round of MTNs. However, that was found to be conditional. For the poor to benefit, the liberalization targets under the DDA have to be ambitious if the round is to have a measurable impact. Only deep tariff cuts would have poverty friendly impact. Even then the "near-term poverty impacts are likely to be mixed" (Hertel and Winters, 2005)[77]. However, a quagmire around agriculture has evolved. Although a declining sector of the global economy, it still employs a large proportion—

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[72] Anderson, K., W. J. Martin and D. van der Mensbrugghe. 2005. "Global Impact of the Doha Scenario on Poverty". Washington DC. The World Bank. (mimeo).

[73] The term binding overhand needs to be explained. A country may decide to apply tariff rate of 20 percent on the import of a good, but it may keep the bound tariff at 50 percent. The WTO rules allow this country to raise its tariff rate to 50 percent if it so decides. The difference between the bound tariffs and applied tariffs is known as the "binding overhang".

[74] Ibid

[75] See, for instance Dollar and Kraay (2004), Winters (2004) and Winters, McCulloch and McKay (2004).

[76] Hertel, T.W. and L.A. Winters.2006. Poverty and the WTO: Impacts of the Doha Development Agenda. London and Washington Palgrave Macmillan Ltd and the World Bank.

[77] Hertel, T.W. and L.A. Winters.2005. "Poverty Impacts of a WTO Agreement: Synthesis and Overview in Hertel and Winters (eds.) Putting Development Back into the Doha Agenda: Poverty Impact of a WTO Agreement. Washington DC. The World Bank. pp. 3-28.

54 percent—of work force in the developing economies. Not freeing trade in agriculture from barriers works basically against the interest of the developing economies[78]. It is widely acknowledged that poverty is essentially a rural phenomenon in the developing economies. Therefore, if the final outcome of the MTNs has to be pro-poor, trade in agriculture will need to be an area of exclusive attention. Liberalization of agricultural trade would gradually change market shares of countries and country groups eventually reflecting the comparative advantage of countries and country-groups in multilateral trade[79].

The articles of agreements of the GATT-1947 had some regulations for trade in agriculture, but they made several exceptions and had loopholes, which were freely exploited by the Contracting Parties (CPs). Consequently, agriculture became one of the most distorted areas of multilateral trade. Industrial economies increasingly subsidized their farm sector and trade—which was permissible—and erected trade barriers. So much so that trade in agriculture was virtually outside the ambit of the GATT system until the Uruguay Round (1986-94). It was not easy to bring it under the multilateral trade regime like merchandise trade. After enormous and long drawn-out efforts, the Uruguay Round Agreement on Agriculture (URAA) was instrumental in drawing agricultural trade within the sphere of the multilateral trade regime. These efforts not only contributed to slowing down of the negotiations in the Uruguay Round but also prolonged it. The URAA imposed new disciplines on trade in agricultural products. The new rules were implemented between 1995 and 2000 committed to the 3 pillars of the agreement; (i) reducing domestic support to agriculture, (ii) reducing export subsidies and (iii) improving access to their markets. As progressive liberalization of agricultural trade was a long-term process, the WTO members committed to continue negotiations on it under the so-called "built-in agenda". This was the mandate of the WTO Agreement of April 1994. Accordingly, the agricultural negotiations began in January 2000.

Since the URAA agricultural trade has continued to grow, but ironically more slowly than the pre-URAA period and more slowly than non-agricultural trade (OECD, 2005a)[80]. While trade in agriculture came within the domain of the multilateral regulations, the URAA failed to deliver significant multilateral liberalization in agricultural trade (Messerlin, 2002)[81]. Developing economies complained that on the whole the URAA did not work as intended and that they did not get a fair deal. Evidence supported their gripe that tariff cuts by the developing economies were significantly deeper than what was agreed to by the industrial economies (Finger and Winters, 2002)[82]. In addition, they had to commit to costly commitments that were embodied in the

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[78] "We recall our agreement to ensure the parallel elimination of all forms of export subsidies, and disciplines on all export measures with equivalent effect by a credible end date. We note emerging convergence on some elements of disciplines with respect to export credits, export credit guarantees or insurance programmes with repayment periods of 180 days and below, as well as on some aspects of exporting state trading enterprises, and on some elements regarding the disciplines on food aid necessary to eliminate commercial displacement." (Paragraph 6 WTO Draft Text WT/MIN(05)/W/3, issued on 7 December 2005)

[79] "On market access, we note in particular the progress made on ad valorem equivalents and that there is a working hypothesis for four bands for structuring tariff cuts. We also note that there have been some recent movements on the designation and treatment of Special Products and elements of the Special Safeguard Mechanism (SSM)". (Paragraph 7 WTO Draft Text WT/MIN(05)/W/3, issued on 7 December 2005)
"On special and differential treatment, we note in particular the consensus that exists in the Framework on several issues in all three pillars of domestic support, export competition and market access and that some progress has been made on other special and differential treatment issues." (Paragraph 8 WTO Draft Text WT/MIN(05)/W/3, issued on 7 December 2005)
"However, we recognize that much remains to be done in order to establish modalities and to conclude the negotiations. Therefore, we agree to intensify work on all outstanding issues. In particular, we are resolved to establish modalities no later than [...] and to submit comprehensive draft Schedules based on these modalities no later than [...]."(Paragraph 9 WTO Draft Text WT/MIN(05)/W/3, issued on 7 December 2005)

[80] Organization for Economic Cooperation and Development (OECDa). "Tackling Trade in Agriculture". Policy Brief. November.

[81] Messerlin, P.A. 2002. "Agriculture in the Doha Agenda". Paper presented at the World Bank Roundtable on Policy Research in Preparation for the 5th Ministerial Conference in Cancún in Cairo, during May 20-21.

[82] Finger, J.M. and L.A. Winters.2002. "Reciprocity in the WTO" in B. Hoekman, A. Mattoo and P. English (eds) Development, Trade and the WTO: A Handbook. Washington DC. The world Bank.

Sanitary and Phytosanitary (SPS) and Trade-Related Aspects of Intellectual Property Rights (TRIPS) agreements. Some of the requirements for the developing economies under the SPS agreements are more stringent than those for the industrial economies. Given this background of malcontent, higher market access commitments were sought by the developing economies in the Doha Round from the industrial economies.

As expected, the Doha Round began with high expectations of reforms in agricultural trade, but members did not agree on the first draft on modalities which was presented in February 2003. The Cairns Group found the draft unambitious, conversely the EU, Japan, Norway and Switzerland found it not only overly ambitious but also unbalanced in terms of the three pillars of negotiations. Among many disagreements and contretemps in the 5th Ministerial Conference, held in Cancún, were the sectoral initiative taken by the Cotton-4 opposing cotton subsidies in the industrial economies because they depressed cotton revenues in the West African countries by $250 million per year (Section 3). The demand of the Cotton-4 countries was met in the Hong Kong Ministerial. Before the Cancún Ministerial, the EU and the US agreed on a broad framework for negotiating agricultural trade liberalization and presented a joint framework paper on agricultural negotiations, which was found to be weak by many members. It was followed by counter-proposal by the G-20. This framework paper was more ambitious than the EU-US framework paper, particularly in the areas of export subsidies and domestic farm support. There were significant differences in the two framework papers and deep disagreements regarding how to proceed. A veritable negotiations log-jam was created.

After intense negotiations, an elaborate “Framework for Establishing Modalities in Agriculture” was prepared and made into an Annex of the Framework Agreement July 2004. This Annex was the most significant part of the Framework Agreement and was structured around the three pillars. Members had decided upon a framework to eliminate all forms of export subsidies as well as render better discipline on export credit and exporting state trading enterprises. Regarding the trade distorting farm subsidies, it was agreed in the Framework Agreement that the new discipline will include deeper cuts in farm subsidies in countries which have the highest levels of subsidies. “Progressive tariff reductions” was also a part of the Framework Agreement. However, the timeframe of implementation was left without mention.

The industrial economies dominated the global trade in agriculture when the Doha Round was launched, as they did at the time of the Hong Kong Ministerial. While developing economies exporters have more market access opportunities in agriculture than in textiles and clothing, even at the time of the Hong Kong Ministerial their exports faced high tariffs in the industrial economies. While average tariff rates faced by agricultural exports from the developing economies are 15.6 percent in the industrial economies, they are 9.3 percent for textiles and apparel exports and 2.5 percent for the other manufacturers (Anderson and Martin, 2006)[83]. Producer support estimates (PSE) for the Organization for Economic Cooperation and Development (OECD) economies were almost the same in 2001-03 as in 1986-88, hovering around $240 billion annually (Anderson and Martin, 2006)[84]. Agricultural tariffs are high in the developing economies as well, therefore, this sector a fortiori deserves special attention in the on-going Doha Round negotiations[85] [86] [87].

[83] OECD (2005b) buttresses this point using producer support statistics for the 1986-2004 period.

[84] Producer Support Estimate (PSE) is defined as the annual monetary vale of gross transfer from consumers and tax payers to agricultural producers, measured at the farm gate level, arising from policy measures that support agriculture, regardless of their nature, objectives or impacts on the farm production or income.

[85] As of January 2007, Trade ministers of the G33 are demanding flexibility to moderate the impact of imports of some farm products such as rice, pulses (legumes), and sugar on its farmers, and will work with World Trade Organisation members to ensure development is part of the multilateral trade negotiations. World leaders stepped up their efforts at the World Economic Forum's 37th annual meeting for a speedy conclusion to the stalled "Doha Development Round", but differences cropped up over how to intensify the talks and who should make the first move to break the deadlock.

[86] In July, the WTO director general suspended the negotiations after trade ministers of the G6 failed to agree on the magnitude of reduction commitments for farm subsidies and tariffs. The leaders reportedly insisted that all members must strive for an early conclusion of the Doha trade negotiations, stating that a failure to arrive at an agreement bodes poorly for the global trade system. During a closed-door meeting of leaders convened by the WEF, in which the then WTO chief Pascal Lamy chaired the discussion, the Indian trade minister said many developing countries would prefer a formal resumption of trade talks, arguing that they want a "credible" outcome from the Doha Development Agenda.

[87] At the core of the stalemate in the Doha farm trade package is whether the United States is ready to cut what some call its trade-distorting domestic subsidies to a level below 15 billion dollars, and accept clear discipline to ensure that there is

Three months before the Hong Kong Ministerial Conference, the US had made a proposal for deep cuts in both, but the EU made a weak counter-proposal which would have resulted in little additional market access to what is currently available. Differences in positions were wide and agreement on trade in agriculture was not reached in the Hong Kong Ministerial, but some progress was made in the year and a half since the Cancún Ministerial, which though led to the narrowing of differences, however, nowhere near deciding on modalities.

Therefore, a new schedule was agreed upon in Hong Kong for continuing negotiations in 2006 and to resolve the unfinished agenda by the end of the year. Going by the past experience, this target appears unattainable[88]

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no concentration of subsidy payments for certain products. Consequently, the EU, Brazil, India, Canada and others insisted that the U.S. demands to spend on its domestic subsidies well over its current actual subsidy payments leave farmers in other countries at disadvantage. In fact, the U.S. subsidies for cotton were found to have depressed global cotton prices, harming the interests of four West African cotton-producing countries: Benin, Chad, Burkina Faso, and Mali. The ongoing intensive consultations between Washington and Brussels to find what they are calling a "landing zone" for a palatable agreement in the Doha farm package is facing difficulties on account of differences on how big the reductions of farm subsidies should be. U.S. Washington had maintained that the flexibilities sought by the G33 members, through what are known as special products and special safeguard mechanisms, would constitute a loophole to deny market access for U.S. products. Arguing that trade liberalisation is all about opening markets as new trade flows provide an opportunity for all countries, the United States had demanded steep cuts in import tariffs for both farm and industrial products. Many developing countries have rejected the U.S. demands to pry open their farm markets on the grounds that they have specific livelihood and rural development concerns that cannot be sacrificed overnight.

[88] Ideas expressed and initiated in this section are heavily drawn from “The Implications of Trade and Investment Liberalization for Sustainable Development: Review of Literature; Final Report”, Prepared by Colin Kirkpatrick, Clive George, and Serban S. Scrieciu; Impact Assessment Research Centre, Institute for Development Policy and Management, University of Manchester for the Department for Environment, Food and Rural Affairs; 19th May 2004. The study has examined the likely effects of trade liberalization and greater investment flows on sustainable development, which is considered to have three aspects, namely economic, social and environmental. The study primarily focuses on the environmental and social dimensions of sustainable development, and examines whether these potential impacts of trade and investment liberalization are likely to be positive. Based on the studies, the assessment of the potential impact of trade and investment liberalization on sustainable development is organized around the following cross cutting effects:

• Scale effects: the impact of increased levels of trade, investment and economic activity on environmental and social outcomes.

• Structural effects: the implications for environmental and social outcomes of the structural adjustment within and between economies that occur as the pattern of resource use (production and consumption) shifts in response to trade or investment liberalization.

• Technology effects: environmental or social outcomes arising from greater access to new technologies, which in general tend to produce less pollution and use fewer resources than their predecessors.

• Location effects: the environmental and social implications of shifts in production and consumption between countries, and possibly shifts within countries.

• The integration of environmental (and social) considerations (or lack of it) into global and regional trade and investment institutions and frameworks.

Key Findings mention that:

• Focus on one dimension of sustainable development and seldom provides an integrated analysis of the economic, environmental and social effects of greater trade and investment flows.

• Diverse methodologies used in the empirical studies.

• Much of the economic analysis of trade liberalization uses a combination of classical trade and welfare theory to deduce, under idealized market conditions, that trade liberalization will lead to increased economic welfare and ‘optimal’ environmental quality. However, in imperfect market conditions, ‘win-win’ outcomes are not guaranteed.

• The findings of the empirical studies, though they differ in detail, reach the same conclusions and are consistent with the findings reached in the theoretical studies.

• The review of the literature provides support for the conclusion that most ‘win-win’ outcomes for sustainable development are conditional upon the application of appropriate flanking and other supporting measures.

• The responsibility and authority for adopting and implementing the different flanking and other supporting measures varies. Only some of these lie with the WTO.

The theoretical and empirical evidence that has been reviewed in this study confirms that while trade and investment liberalization may be a necessary condition for continued growth and hence provide one of the cornerstone policies in promoting sustainable development, it is not a sufficient one while sound social and environmental policies are needed, both at the national and international level.

The aim of key policies such as those outlined above is to ensure that any negative repercussions that greater trade and investment liberalization might have on environmental performance are minimized as much as possible and that any

3.6 Other Issues of Relevance to Agriculture

Apart from the main reduction commitments in market access, domestic support and export subsidies, the Agriculture Agreement contains other provisions, including export restrictions, a "peace clause", dispute settlement and further negotiations.

3.6.1 Export restrictions

The Agreement on Agriculture requires Members which consider to institute new export restrictions on foodstuffs to give due consideration to the effects of such restrictions on importing Members' food security. Members, except developing country Members which are not net exporters of the product concerned, must notify the Committee on Agriculture before introducing new export restrictions on foodstuffs and consult with affected Members if so requested. This requirement — increased reliability of access to world market supply — is a corollary for the opening of markets which is required by the market access provisions of the Agreement and the related specific commitments undertaken by Members.

3.6.2 Peace clause

The Agreement in Agriculture contains a "due restraint" or "peace clause" which regulates the application of other WTO agreements to subsidies in respect of agricultural products (Article 13). The provisions provide that Green Box domestic support measures cannot be the subject of countervailing duty action or other subsidy action under the WTO Agreement on Subsidies and Countervailing Measures, nor can they be subject to actions based on non-violation nullification or impairment of tariff concessions under the GATT. Other domestic support measures which are in conformity with the provisions of the Agreement on Agriculture may be the subject of countervailing duty actions, but due restraint is to be exercised by Members in initiating such investigations. Further, in so far as the support provided to individual products does not exceed that decided in the 1992 marketing year, these measures are exempt from other subsidy action or nullification or impairment action. Export subsidies conforming to the Agreement on Agriculture are, to the extent relevant, covered by corresponding provisions.

The peace clause remains in effect for a period of nine years.

3.6.3 Resolving disputes

In the case of disputes involving provisions of the Agreement on Agriculture, the general WTO dispute settlement procedures apply. Nevertheless, the Agreement also provides for certain mechanisms that can be used by Members to address their concerns without recourse to these procedures. In particular, the review process of the Committee on Agriculture provides a forum for discussion and consultation. This process is mainly based on the notifications and on a provision (Article 18.6) allowing any Member to raise at any time any matter relevant to the implementation

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eventual positive impacts are maximized. How environmental policy-making relates to multilateral trade and investment policies is an ongoing and contested area for international discussion and negotiation within and outside the WTO (Jha V. (2002) 'Environment, Regulation and the WTO' in B. Hoekman, A Mattoo and P English (eds) Development, Trade and the WTO: A Handbook. Washington DC: World Bank; Sampson, G. P. and Chambers, W.B. (2002) Trade, Environment, and the Millennium, United Nations University Press).The more integrated environmental and trade policies are, the more sustainable economic growth will be (Panayotou, 2000). Moreover, it is crucial in the case of developing countries that besides effective cooperation between various institutions and governments, substantial additional financial and technical assistance is provided to enable the poorer nations to engage effectively in this process of enhancing understanding and strengthening policy coordination in the areas of trade, environment and development.

of the commitments under the reform programme as set out in the Agreement. There is also a counter-notification provision. Furthermore, the Working Procedures of the Committee allow Members to request the Chairperson to mediate in concerns that may arise between them. The use of instruments under the auspices of the Committee on Agriculture does not, however, prevent any Member from seeking formal dispute settlement at any time.

3.6.4 Continuation clause

The commitments taken under the Agreement on Agriculture and within the Members' schedules are part of an ongoing process. Already at the conclusion of the Uruguay Round, Members agreed to hold further negotiations on agriculture commencing one year before the end of the six-year implementation period (Article 20). These negotiations will examine what further commitments are necessary to achieve the long-term objective of substantial progressive reductions in support and protection resulting in fundamental reform. The negotiations are also to take into account factors such as the experience gained during the implementation period, the effects of Uruguay Round reduction commitments on world trade in agriculture, non-trade concerns, special and differential treatment to developing country Members and the objective to establish a fair and market-oriented agricultural trading system.

3.7 Summary of Negotiation Parameters

This summary provides an overview of key elements of the Agreement on Agriculture and the related commitments.

3.7.1 Market Access

Instrument	Subject
Article 4.2	Prohibition on the use of restrictions on imports other than tariffs;
Article 4.1 and Schedules	All tariffs bound;
Article 5	Special agriculture safeguard mechanism against import volume surges or import price declines below a trigger level (limited to "tariffied" products and not applicable to imports under related tariff quota commitments);
Schedules	Tariffs resulting from conversion of non-tariff border measures under negotiating modalities ("tariffication") plus pre-existing tariffs on all other agricultural products to be reduced;
Schedules	Implementation of current and minimum access opportunity commitments in respect of tariffied products.

	Developed Countries	Developing Countries
Schedules	Average tariff reductions of 36% (minimum 15%) over 6 years.	Average tariff reductions of 24% (minimum 10%) 10 years; Where "ceiling bindings" commitments undertaken reductions not required except on ad hoc basis; Least developed not required to undertake reduction commitments.

3.7.2 Domestic support

Instrument	Subject

Article 6, 7 and Annex 2	Policies divided into two groups; (i) permitted policies (Green Box), (ii) other policies included in the Aggregate Measure of Support (AMS) subject to reduction commitments (Amber Box);
Article 6.5	Decoupled direct payments associated with production limiting programmes (Blue Box) not in Green Box but excluded from AMS.

	Developed Countries	**Developing Countries**
Article 6.2	De minimis provision allows exclusion of support less than 5% of output value from AMS;	Developing countries allowed to use some types of investment and input subsidies under certain conditions;
Article 6.4(a) and (b)	Total AMS support to be reduced by 20% over 6 years.	De minimis provision allows exclusion from AMS of product-specific and non-product specific support less than 10% of respective current output value;
Schedules		Total AMS support to be reduced by 13.3% over 10 years;
Schedules		Least-developed countries must bind AMS support level if applicable but not required to reduce it.

3.7.3 Export subsidies

Instrument	**Subject**
Article 9	Definition of export subsidies subject to reduction;
Article 10	Other export subsidies subject to anti-circumvention provisions which include disciplines relating to food aid;
Article 3.3	Prohibition on the use of export subsidies on products not subject to reduction commitments.

	Developed Countries	**Developing Countries**
Schedules	Distinct reduction commitments on both volume (21%) and budgetary outlays (36%) over six years;	Two-thirds of the reduction required for developed countries over ten years;
Article 11	For incorporated/processed products budgetary outlays only (36%).	
Article 9.4		Exception during the implementation period in respect of certain marketing and internal transportation subsidies.

3.7.4 Export prohibitions and restrictions

Instrument	**Subject**
Article 12	Requirement for advance notice and obligation to consult on request and supply information in case of new export restrictions on foodstuffs.

	Developed Countries	**Developing Countries**

Article 12.2		Exception for developing countries that are net-exporters of the foodstuff concerned.

3.7.5 Other aspects

Instrument	What it says or deals with
Article 13	Peace Clause;
Article 17	WTO Committee on Agriculture given the task of overseeing the implementation of the Agreement and related commitments;
Article 16	Marrakesh Ministerial Decision on Measures Concerning the Possible Negative Effects of the Reform Programme on Least-Developed and Net Food-Importing Developing Countries.

3.7.5.1 Sanitary and Phytosanitary measures

Instrument	Subject
Article 14	Separate Agreement: Reaffirms right to countries to set their own health and safety standards provided they are justified on scientific grounds and do not result in arbitrary or unjustified barriers to trade; encourages use of international standards; includes certain special and differential treatment provisions

3.8 Current Scenario

As of 2013, negotiations are going on – albeit in a slow motion. New proposals and recommendations are still in line with differing demands from the developing and the developed world. WTO is also posed with allegations of being in conflict with food security in poor countries.
Delegates' comments ranged from optimism that work in agriculture is gaining pace, to pessimism that 2012 has achieved little. They broadly agreed that the efforts to work on selected issues for the December 2013 Ministerial Conference in Bali should be realistic and non-confrontational. Some saw the agriculture proposals as a sign that the talks are regaining momentum. They described the proposals as "deliverable". Some said this also reflects the important role agriculture plays in WTO negotiations. Some said that ultimately, beyond the Bali Ministerial Conference, they need a complete package of agreements in agriculture and other subjects.

One proposal, from the Agriculture Group of 20 (G-20) developing countries, an alliance in the WTO agriculture talks, seeks an early agreement on tighter disciplines for administering tariff-rate quotas ("TRQ administration") — where duties for quantities inside the quotas are lower than quantities outside — so that the way they are managed does not obstruct trade. Another proposal from the G-33 group of developing countries — which seeks extra special treatment to protect their poor farmers — envisages early adoption of provisions that would loosen disciplines on domestic support, in order to enhance food security by supporting poor farmers.

Without doubt a whole lot of negotiations depend on the 'personality traits' of the individuals running the show in WTO. Mid-May 2013, Brazilian diplomat Roberto Carvalho de Azevêdo was named the new director general of the WTO with broad support from the developing world, beating out his Mexican rival Herminio Blanco, who was backed by the industrialised nations.

Experts sugest that "The results of the selection process reveal that most members of the WTO (World Trade Organisation), the majority of whom are developing countries, are dissatisfied with the current status quo - which Blanco represented"[89]. Azevêdo's formal appointment on Tuesday May 14 was seen as a breath of fresh

[89] Deborah James, coordinator of the Our World Is Not For Sale (OWINFS) network of dozens of organisations, activists and social movements worldwide (http://www.iede.co.uk; accessed on 15 May 2013).

air in the rarefied climate which has numbed the WTO – headed over the last eight years by French economist Pascal Lamy – for at least a decade now.

In its statement before the WTO General Council, which endorsed the appointment of Azevêdo to a four-year term starting Sept. 1, the South Africa delegation said "we celebrate a triple victory: it is a victory for the principle of diversity, it is also a victory for the principle of consensus, and it is a victory for the principle of multilateralism." It also urged the WTO to guarantee that its leadership reflected the diversity of its 159-nation membership, representing all of the world's regions.

The WTO and its predecessor, the General Agreement on Tariffs and Trade (GATT), have been governed by representatives of industrialised nations with the exception of the period 2002-2005, when the organisation was led by Supachai Panitchpakdi of Thailand.

Agenda for the new Director General Azevêdo is to respond to the obvious need that global civil society (through arrangements like the OWINFS network) has been highlighting: (i) for the transformation of the existing system, (ii) to ensure that it can provide countries sufficient policy space to pursue a positive agenda for development and job creation, and so that trade rules can facilitate, rather than hinder, (a) global efforts to ensure true food security, (b) sustainable economic development, (c) global access to health and medicines, and (d) global financial stability."

This request and other demands by the LDCs, along with the questions of agriculture and trade facilitation, are among the issues likely to be on the agenda of the WTO ministerial conference slated for Dec. 3-6 in Bali, Indonesia.

So far, Azevêdo has avoided making clear statements on the WTO's future because he is merely director general-designate until September.

But the differences among the negotiators are not the only threat to the conference in Bali. The Asian Peasant Coalition (APC) announced that "We will register our strong resistance against the WTO in its 9th ministerial meeting." The APC will hold a series of coordinated activities against the WTO meeting, in Bangladesh, India, Indonesia, Nepal, Pakistan, the Philippines and Sri Lanka, said the organisation's deputy secretary general, Rahmat Ajiguna. The WTO accords in agriculture "resulted in massive displacement, destruction of local industry, and increasing land and resources grabs," the APC notes.

In all, there is possibility that the moribund AoA and stagnant WTO in general – may come back to life in a future not so far away.

3.9 Lessons from select Regional Trading Platforms

3.9.1 NAFTA[90]

The North American Free Trade Agreement (NAFTA) entered into force on January 1, 1994[91]. The agreement was signed by President George H.W. Bush on December 17, 1992, and approved by Congress on November 20, 1993. The NAFTA Implementation Act was signed into law by President William J. Clinton on December 8,

[90] Section drawing heavily from "NAFTA at 20: Overview and Trade Effects", by M. Angeles Villarreal, Specialist in International Trade and Finance and Ian F. Fergusson, Specialist in International Trade and Finance, April 28, 2014. Congressional Research Service, 7-5700 , www.crs.gov, R42965

[91] The concept of economic integration in North America was not a new one at the time NAFTA negotiations started. In 1911, President William Howard Taft signed a reciprocal trade agreement with Canadian Prime Minister Sir Wilfred Laurier. After a bitter election, Canadians rejected free trade and ousted Prime Minister Laurier, thereby ending the agreement. In 1965, the United States and Canada signed the U.S.-Canada Automotive Products Agreement that liberalized trade in cars, trucks, tires, and automotive parts between the two countries.5 The Auto Pact was credited as a pioneer in creating an integrated North American automotive sector. In the case of Mexico, the government had been implementing reform measures since the mid-1980s, prior to NAFTA, to liberalize its economy. By 1990, when NAFTA negotiations began, Mexico had already taken significant steps towards liberalizing its protectionist trade regime.

1993 (P.L. 103-182). The overall economic impact of NAFTA is difficult to measure since trade and investment trends are influenced by numerous other economic variables, such as economic growth, inflation, and currency fluctuations. The agreement may have accelerated the trade liberalization that was already taking place, but many of these changes may have taken place with or without an agreement. Nevertheless, NAFTA is significant because it was the most comprehensive free trade agreement (FTA) negotiated at the time and contained several groundbreaking provisions. A legacy of the agreement is that it has served as a template or model for the new generation of FTAs that the United States later negotiated and it also served as a template for certain provisions in multilateral trade negotiations as part of the Uruguay Round.

Canada[92] and Mexico[93] are the first and third largest U.S. trading partners, respectively. With the two countries participating in the negotiations to conclude a Trans-Pacific Partnership (TPP) free trade agreement among the

[92] The United States and Canada recently marked the 25th anniversary of the October 3, 1987 signing of the U.S.-Canada Free Trade Agreement (FTA). The FTA was the first economically significant bilateral FTA signed by the United States. Implementing legislation7 was approved by both Houses of Congress under "fast-track authority"—now known as trade promotion authority (TPA)—and signed by President Ronald Reagan on September 28, 1988. While the FTA generated significant policy debate in the United States, it was a watershed moment for Canada. Controversy surrounding the proposed FTA led to the so-called "free trade election" in 1988, in which sitting Progressive Conservative Prime Minister Brian Mulroney, who negotiated the agreement, defeated Liberal party leader John Turner, who vowed to reject it if elected. After the election, the FTA was passed by Parliament in December 1988, and it came into effect between the two nations on January 1, 1989. At the time, it probably was the most comprehensive bilateral FTA negotiated worldwide and contained several groundbreaking provisions. It:

• Eliminated all tariffs by 1998. Many were eliminated immediately, and the remaining tariffs were phased-out in 5-10 years.

• Continued the 1965 U.S.-Canada Auto Pact, but tightened its rules of origin. Some Canadian auto sector practices not covered by the Auto Pact were ended by
1998.

• Provided national treatment for covered services providers and liberalized financial services trade. Facilitated cross-border travel for business professionals.

• Committed to provide prospective national treatment for investments originating in the other, although established derogations from national treatment such as for national security or prudential reasons were allowed to continue. Banned imposition of performance requirements, such as local content, import substitution, or local sourcing requirements.

• Expanded the size of federal government procurement markets available for competitive bidding from suppliers of the other country. It did not include sub-federal government procurement.

• Provided for a binding binational panel to resolve disputes arising from the
agreement (a Canadian insistence).

• Prohibited most import and export restrictions on energy products, including
minimum export prices. This was carried forth in NAFTA only with regard to
Canada-U.S. energy trade.

Many of these provisions were incorporated into, or expanded in, NAFTA. However, the FTA did
not include, or specifically exempted, some issues that would appear in NAFTA for the first time.
These include

• Intellectual property rights (IPR). The FTA did not contain language on intellectual property rights. NAFTA was the first FTA to include meaningful disciplines on IPR.

• Cultural exemption. It exempted the broadcasting, film, and publishing sectors.
This exemption continues in NAFTA.

• Transportation services and investment in the Canadian energy sector were excluded from the FTA. These exclusions were limited in NAFTA.

• Trade remedies. Neither the FTA nor NAFTA ended the use of trade remedy actions (anti-dumping, countervailing duty, or safeguards) against the other. This was a key Canadian goal of the FTA. NAFTA did create a separate dispute settlement mechanism to adjudicate trade remedy disputes, but this mechanism has not been replicated in other FTAs.

• Softwood lumber. The FTA grandfathered in the then-present 1986 Memorandum of Understanding (MOU) governing softwood lumber trade. Over time, the MOU has been replaced by other agreements—such as the current Softwood Lumber Agreement (SLA)—and, at times, by resort to trade remedy actions.

• Agricultural supply management. Canada was able to exempt its agriculture supply management system, although it committed to allow a small increase in imports of dairy, poultry, and eggs, which carried over into the NAFTA. The United States was also able to exclude certain products from liberalization commitments under the FTA and the NAFTA

[93] Well before NAFTA negotiations began, Mexico was already liberalizing its protectionist trade and investment policies that had been in place for decades The restrictive trade regime began after Mexico's revolutionary period and remained until the early- to mid-1980's when the country was facing a debt crisis. It was at this time that the government took unilateral steps to open and modernize its economy by relaxing investment policies and liberalizing trade barriers. The

United States and 11 other countries, policy issues related to NAFTA continue to be of interest for Congress. If an agreement is concluded, it could affect the rules and market access commitments governing North American trade and investment since NAFTA entered into force. A related trade policy issue in which the effects of NAFTA may be explored is the possible renewal of Trade Promotion Authority (TPA; formerly known as "fast-track authority") to provide expedited procedures for the consideration of bills to implement trade agreements. NAFTA was controversial when first proposed, mostly because it was the first FTA involving two wealthy, developed countries and a developing country. The political debate surrounding the agreement was divisive with proponents arguing that the agreement would help generate thousands of jobs and reduce income disparity in the region, while opponents warned that the agreement would cause huge job losses in the United States as companies moved production to Mexico to lower costs. In reality, NAFTA did not cause the huge job losses feared by the critics or the large economic gains predicted by supporters. The net overall effect of NAFTA on the U.S. economy appears to have been relatively modest, primarily because trade with Canada and Mexico account for a small percentage of U.S. GDP. However, there were worker and firm adjustment costs as the three countries adjusted to more open trade and investment among their economies.

The rising number of bilateral and regional trade agreements throughout the world and the rising presence of China in Latin America could have implications for U.S. trade policy with its NAFTA partners. Some proponents of open and rules-based trade maintain that a further deepening of economic relations with Canada and Mexico will help promote a common trade agenda with shared values and generate economic growth. Some opponents argue that the agreement has caused worker displacement and that NAFTA needs to be reopened. One possible way of doing this is through the proposed TPP. The ongoing TPP negotiations, launched in the fall of 2008, may not result in a reopening of NAFTA, but could alter some of the rules and market access commitments governing North American trade and investment.

Many economists contend that trade liberalization promotes overall economic growth and efficiency among trading partners, although there are short-term adjustment costs. NAFTA was unusual in global terms because it was the first time that an FTA linked two wealthy, developed countries with a low-income developing country. For this reason, the agreement received considerable attention by U.S. policy makers, manufacturers, service providers, agriculture producers, labor unions, non-government organizations, and academics. Proponents argued that the agreement would help generate thousands of jobs and reduce income disparity between Mexico and its northern neighbors. Opponents warned that the agreement would create huge job losses in the United States as companies moved production to Mexico to lower costs.

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trade liberalization measures that began in the mid-1980s shifted Mexico from one of the world's most protected economies into one of the most open. Mexico now has 12 FTAs involving 44 countries. Mexico's first steps in opening its closed economy focused on reforming its import substitution policies in the mid-1980s. Further reforms were made in 1986 when Mexico became a member of the General Agreement on Tariffs and Trade (GATT). As a condition of becoming a GATT member, for example, Mexico agreed to lower its maximum tariff rates to 50%. Mexico went further by reducing its highest tariff rate from 100% to 20%. Mexico's trade-weighted average tariff fell from 25% in 1985 to about 19% in 1989. Although Mexico had been lowering trade and investment restrictions since 1986, the number of remaining barriers for U.S. exports remained high at the time of the NAFTA negotiations. Mexico required import licenses on 230 products from the United States, affecting about 7% of the value of U.S. exports to Mexico. Prior to its entry into GATT, Mexico required import licenses on all imports. At the time of the NAFTA negotiations, about 60% of U.S. agricultural exports to Mexico required import licenses. Mexico also had numerous other nontariff barriers, such as "official import prices," an arbitrary customs valuation system that raised duty assessments.

For Mexico, an FTA with the United States represented a way to lock in the reforms of its market opening measures from the mid-1980s to transform Mexico's formerly statist economy after the devastating debt crisis of the 1980s. The combination of the severe economic impact of the debt crisis, low domestic savings, and an increasingly overvalued peso, put pressure on the Mexican government to adopt market-opening economic reforms and boost imports of goods and capital to encourage more competition in the Mexican market. An FTA with the United States was a way of blocking domestic efforts to roll back Mexican reforms, especially in the politically sensitive agriculture sector. NAFTA helped deflect protectionist demands of industrial groups and special interest groups in Mexico.

One of the main goals of the Mexican government was to increase investment confidence in order to attract greater flows of foreign investment and spur economic growth. Since the entry into force of NAFTA, Mexico has used the agreement as a basic model for other FTAs Mexico has signed with other countries.

Estimating the economic impact of trade agreements is a daunting task due to a lack of data and important theoretical and practical matters associated with generating results from economic models. In addition, such estimates provide an incomplete accounting of the total economic effects of trade agreements. Numerous studies suggest that NAFTA achieved many of the intended trade and economic benefits. Other studies suggest that NAFTA has come at a cost to U.S. workers. This has been in keeping with what most economists maintain, that trade liberalization promotes overall economic growth among trading partners, but that there are both winners and losers from adjustments.

Not all changes in trade and investment patterns within North America since 1994 can be attributed to NAFTA because trade has also been affected by a number of factors. The sharp devaluation of the peso at the end of the 1990s and the associated recession in Mexico had considerable effects on trade, as did the rapid growth of the U.S. economy during most of the 1990s and, more recently, the economic slowdown caused by the 2008 financial crisis. Trade-related job gains and losses since NAFTA may have accelerated trends that were ongoing prior to NAFTA and may not be totally attributable to the trade agreement.

Many economists and business representatives generally look at NAFTA as a success and credit it for fueling unprecedented North American trade and creating job growth in the United States. They look to build on NAFTA's momentum to improve trade relations and economic integration within the region. However, labor groups and some consumer-advocacy groups argue that the agreement has had negative effects. They maintain that the agreement resulted in outsourcing and lower wages that have had a negative effect on the U.S. economy and that it has caused job dislocations in Mexico, especially in agriculture[94].

Given the increasing number of regional trade agreements throughout the world and the ongoing Trans-Pacific Partnership (TPP) free trade negotiations, one general question that policy makers may consider in forming future trade policy is whether or not NAFTA has lost its relevance. The numerous FTAs that the United States, Mexico, and Canada have put into effect have given other countries the same preferences to the U.S. market that Canada and Mexico benefit from under NAFTA. Similarly, these FTAs have lessened the preferences the United States has in other markets.

Both proponents and critics of NAFTA agree that the three countries should look at what the agreement has failed to do as they look to the future of North American trade and economic relations. Policies could include strengthening institutions to protect the environment and worker rights; considering the establishment of a border infrastructure plan; increasing regulatory cooperation; promoting research and development to enhance the global competiveness of North American industries; investing in more border infrastructure to make border crossings more efficient; and/or creating more efforts to lessen income differentials within the region.

In December 2012, Canada and Mexico began participating in the ongoing negotiations for a proposed TPP free trade agreement (FTA) among 12 countries in the Asia-Pacific region[95]. The United States is an active participant in the negotiations and was among the first tranche of countries to join the original four members of the Trans-Pacific Strategic Economic Partnership (Brunei, Chile, New Zealand, and Singapore) to launch the TPP negotiations in the fall of 2008. With 26 negotiating groups and 29 chapters under discussion, the TPP partners envision the agreement to be "comprehensive and high-standard," in that they seek to eliminate tariffs and non-tariff barriers to trade in goods, services, and agriculture, and to establish rules on a wide range of issues, including intellectual property rights, foreign direct investment and other economic activities. They also strive to create a "21st century agreement" that addresses new and cross-cutting issues presented by an increasingly globalized economy.

The United States has indicated that it is only negotiating bilateral market access in the TPP talks with countries with which it does not have FTAs—Brunei, Japan, Malaysia, New Zealand, and Vietnam. The addition

[94] Julián Aguilar, "Twenty Years Later, NAFTA Remains a Source of Tension," The New York Times, December 7, 2012.

[95] The 12 countries involved in the Trans-Pacific Partnership (TPP) negotiations include the United States, Australia, Brunei, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore, and Vietnam. For more information on the TPP, see CRS Report R42694, The Trans-Pacific Partnership (TPP) Negotiations and Issues for Congress, coordinated by Ian F. Fergusson.

of Japan to the negotiations in the summer of 2013 may afford all three NAFTA countries with the possibility of additional market opening opportunities. However, the United States has sought to go beyond current U.S. FTAs in its proposed rules chapters. This has become a point of contention in the talks and may become an issue for Canada and Mexico as well. The TPP may have implications for NAFTA in several areas, including intellectual property rights (IPR), investment, services, government procurement, as well as labor and environmental provisions. The related provisions in more recent free trade agreements that the United States has negotiated, such as those with Colombia, Panama, Peru, and South Korea, include commitments that go beyond NAFTA. If agreement is reached on a TPP, Canada and Mexico may have to adhere to stronger and more enforceable labor and environmental provisions, stronger IPR provisions, as well as some issues that were not addressed in detail in the NAFTA, such as disciplines on state-owned enterprises.

The rising number of regional trade agreements throughout the world, in addition to the rising presence of China in Latin America, could have implications for U.S. trade policy with its NAFTA partners beyond the proposed TPP. Some trade policy experts contend that a deepening of economic relations with Canada and Mexico will help promote a common trade agenda with shared values. In addition to economic effects, forming deeper trade and investment ties would have positive implications for corporate governance, labor rights, environmental protection, and democratic governance[96].

Some policy experts emphasize the importance of North American trade in intermediate goods and supply chains. They argue that the governments of the three countries should improve cooperation in this area and invest more in improving border infrastructure. The increased security measures that began after September 11, 2001 have resulted in a disruption in production chains due to extended and unpredictable wait times along the border. This has disproportionately hurt small and medium sized businesses[97]. The United States and Mexico have recognized the need to enhance cooperation on prioritizing the economic relationship and security and have developed the Twenty-First Century Border Initiative for this purpose[98]. While the initiative has resulted in improvements along the border, some observers contend that policy makers could devote more energy to improving cooperation and enhancing efficiency in cross-border trade. Other experts have proposed ideas to address ongoing problems in the region and make North American industries more competitive. Some proposals that have emerged include calls for rethinking the current trade relationship under NAFTA by broadening the scope of North American integration and cooperation. One idea, for example, is to develop a North American Investment Fund to help close the income gap between Mexico and its northern neighbors. The proposed fund would be administered by the World Bank and used to fund infrastructure projects to connect the south of Mexico to the United States and Canada, and also to improve postsecondary education in Mexico[99]. Other ideas are to set up a Customs Union in North America, such as that of the European Union, with a common external tariff to facilitate trade and deepen North American integration; develop a cooperative approach on immigration; and promote regulatory convergence[100].

3.10 Time Factor in Concluding International Instruments

The negotiations of multilateral agreements are often long and laborious endeavors. But we, as international relation scholars, actually know very little about what occurs during the bargaining of such agreements. While we know how some of the more famous agreements were created, we know very little about the process of creating multilateral agreements in general. To really have an understanding of cooperation between states,

[96] Testimony of Eric Farnsworth, Vice President, Council of the Americas, in U.S. Congress, Senate Committee on Foreign Relations, Doing Business in Latin America: Positive Trends but Serious Challenges, 112th Cong., 2nd sess., July 31, 2012, S.Hrg. 112-607 (Washington, DC: GPO, 2012), pp. 30-32.

[97] Christopher E. Wilson, Working Together: Economic Ties Between the United States and Mexico, Woodrow Wilson International Center for Scholars, November 2011, pp. 37-38

[98] For more information, see CRS Report R41349, U.S.-Mexican Security Cooperation: The Mérida Initiative and Beyond, by Clare Ribando Seelke and Kristin Finklea.

[99] Robert A. Pastor, The North American Idea: A Vision of a Continental Future, Oxford University Press, 2011, pp. 169-172

[100] Ibid., pp. 167-200.

more needs to be known about the process of creating these agreements. Time taken in concluding international and multilateral treaties is a consideration before making any attempt to utilise this avenue for conducting trading regimes[101]. Recognizing that multilateral agreements are endogenous that they are the product of interactions and bargaining among states this paper investigates the multilateral agreement making process[102]. Based on propositions in the literature concerning what factors may have an effect on the length of negotiations, one scholar[103] has derived three testable hypotheses concerning the number of negotiating parties, the involvement of intergovernmental and nongovernmental organizations in the negotiation process, and the length of the shadow of the future. These hypotheses are tested using data collected from the negotiations of 168 multilateral agreements. It has been found that agreements that specify a duration limit take less time to negotiate than agreements of an indefinite duration[104]. In addition, for agreements of an indefinite duration, an increase in the number of negotiating states and a first proposal by an NGO lead to longer negotiations[105].

Much of the literature on international multilateral agreements has focused on why states enter into such agreements and whether or not these agreements make a difference in terms of the behavior of states. But as Lisa Martin and Beth Simmons (1998) point out: "institutions are simultaneously causes and effects; that is, institutions are both the objects of state choice and consequential" (743). In addition to examining the effects international institutions may or may not have on state behavior, the literature has looked at the choices states make in choosing such institutions. One such focus has been the "rational design" of these institutions (Koremenos, Lipson, and Snidal 2001, Koremenos 2002). Recognizing the existence of a great variety of international institutions, these scholars argue that differences in design "are the result of rational, purposive interactions among states and other international actors to solve specific problems" (Koremenos, Lipson and Snidal 2001, 762). Here, based on potential distributional problems, enforcement problems, the number of states involved, and uncertainty, states negotiate over the membership rules, scope, centralization, control, and flexibility of the institutions they are designing because these choices affect outcomes.

Beyond the design of the actual agreement, interesting questions arise concerning the negotiation process by which states come to these agreements. Some scholars have begun to address the modeling of the bargaining that takes place during the negotiations of international agreements. Morrow (1994), recognizing that enforcement is not the sole issue facing states during the negotiation phase of international cooperation, looks at how distributional and informational problems make such cooperation difficult. States may agree to

[101] It might be fairly well-known that the Uruguay Round of Multilateral Trade Negotiations lasted almost eight years or that it took close to two decades to negotiate the Chemical Weapons Convention. The 1972 Biological Weapons Convention took more than 10 years to negotiate. Efforts to draft the International Cocoa Agreement 1972 took close to 16 years (not including previous attempts to create an international commodity agreement for cocoa prior to and after World War I and after World War II). Attempts to negotiate the United Nation Convention on the Law of the Sea included meetings of the UN Seabed Committee from 1968 through 1970, meetings of a preparatory committee from 1970 through 1973, and finally the Third United Nations Conference on the Law of the Sea, which held 11 sessions (and intersessional meetings) from 1973 until the agreement was finalized in 1982. On the other hand, the 1937 Nyon Agreement was negotiated and agreed to in just four days, all 13 Hague Conventions of 1907 were negotiated in just under four months, and the negotiations for the 1971 Convention for the Suppression of Unlawful Acts Against the Safety of Civil Aviation lasted for a little less than a year.

[102] Having a clearer understanding of the length of negotiations is important. States come together to create multilateral agreements as a way of addressing problems. These problems might be distributional, might be prisoner's dilemmas, or might simply be coordination problems. But whatever the type of problem, states are there at the bargaining table because the current situation and behavior is suboptimal. Therefore, the longer the negotiations last in order to reach an agreement to correct the problem, the longer states will continue to live under this suboptimal behavior. Of course, a quick negotiation process may not always necessarily be a good thing, especially if the final agreement does not do much in terms of correcting the problem.

[103] Drawn on article, titled, "Bargaining over International Multilateral Agreements: The Duration of Negotiations", Nicole Simonelli, Duke University, January 2007, Visiting Assistant Professor, Department of Political Science, Duke University, 326 Perkins Library, Box 90204, Durham, NC 27708.

[104] Ibid;

While recent efforts have been made to model the negotiation process, little is known empirically about what occurs during the bargaining of multilateral agreements. While the literature may focus on how some of the more famous agreements were created, little is known about the process of creating multilateral agreements in general.

[105] Ibid

cooperate, but because of distributional concerns, they may not be able to agree on how to cooperate. Fearon (1998) splits international cooperation problems into two types: bargaining and enforcement problems. States must bargain over a number of self-enforcing agreements that are preferable to no agreement, but they disagree over which of these self-enforcing agreements is preferred. Fearon models the bargaining phase using a war of attrition bargaining model in which this first phase interacts with the enforcement phase. Gilligan[106] (2004) applies a bargaining model to the multilateral agreement creation process.

The world of multilateral bargaining is often viewed as being highly complex. As with many things, the more sides involved in making a decision, the more difficult it can be to reach an agreement. States may agree to cooperate but have different preferences over the possible agreements (Morrow 1994, Fearon 1998). These divergent preferences may make things more complicated as "in a world of fifty states there are over two million combinations by which a fivestate multilateral may form" (Downs, Rocke and Barsoom 1996, 1998[107] [108]). As the number of states involved increases, one can imagine that this may make things even more complex. The influence of additional parties to negotiations may be significant, as each additional party brings different motivations, different preferences, and different relationships with other participants (Sebenius 1983[109]).

The more parties involved in the negotiation process, "the higher the costs, the longer the time, and the greater the informational requirements for a negotiated settlement" (Sebenius 1983, 308). Koremenos (2005) also assumes that negotiation costs and renegotiation costs (in the case of agreements of finite duration that are to be renegotiated) increase with the number of parties to an agreement. Citing bargaining theory, she argues that, "increasing the number of actors involved is likely to make the negotiation process lengthier given the existence of multiple equilibria". Due to the complexity of multilateral negotiations and the increased difficulty that may come from increasing the number of participants as Sebenius argues, we may expect that the more parties involved in the negotiations, the longer those negotiations will take.

This leads to the first hypothesis concerning negotiation duration:

Hypothesis 1: The greater the number of states involved in the negotiation process, the longer the duration of negotiations will be[110] [111] [112].

Interstate bargaining increasingly takes place in the context of international regimes created by states" (Fearon 1998). Participation may come in the form of international organizations providing a forum for bargaining (Morrow[113] 1994, Fearon 1998) or by actual involvement in the intergovernmental debate by international bureaucracies and NGOs (Chayes and Chayes 1993[114]). While negotiators are typically states,

[106] Gilligan, Michael J. 2004. "Is There a Broaderdeeper Tradeoff in International Multilateral Agreements?" International Organization 58: 459484

[107] Downs, George W., David M. Rocke, and Peter N. Barsoom. 1996. "Is Good News About Compliance Good News About Cooperation?" International Organization 50: 379406

[108] Downs, George W., David M. Rocke, and Peter N. Barsoom. 1998. "Managing the Evolution of Multilateralism." International Organization 52: 397419

[109] Sebenius, James K. 1983. "Negotiation Arithmetic: Adding and Subtracting Issues and Parties." International Organization 37: 281316

[110] ibid

[111] One counter argument to the potential effect of an increase in negotiating parties
is that coalitions and blocs frequently form during negotiations. Yet, even groups of states that have similar preferences on one issue may have divergent preferences on another, and examples abound of negotiations within a likeminded group of states that were difficult and long.

[112] Not all scholars agree that the participation of additional parties will necessarily make multilateral cooperation and bargaining more difficult especially when the additional parties are international organizations. Some scholars have recognized the roles that non-state actors, such as intergovernmental organizations (IGOs) and international nongovernmental organizations (NGOs), play in the actual negotiation process many arguing that their involvement makes cooperation among states easier. International regimes "deserve greater attention as forums for bargaining rather than primarily as institutions that aid monitoring and enf[orcement.]

[113] Morrow, James D. 1994. "Modeling the Forms of International Cooperation: Distribution Versus Information." International Organization 48: 387423

"non-state actors participate with increasing frequency in institutional design" (Koremenos, Lipson and Snidal 2001)[115].

Of course, while non-state actors may play a role in the negotiation process, this still leaves open the question of whether their participation eases or impedes the bargaining process[116]. Also, Providing information can help reduce uncertainty, thus providing transparency in negotiations (Keohane 1998[117]). Transparency in negotiations may ease fears of unequal gain that may arise in negotiations concerning conflicts with distributional implications (Keohane and Martin 1995[118]). By providing a forum for bargaining and communication, regimes can also encourage the exchange of information among its members (Morrow 1994). Besides providing information and encouraging open communication, there are other ways international organizations can reduce transactions costs. For example, Grieco[119] (1990) argues that transaction costs were lowered in GATT negotiations because the participation by the European Community reduced the number of actors involved in bargaining. Fearon (1998) argues that international regimes can act as focal points during the negotiation process. "Regimes establish connections and parallels between different rounds of bargaining and may legitimize focal principles because regimes bear legitimacy…" (Fearon 1998[120]). Fearon also argues that these regimes can ease bargaining by placing structure on the bargaining process. When bargaining takes place within the context of an international organization, the rules for negotiations (who can make an offer, when and in what sequence, as well as rules for agreement) may be specified by the regime[121].

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[114] Chayes, Abram and Antonia Handler Chayes. 1993. "On Compliance." International Organization 47: 175205

[115] Ibid

[116] A number of scholars have pointed to the numerous ways in which international institutions have had a positive influence on the process. "Institutions can provide information, reduce transaction costs, make commitments more credible, establish focal points for coordination, and in general facilitate the operation of reciprocity" (Keohane and Martin 1995, 42). Non-State actors may have technical information and expertise that make them well suited for providing credible information to negotiating parties. Martin and Simmons (1998) point to the ability of international organizations to "provide reliable, credible information about the effects of human activities on the environment as a key factor in explaining the success or failure of negotiations on environmental treaties"(Martin, Lisa L. and Beth A. Simmons. 1998. "Theories and Empirical Studies of International Institutions." International Organization 52: 729757).

[117] Keohane, Robert O. 1998. "International Institutions: Can Interdependence Work?" Foreign Policy 110: 8296

[118] Keohane, Robert O. and Lisa L. Martin. 1995. "The Promise of Institutionalist Theory." International Security 20: 3951

[119] Grieco, Joseph. 1990. Cooperation Among Nations. Ithaca, NY: Cornell University Press

[120] Ibid

[121] some scholars have argued that international organizations provide "leadership" in solving problems. Young (1991) focuses on three types of leadership: structural, entrepreneurial, and intellectual and contends that this leadership can make international cooperation more successful through the persuasive manipulation of information and ideas. The entrepreneurial leader, an individual "who relies on negotiating skills to frame issues in ways that foster integrative bargaining," may be representatives of intergovernmental and nongovernmental organizations (Young 1991,293). Intervention in international negotiations by international officials who influence through the manipulation of information, provide impartial mediation, and supply policy expertise has been argued to be highly influential on negotiation outcomes and even crucial for successful negotiations (Haas 1989, 1990; Sandholtz and Zysman 1989; Young 1989, 1991). Young (1989) goes as far as claiming that negotiations will fail in the absence of such leadership. Moravcsik (1999) argues that the role of this leadership is overstated and may even be counterproductive. He argues that states do not have to depend on this supranational leadership because governments have the capacity to collect information and have expertise in negotiating. As Moravcsik questions, "why should governments with millions of diverse and highly trained professional employees, massive information gathering capacity, and longstanding experience in international negotiations at their disposal, ever require the services of a handful of supranational entrepreneurs to generate and disseminate useful information and ideas?". Using evidence from five major European Community treaties, he argues that states not Non-State actors were the major determining factors in bargaining. (Moravcsik, Andrew. 1999. "A New Statecraft? Supranational Entrepreneurs and International Cooperation." International Organization 53: 267306.)

To summarize, Non-State actors are argued to ease cooperation among states during the multilateral agreement making process by reducing transaction costs, providing forums for bargaining, providing focal points and structure during negotiations, and providing entrepreneurial leadership.

This leads to the next hypothesis concerning the duration of negotiations[122]:

Hypothesis 2: The greater the involvement of intergovernmental organizations and NGOs in the negotiation process, the shorter the duration of negotiations will be.
Fearon's (1998)[123] bargaining model may also provide insights into why international negotiations may vary in duration. Fearon recognizes that most international cooperation involves overcoming a bargaining problem: there are multiple possibilities when writing an international agreement and states will have different (and conflicting) preferences over these possibilities (Fearon 1998). By modeling a two stage approach in which the bargaining phase interacts with the enforcement phase, Fearon shows that the agreements that are expected to be the most enforceable may be the most difficult to negotiate, as states have incentives to bargain harder. Fearon's model suggests that "though a long shadow of the future may make enforcing an international agreement easier, it can also give states an incentive to bargain harder, delaying agreement in the hopes of getting a better deal" (Fearon 1998).
As Fearon suggests, one way to capture the shadow of the future is the duration of an agreement. The shorter the duration of the agreement is set (the less time states expect to be locked into the agreement), the shorter the bargaining period should be because states will not bargain as hard.
Therefore, the third hypothesis is[124], Hypothesis 3: The shorter the duration of an agreement, the shorter the duration of negotiations will be. Support for this hypothesis would also be supportive of Koremenos[125], (2002, 2005) contention that building flexibility in the form of duration into agreements can facilitate reaching cooperation. For example, facing potential changes in relative bargaining power in the future while negotiating agreements with distributional consequences, states will choose "optimal duration and renegotiation provisions" when designing agreements during negotiations (Koremenos 2002). Koremenos argues that due to the uncertainty that states face over their expected benefits from an agreement in the future, a finite duration in an agreement may insure states in these circumstances, thus making reaching an agreement possible despite this uncertainty. Of course, since renegotiations are not without cost, Koremenos[126] (2005) argues that as renegotiation costs increase, the probability that the parties will choose finite agreements decreases.

3.11 Theoretical framework for economic analysis for Free-Trade Agreements[127]

Asia is witnessing the rapid proliferation of free trade agreements (FTAs). The growing trend of signing FTAs is irreversible in any region of the globe, but especially so in the Asian region. There are a large number of signed, negotiated, and proposed FTAs in Asia. All FTA negotiations should entail the study of the potential impact of the proposed agreement. Also, the more FTAs are signed, the more urgent the need to assess their actual impact. As such, there is a large demand for impact assessment studies of FTAs, both before and after negotiations. Conducting solid economic studies of FTA impact assessment is particularly important for developing countries, because they need to draw up the necessary adjustment policies to alleviate possible negative effects and maximize possible benefits from FTAs. However, understanding the technical details of an impact assessment methodology is not easy. In most developing countries, specialists who are familiar with econometric theories and models are scarce. Due to the lack of technical knowledge and support, officials sometimes cannot effectively draw relevant policy implications from the economic studies.

[122] Ibid

[123] Fearon, James D. 1998. "Bargaining, Enforcement, and International Cooperation." International Organization 52: 269305

[124] Ibid

[125] Koremenos, Barbara. 2002. "Can Cooperation Survive Changes in Bargaining Power? The Case of Coffee." Journal of Legal Studies 31: 259283

[126] Koremenos, Barbara. 2005. "Contracting around International Uncertainty." American Political Science Review 99(4): 549565

[127] Michael G. Plummer, David Cheong, Shintaro Hamanaka. "Methodology for impact assessment of free trade agreements." Mandaluyong City, Philippines: Asian Development Bank, 2010 (ISBN 978-92-9092-197-4).

It is not an exaggeration to say that policy making in connection with free trade agreements (FTAs) should start and end with impact assessment (see ADB 2008, 109–134[128]). At the initial stages of creating an FTA, an assessment of the potential costs and benefits of the prospective FTA is a prerequisite for shaping the FTA's objectives, informing consultations with public and private stakeholders, and formulating effective negotiating strategies. After the FTA is implemented, an assessment of the FTA's actual versus projected impact is necessary for determining whether the FTA's objectives have been met and what adjustments are needed. Not all countries possess the know-how and wherewithal for conducting proper assessments of FTAs. Because of a lack of resources, developing countries may either forgo these evaluations or rely on anecdotal observations and, thus, fail to fully benefit from FTAs.

Preferential trading agreements, such as free trade agreements (FTAs), have both positive and negative effects. This is why they are known as "second-best" initiatives. However, when the "first-best" option (i.e., multilateral liberalization) is unattainable, they provide an alternative vehicle for trade policy. In this chapter, we consider the theoretical effects of such arrangements, and the theoretical foundations of empirical models that can be employed to estimate the potential economic effects of FTAs. An FTA is a commitment by signatory members to remove tariffs across member states while continuing to maintain independent tariff regimes on imports from outside countries (countries that are not members of the agreement). A customs union goes one step further by uniting tariff regimes. Beyond a customs union, a commitment to free flows of not only goods and services but also factors of production (i.e., labor and capital) is called a "common market." An economic union is generally referred to as a common market with monetary union.

These are textbook definitions. In reality, the borderlines between definitions are blurred. For example, some FTAs exclude agriculture and/or services but may include investment. Some customs unions have many exclusions to the "common external tariff," to the extent that they look like FTAs which happen to have equal tariffs in some sectors. And the European Economic Community was often called a common market when it was little more than a customs union for the first 30 years of its existence. Keeping in mind that these definitions may be slippery, our analysis will focus mostly on FTAs defined in the traditional way, given their predominance among bilateral and regional cooperative groupings in the international trading system. Moreover, the basic principles inherent in an FTA also generally apply to deeper forms of cooperation[129].

In an FTA, the fact that each member country maintains its own tariff regime with respect to non-member countries raises three important issues. First, an FTA must be based on rules of origin. If there were no rules of origin, then there would be transshipment, where non-member countries would export a good to the member of an FTA with the lowest tariff and then reexport the good to other FTA members, bypassing higher tariff barriers. The FTA would effectively become an unofficial customs union in which each tariff line would have the lowest tariff among the members' tariffs. Rules of origin are, therefore, a necessity for a true FTA, and there may be costs associated with implementing, administering, and complying with these rules (they may also be used as a form of "hidden protection" and distort investment decisions). Second, it is expected that the prices of goods will vary across member countries in an FTA, since FTA members may choose different levels of external tariffs, while they should be equalized in a customs union. Third, although each member

[128] ADB. 2008. How to Design, Negotiate, and Implement a Free Trade Agreement in Asia. Manila.
ADB. 2009. Trade and Investment in Services: An ADB-ITD Training Module for the Greater Mekong Subregion. www.adb.org/Documents/Guidelines/Trade-Investment-Services/Trade-Investment-Services.pdf
Plummer, M. 2007. Best Practices in Regional Trading Agreements: An Application to Asia. The World Economy . 30 (12). pp. 1771–1796

[129] The analysis of regional integration in a customs union has been extended to the case of an FTA (Krueger 1995, Panagariya and Findlay 1996, and Krishna and Panagariya 2002). These authors show that some of the qualitative results from Viner's customs union model are broadly the same as those from FTA models. Ref: Johnson, H. 1960. The Economic Theory of Customs Union. Pakistan Economic Journal .
10 March 1960. pp. 14–32. Reprinted in Richard Pomfret, ed. 2003. Economic Analysis of Regional Trading Arrangements . Edward Elgar

of an FTA retains autonomy over its tariff regime against non-member countries, the autonomy may make each government more susceptible to special interest groups at the national level, whereas in a customs union these groups would have to lobby at the regional level to air their interests.

It is the preferential nature of an FTA that primarily concerns economists when analyzing its trade and welfare effects. In general, nondiscriminatory trade liberalization allows countries to export their products if they are the most efficient producers, and to source their imports from the lowest-cost suppliers. This also happens in the context of an FTA in that it allows for a more efficient regional division of labor but, due to the fact that it creates preferences for partner-country producers (who may not be the most efficient), sourcing is not necessarily from the lowest-cost producer. A member country may be able to export its products to another member country simply because it enjoys tariff preferences under the FTA. This suggests that the importing partner will be paying more for its imports; in other words, its terms of trade (the price of exports in terms of imports) will deteriorate.

Before Viner's model was developed, the conventional wisdom was that regional trading agreements would tend to improve welfare because they included some degree of trade liberalization. Viner's model was important because it debunked this myth, showing that a regional trading agreement could have a negative impact on welfare. His model remains important as an analytical framework because it lays out some conditions that determine when an FTA will be harmful or hurtful. The key concepts in his model are trade creation and trade diversion. Briefly, trade creation is the displacement of less efficient national production in favor of more efficient partner-country production, while trade diversion is the displacement of more efficient non-partner imports in favor of less efficient partner-country sourced imports.

For the policy maker, the Viner model provides some guidelines on which aspects to focus on when judging the net welfare effect of an FTA in a particular sector. The difference between the FTA's efficiency gains and the efficiency loss (e) tends to be positive

(i) the closer the partner country's and outsider's prices are;

(ii) the higher the home country's initial import tariff is;

(iii) the smaller the home country's initial imports from the outsider are compared to the expected increase in imports from the partner country;

(iv) the more responsive home supply and demand, and therefore import demand, are to a price drop; and

(v) the more countries there are participating in the FTA because it is more likely that a partner country's price is closer to the outsider's price.

The Vinerian analysis above contains several assumptions, which we now relax in order to extend the model. First, there is the assumption that the lowest-cost source of imports is an outsider. If this is changed to make the partner country the cheapest import source, then it would be easy to show that the FTA would only have a trade creation effect because imports would come from that partner country before and after the FTA, i.e., there would be no trade diversion. So, the FTA would be unambiguously beneficial to the home country.

In other words, the FTA would have the same effect as nondiscriminatory liberalization. Second, there is the assumption that the home country imposes a nondiscriminatory tariff before the FTA. If, before the FTA, the home country imposed different tariff rates on imports from different sources, then there could be three outcomes depending on the relative prices inclusive of tariffs of the FTA partner and outsider: (i) if, before the FTA, the partner's price inclusive of tariff was lower than the outsider's price inclusive of tariff, then there would only be trade creation; (ii) if, before the FTA, the partner's price inclusive of tariff was higher than the outsider's price inclusive of tariff and, after the FTA, the partner's tariff-free price still remained higher than the outsider's price inclusive of tariff, then the FTA would have no effect on the home country; and (iii) if, before the FTA, the partner's price inclusive of tariff was higher than the outsider's price inclusive of tariff and, after the FTA, the partner's tariff-free price was lower than the outsider's price inclusive of tariff, then the FTA would cause both trade creation and trade diversion in the home country. Third, the model assumes that

the importing country is small in an economic sense and each foreign exporter's supply is at a single price. This assumption implies that a country always imports a good from only one foreign country and never from multiple countries. This assumption is not realistic in the case of a good with multiple varieties; but, even in the case of a homogeneous good, a country may import from many sources—both FTA members and non-member countries—because any one source is unable to fulfill the country's demand. The assumption also implies that the importer's terms of trade do not change in relation to a particular trade partner. Multiple sources of imports and changes in terms of trade are possible if the importing country's demand is large enough to influence the prices at which foreign exporters supply their goods.

Many other authors have contributed to the theory of FTAs since Viner's pioneering work. The Vinerian analysis now fits into a broader theory called the general theory of second best by Lipsey and Lancaster (1956)[130]. This theory holds that, given a distorted economic system, eliminating one set of distortions does not guarantee an improvement in overall economic welfare so long as other economic distortions remain unchanged. In the context of an FTA, this theory implies that reducing tariffs on a discriminatory basis may not improve welfare for individual countries or the world economy because some tariffs are maintained.

Modern authors have been able to study FTAs in the context of many goods, whereas the Viner model concerns only a single good. By focusing on the market for just one imported good, the Viner model ignores any interaction with other goods' markets and changes in the terms of trade due to export price changes. We have tried to understand a few influential multiple-good models (i.e., general equilibrium models) based on work by Meade (1955), Lipsey (1970)[131], and Wonnacott and Wonnacott (1982)[132] [133]. These models produce a rich set of analytical results about the welfare consequences of regional trading agreements. Note that we have assumed that the countries forming FTAs in these models are small, which by definition does not allow the world's terms of

[130] Lipsey, R. 1970. The Theory of Customs Unions: A General Equilibrium Analysis . London: Weidenfeld and Nicolson; and Lipsey, R. and K. Lancaster. 1956 The General Theory of Second Best. Review of Economic Studies . 24 (10). pp. 11–32.

[131] To simplify the analysis, we consider only two goods: good X and good Y. Assuming trade is balanced, a country will export one good and import the other. The model will consider changes in the terms of trade due to both import demand and export supply. This is an important aspect of FTAs that is covered in general equilibrium models but usually missing from Vinerian analyses. To represent the international interaction of markets in the model, it is easier to use an analytical device called a trade offer curve. A trade offer curve records the quantity of one good that a country is willing to export to the world market in exchange for an imported quantity of another good given the terms of trade, which is the relative price of exports to imports. The FTA shifts both countries' offer curves to the northeast because intra-bloc trade liberalization increases the desired quantities of imports and exports at any given terms of trade. As external tariffs are prohibitive, both countries do not trade with outsiders after the FTA and trade only with each other. The upward slope of the offer curve says that as the relative price of imports falls, the country is willing to export more for additional quantities of imports. This implies that the demand for imports is price elastic. If demand for imports becomes price inelastic at low import prices, then the offer curve bends back. The size of the shift will depend on the size of the initial tariff, preferences, production technology, and factor endowments. From the perspective of the FTA as a whole, it can be shown mathematically that country 2's loss from joining the FTA instead of unilaterally removing its tariffs is larger than country 1's gain from the FTA compared to unilaterally removing its tariffs. So, although country 1 would like country 2 to join the FTA, country 1's gain would not be enough to compensate for country 2's loss. This illustrates a fundamental problem in the creation of trading agreements: as a group, countries are better off unilaterally eliminating their tariffs instead of offering preferences. In this situation, even if country 1 transferred all its welfare gains as a side-payment to country 2 in order to form an FTA, this would still be less than country 2's welfare gain from unilaterally liberalizing trade.

[132] The main conclusion from this analysis is that a group of small countries may gain from an FTA rather than unilateral trade liberalization if outsiders have high trade barriers against them or the group faces high transport costs in exporting to outsiders. This is one explanation for the formation of FTAs among countries that are geographically close but distant as a group from outsiders. Wonnacott and Wonnacott (1981) also point out that countries do not engage in FTAs simply to reduce their own tariffs, they do it to open up access to their FTA partners' markets. If access to a partner's market is relatively more valuable than access to outsiders' markets, then an FTA produces gains for its members.

[133] Wonnacott, P. and R. Wonnacott. 1981. Is Unilateral Tariff Reduction Preferable to a Customs Union? The Curious Case of the Missing Foreign Tariffs. American Economic Review . 71 (4). pp. 704–714.

trade to change. If trade between the group of countries and the world were substantial enough to influence the world's terms of trade, then an FTA would be one means for the group to achieve more favorable terms of trade vis-à-vis the world. By using external tariffs, these countries would reduce their demand for imports from the world, which by the assumption of balanced trade, would reduce these countries' supply of exports to the world. The price of their exports would rise while the price of their imports would fall. The substantial size of the FTA, therefore, implies the possibility to improve the collective terms of trade and greater bargaining power in trade negotiations. An improvement in the terms of trade for the FTA does not, however, imply that all countries in the FTA will benefit. A member would stand a better chance of benefiting from terms of trade improvement after the FTA if the FTA as a whole was a net exporter to the world of the member's export goods, and a net importer from the world of the member's import goods.

We then went through a useful general framework to evaluate the welfare impact of an FTA as formulated by Lloyd and Maclaren (2004)[134]. While the previous models are useful if it is only necessary to predict the direction that a country's welfare will take following an FTA. However, they do not lend themselves readily to the practical estimation of the magnitude of changes in a country's welfare. They are neither sufficiently general to account for the variety of traded commodities and trade policies, nor flexible enough in terms of assumptions, and they lack specific formulations. For these reasons, modern quantitative analyses of the welfare effects of FTAs rely on theoretical models that have higher dimensions in terms of commodities and trading partners, and a general equilibrium framework (Lloyd and Schweinberger 1988, Grinols and Wong 1991, Baldwin and Venables 1995, Lloyd and Maclaren 2004, Kowalcyzk and Riezman 2009).

These theoretical models encompass many details about the structure of production, consumption, and trade in an economy in order to provide very general and rich analyses of trade policy. To quantify the welfare effects of an FTA, these models identify how much expenditure would be required following an FTA to restore the welfare of households to the level that existed before the FTA. If this amount is positive, then the FTA must have reduced welfare by that amount. If this amount is negative, i.e., money needs to be taken away from households, then the FTA must have raised welfare by that amount. Under a tractable set of assumptions, the models can relate this FTA welfare measure to changes in key indicators, such as trade volumes, terms of trade, production, and consumption, and other indicators. As long as statistics on these key indicators are available, the practical application of these models is feasible and relatively easy. To quantify the welfare effects of an FTA, an analyst need only know how national welfare in these models corresponds to the key indicators[135].

The primer on theoretical background to FTA is completed with a discussion of the Kemp–Wan theorem about the feasibility of creating an efficient regional agreement. Whether an economic arrangement such as a customs union or FTA can always be efficient if constructed correctly. This question is at the heart of the Kemp–Wan Theorem (1976) and in the extension to FTAs by Panagariya and Krishna (2002)[136]. The proposition is simple and requires three elements. First, countries in the regional agreement need to implement a set of external tariffs such that the imports from outsider countries do not change; i.e., if there is potential trade diversion from one outsider market, then external tariffs would have to be lowered to ensure that the discrimination inherent in

[134] Lloyd, P. and D. Maclaren. 2004. Gains and Losses from Regional Trading Agreements: A Survey. The Economic Record, The Economic Society of Australia. 80 (251). pp. 445–467.

[135] A regional trading agreement (RTA) changes the level of market distortions on tradable commodities. It affects the domestic and international prices that a country faces, and these price changes, in turn, affect the total income of households in the economy because the value and composition of domestic production and the net trade tax revenue collected by government are impacted. To obtain a monetary measure of the change in welfare due to the RTA, it is considered how much must be paid or taken away from households in the post-RTA situation if their welfare is to remain at the pre-RTA level when tariffs are removed preferentially.

[136] Also, ref: Panagariya, A. and R. Findlay. 1996. A Political Economy Analysis of Free Trade Areas and Customs Unions. In R. Feenstra, D. Irwin, and G. Grossman, eds. The Political Economy of Trade Reform: Essays in Honor of Jagdish Bhagwati . Cambridge, Massachusetts: MIT Press.

the regional agreement does not change trade with that market. Second, the regional agreement would have to embrace total internal free trade, thereby leading to greater efficiency through trade creation. Third, since it is theoretically possible that some countries in the regional agreement would be worse off with this arrangement (e.g., depending on the effects of the external tariffs), there would have to be a compensation mechanism, such that any country that loses would have to be fully compensated. Hence, Kemp and Wan showed that, in theory, it is always possible to form a regional agreement that maintains or improves the welfare of its individual members, creates a net improvement for the group, and does not harm the rest of the world.

While for many years this was thought to be merely a theoretical possibility without much relevance for policy makers, the embrace of the idea of "open regionalism," especially in the context of Asia-Pacific Economic Cooperation (APEC), has led to an increase in its popularity. Open regionalism is a nondiscriminatory approach to regionalism characterized by concerted liberalization of trade barriers within the grouping that would also be extended to outsiders. This approach would, therefore, have no trade diversion, as it would be nondiscriminatory, and yet it would have trade creation and, hence, would be unambiguously efficient. Although intriguing from an economic perspective, there are at least two problems with this type of open regionalism in the real world. First, from a political perspective, it is somewhat ingenuous to expect that RTA members would extend liberalization efforts to outsiders without any reciprocity. Second, within regional agreements, it is difficult, if not impossible, to implement a compensation mechanism, which would be necessary in order to ensure the type of outcomes sought by Kemp and Wan.

So far, we have focused on the static (i.e., one-time) changes with the introduction of an FTA. We have ignored any dynamic (i.e., medium- and long-term) implications of FTAs. Because the dynamic effects of an FTA may be more substantial and pervasive, it is important to consider what they are and how they affect a country's welfare. We will consider some of the most important dynamic effects in the context of FTAs: economies of scale and variety, technology transfer and foreign direct investment (FDI), and structural policy change and reform, as well as competitiveness and long-run growth effects.

Economies of scale are defined as the reduction in average costs as output expands. Economies of scale may occur because of improved technical efficiency in large-scale production, more capability to spread administrative costs and overhead over a bigger operation, bulk discounts from suppliers, or better logistics because of larger volumes. Economies of scale exist in the production of some agricultural, natural resource intensive, and manufacturing sectors, as well as services. By creating a larger market for firms operating in partner countries, an FTA will allow producers to take advantage of a larger customer base and, hence, produce at a lower average cost on all sales. Firms will even be able to lower prices for existing customers—the "cost-reduction effect" (Corden 1972). As a result, these firms will become more competitive not only at home but also in foreign markets.

Customers in each member country will also enjoy more variety in terms of the goods they can purchase because the larger market created by the FTA allows firms to sell in more markets and, given economies of scale, introduce new varieties that were too costly and unprofitable before the FTA. Bilateral and regional FTA formation attracts long-term, risk-sharing investment flows by creating a more integrated marketplace within which multinational corporations can enjoy a regional division of labor with low transaction costs and exploit economies of scale. The patterns of FDI that follow the creation of an FTA may be similar to the effects of trade creation and trade diversion. A multinational corporation that believes an FTA will lead to greater economic dynamism may be compelled to invest more in one of the members, thus resulting in "investment creation." An FTA may induce more FDI flows into the region by multinationals that are headquartered outside the region. An FTA may also induce intrabloc investment by multinationals with a regional origin.

However, if the multinational decides to invest in the member country not because of a perceived increase in dynamism but because it will now have preferential access to the FTA market, then we have "investment diversion." In other words, although investing in an outsider country might have been more cost effective, the multinational diverts investment to the FTA because of this regional

accord. The motivation would be the same as in "tariff hopping" FDI. We might add here that there is a similar effect of investment diversion in terms of the problems associated with rules of origin discussed earlier in the chapter. If rules of origin are restrictive, it may create an incentive for a multinational corporation to increase the proportion of value-added of production of a good within the confines of an FTA than would otherwise have been the case. For example, the rule of origin on automobiles in the North American Free Trade Agreement (NAFTA) is 62.5% value added. Thus, if, say, a Korean car manufacturer moves intermediate production from Indonesia to Mexico, it may be able to meet the value-added requirements of NAFTA and thereby gain free access to the US market. While this may make sense from the point of view of the Korean manufacturer and Mexico may welcome the additional FDI, investment is diverted from the most efficient country (Indonesia), thereby hurting Indonesia as well as global efficiency.

Although traditionally focused on commercial policy at the border, increasingly FTAs are effecting deeper integration by addressing behind-the-border measures. Examples of these behind-the-border areas are quality standards, as well as complex measures specific to the service sectors; laws related to corporate and public governance; customs procedures; the national treatment of partner-country investors; competition policy, including the reform of state-owned enterprises; and other "sensitive sectors" with important links to the rest of the economy. The inclusion of these nontraditional areas in FTAs shows how instrumental these agreements have become in shaping and harmonizing the national economic policies of members. An FTA allows like-minded countries to address these nontraditional areas that improve the business environment by reducing costs, leveling the playing field for foreign investors, and pushing policy reforms toward best practices (Plummer 2007). Doing so at the multilateral level would be extremely difficult, if not impossible, because of diverse interests. In the Association of Southeast Asian Nations (ASEAN)[137], this is being done within the context of the ASEAN Economic Community[138].

Although trade liberalization in an FTA is preferential, the reduction in trade barriers still allows members to benefit from healthy increased intra-bloc competition. Increased exposure to competition from partner countries weeds out less productive firms and favors more productive ones. It also gives firms an incentive to invest in more efficient productive pro-cesses and technology. For each member economy and for the FTA as a whole, these competitive forces may improve structural efficiency and resource allocation as different members specialize in the production of different final and intermediate commodities. All the effects of increased competition on productivity and efficiency combine to raise FTA members' long-run growth prospects.

The second-best nature of FTAs suggests that empirical analysis is necessary in order to anticipate the possible economic consequences of any given FTA (ex-ante analysis) and to analyze the effects of an FTA once it is already in place (ex-post analysis). The literature is replete with such studies, in terms of both partial and general equilibrium analysis. The ex-ante models are the most common due to both supply and demand reasons: they are easier to simulate—since ex-post models have to come up with a counterfactual scenario that tends to be extremely tricky to form—and policy makers are more interested in being informed of the potential economic effects of an accord that they are considering to make, rather than the economic implications of an accord that they made several years ago.

In this section, we discuss computable general equilibrium (CGE)[139] and gravity models of estimating the economic effects of an FTA[140]. These two approaches are commonly used in assessing the

[137] Plummer, M. and Siow Yue Chia. 2009. Realizing the ASEAN Economic Community: A Comprehensive Assessment . Singapore: Institute of Southeast Asian Studies.

[138] Pelkmans-Balaoing, A, and M. Manchin. 2008. Clothes Without an Emperor: Analysis of the Preferential Tariffs in ASEAN. Journal of Asian Economics . 19 (3). pp. 213–223

[139] For analytical tractability, theoretical models of FTAs have usually restricted the number of countries and goods in the analysis. They have also ignored characteristics like economies of scale or imperfectly competitive markets for the most

part. To overcome these limitations and to provide more relevant policy advice, researchers have turned to computer-based modeling. This type of modeling can include any number of commodities and partner countries or economic features provided there are no data or memory restrictions. These computer-based models frequently perform general equilibrium analysis with many dimensions.

General equilibrium analysis takes account of all the important interactions between markets and can give more complete and precise answers to policy questions. There are several reasons to use CGE models for the analysis of FTAs. First, CGE modeling is based on explicit assumptions in a framework consistent with microeconomic theory. Second, as CGE models produce quantitative results that are clear and exact, policy makers can more easily assess who gains and who loses from an FTA. Third, as an FTA involves changes in trade policy in multiple markets, the analysis may be too complex using algebraic or geometric methods. Lastly, CGE analysis may generate fresh insights about the role of certain economic assumptions in determining the results of an FTA. There are several other ways by which one market is linked to other markets. A change in the price of a good in a particular market will affect the quantity demanded for related consumption goods (substitutes or complements) and the demand for production inputs, such as raw materials, labor, machinery, and factory premises. In turn, this may change the incomes of different households and their demand for other goods and services, some of which may be imported. This may also change the government's budget, particularly in terms of tax revenue and government subsidies. For an open economy, equilibrium must also hold in terms of the balance of payments.

The crux of general equilibrium analysis is that no market remains with excess demand or supply, i.e., circular flows of income and expenditure must all be balanced. To achieve market equilibrium, prices are assumed to adjust until demand for factors of production equals available endowments, consumers have chosen the desired basket of goods given their incomes, and firms have chosen production levels that maximize their profits. Because an FTA introduces a set of policy changes in an economy, CGE models simulate an economy where markets have adjusted and a new general equilibrium has been reached. The effect of an FTA can be estimated by comparing welfare under the old equilibrium with that under the new equilibrium. A CGE analysis is a study of these market linkages using mathematical modeling and real-world data from a benchmark year. The mathematical modeling is based on a set of neoclassical economic assumptions about the motivation of agents in the economy, market structure, consumer preferences, production technology, and market equilibrium conditions. These assumptions are coded in mathematical functions and equations, which contain parameters that capture important behavioral relationships. In a CGE model, most of these parameters are elasticities (i.e., they measure the responsiveness of one variable to changes in another) or share parameters, such as the share of consumption demand in aggregate demand. Some of these parameters will have known values while others will have to be calibrated in the mathematical model with real-world data. Calibration is a step in CGE analysis when values are selected to make the CGE model's output agree with real-world data from the benchmark year.

A CGE model essentially captures demand and supply in each sector and the linkages among sectors. The model has exogenous variables (i.e., variables that have given values determined outside the model) and endogenous variables (i.e., variables that are solved within the model). In the analysis of an FTA, the exogenous variables typically correspond to the trade policy variables, elasticities, and share parameters. The rest of the variables in a CGE model of an FTA are endogenous variables, such as prices, import and export volumes, household income, tariff revenue, consumer surplus, and producer surplus. A CGE model will typically have three agents: firms, consumers, and government. Firms produce output, which is purchased by consumers and the government. Firms are profit maximizers and use market prices in deciding how much output to produce and with which inputs. In the typical CGE model, each sector has only one firm that produces a single good. The sector's production is represented by a production function, which shows the relationship between inputs and output. Various functional forms, such as the Cobb–Douglas, Leontief, or constant elasticity of substitution functions, may be used to model production in a CGE model. These production functions are usually assumed to exhibit constant returns to scale and to be weakly separable between primary factors and intermediate inputs. Further, these production functions will include parameters called elasticities of substitution, which define the substitutability of one input for another. The elasticities of substitution are therefore an important determinant of demand for various inputs. In addition, production in a CGE model typically involves a multilevel or nested production process. The use of a nested structure allows for differing elasticities for each pair of factors and makes it easier to incorporate intermediate inputs into the analysis.

Consumers are often modeled with reference to a representative household. Market prices factor into the decisions of the representative household (i.e., consumers' decisions) on how much of each good to purchase. Consumers are utility maximizers and their preferences are captured by utility functions, which include parameters that capture the elasticities of substitution between final goods. Consumers also act as factor owners in a CGE model. They are endowed with capital, land, labor, and other factors of production. Based on market prices, they supply their factors and receive income in return. This income is used to purchase goods, pay direct taxes (e.g., income tax) and indirect taxes (e.g., import tariffs and sales tax) and, in dynamic CGE models, some of this income may be saved.

impacts of trade policy, with CGE models being used for ex-ante analysis and gravity models being used for ex-post analysis. We finish the section by giving actual examples of the type of results derived from these models in the literature in order to offer some idea of their potential.

The Evolution and Implications of Bilateral Trade Agreements in the Asia-Pacific[141]

The Asia-Pacific region has witnessed a dramatic rise of bilateral free trade agreements (FTAs) at the beginning of the 21st century[142]. This shift away from the previous focus on the World Trade

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In a CGE model, the government administers only market-related policies, such as taxes, subsidies, trade tariffs, and quotas. The government is often assumed not to have an objective function. For this reason, and because the effects of government policies are of primary interest, policy variables often enter exogenously into CGE models.

[140] The ASEAN Free Trade Area (AFTA) has mainly been in place for the original ASEAN countries for the past several years. What have been its effects on trade flows? Answering this question requires a very different approach from a CGE model: we already know what happened, but what would have happened in the absence of AFTA? Ex-post approaches answer this question by attempting to estimate what would have happened to trade flows if there had been no FTA. Thus, they must create a counterfactual scenario to which the actual flows can be compared. In this way we can estimate how much of the changes in trade flows can be attributed to AFTA. Like CGE models, gravity models have been extremely popular in the literature. The widespread use of gravity models in trade analysis is due to their high explanatory power of real-world data.

Gravity models can be used to assess FTAs by including a binary variable in the baseline specification, indicating whether or not a pair of trading countries belongs to an FTA. This variable, in essence, captures the difference between actual flows and the counterfactual, which is the amount of trade explained by variables in the baseline specification. We can estimate whether or not an FTA has had a statistically significant effect on trade flows using this variable. If it is significant and positive, we can deduce that the FTA has indeed had a positive effect on trade flows, with a magnitude relating to the size of its coefficients. This, however, is an inference about the FTA's effect on total trade flows and not whether the statistically significant effect is due to trade creation, trade diversion, or both. To estimate these effects separately, another binary variable would need to be included. With this extended specification, the binary variable for observations where both the importing and exporting countries are members of the FTA would capture trade creation, while the second binary variable for observations where one of the trading partners is not a party to the FTA would capture trade diversion.

[141] From the article, titled, "The Evolution and Implications of Bilateral Trade Agreements in the Asia-Pacific", by Vinod K. Aggarwal and Min Gyo Koo, accessed at 2037 hrs: 12-06-2014

[142] It would be interesting to contrast another area which is of vital interest to the jute trading sector. The MENA region. The section draws heavily on an article titled, "The Impact of FTAs On MENA Trade", by María Dolores Parra Robles, Inmaculada Martínez Zazoso, and Celestino Suárez Burguet.

The reduction of trade barriers through the implementation of trade agreements is a major step towards trade liberalization and MENA countries have greatly increased their participation into FTAs in the last ten year, both North-South FTAs (NS FTAs) and South-South FTAs (SS FTAs). But, have they really helped to improve trade integration in the region?. Custom tariffs on MENA countries has been reduced in the last 15 years by about 5 points and that their economies have been opened up from 47% in 2000 to 66% in 2008 (FEMISE (2007)) The exchanges with European Union (EU) represent for some MENA countries more than 60% of their total trade, but they have been losing weight in the last years in favor of new emerging partners. Behar and Cirera (2010) state that only a few empirical papers have recently analyzed the impact of NS and SS FTA in developing countries and more research is needed discussing the real impact of FTAs on developing countries, in particular comparing the effects of NS FTA and SS FTA. Developing countries could profit in different ways from each type of agreement. FTAs between south partners could be a first step to improve diplomatic relations between potential members, especially, between Arab countries, and countries could be better positioned in the negotiations on the content of the agreements, because they are at the same level in terms of economic and political strength, which does not happen with North-South agreements. On the other hand, FTA between north and south partners usually include not only trade integration but also laws, institutions, regulations and financial programs that promote deeper integration. Their main disadvantage is the limited capacity of negotiation for southern countries in the content of the agreement that is dictated in general by northern countries. Behar and Cirera (2010) show that both NS, SS and NN agreements increase bilateral trade on developing countries, obtaining larger effects on trade for SS agreements despite that developing countries are not among themselves natural trading partners. (Zarrouk J. (2000), "The Greater Arab Free Trade Area: Limits and Possibilities"; *Studies in International Economics*. Ann Arbor: University of Michigan Press, pp.285-305.)

A number of papers have recently anylyzed the impact of FTAs on MENA trade flows. Most of the studies cover only the late 1990s and early 2000s (Peridy, 2005; Peridy, 2005; Cieslik and Hagemejer, 2009) and only a few compare different

FTAs, including North-South (NS) and South-South (SS) agreements (Cieslik and Hagemejer, 2009; and Abedini and Peridy,2008). There are, however, no studies that differentiate between industrial and agricultural products in the same analysis. The present study adds new insights along these lines. The main aim of this paper is to analyze the impact on trade flows of a number of FTAs which came into force for ten MENA countries during the period from 1994 to 2010. The trade effects of four NS FTAs and five SS FTAs have been estimated to compare whether agreements with north partners are more desirable than those with south partners, or vice versa. We also differentiate between trade in industrial and agricultural products to compare the effects when an FTA include or not agricultural products. The countries considered are Morocco, Algeria, Tunisia, Libya, Egypt, Jordan, Israel, Lebanon, Syria and Turkey. The average impact of the agreements on trade, differentiating between import and export flows. An augmented gravity model is estimated using up-to-date panel data techniques that allow to control for all bilateral factors that influence bilateral trade and are time invariant (unobserved heterogeneity) as well as for the so-called multilateral resistance factors (the effect of relative prices with respect to all trading partners). The article from which this annotation is taken has utilized a methodology recently proposed by Baier and Berstrand (2007) to control for the endogeneity of the agreements and for multilateral resistance, we also control for self selection bias due to the presence of zero trade in our sample. (Baier, S. and J. Bergstrand (2004). "Economic determinants of free trade agreements". *Journal of International Economics,* 64 (1): 29-63).

The main results show that the majority of the FTAs considered increase bilateral trade between the countries involved in the agreement, except for the Euromed agreement that only improves MENA imports from Europe. We found that also the inclusion of agricultural liberalization in the agreements could mitigate MENA concessions on industrial imports liberalization, helping MENA exports face the entry of foreign industrial products. (Soderling, L. (2005). "Is the Middle East and North Africa Region Achieving Its Trade Potential?", IMF Working Paper No. 05/90).

Whereas most published research focus on other regions like European Union, NAFTA Latin America, and more recently Asia, relatively few works focus on analyzing the impact of FTAs on MENA trade flows. Kepaptsoglou et al. (2010) reviews empirical studies in the last 10 years that use gravity model specifications to analyze the impact of FTAs on international trade flows. Among the literature that examines trade integration effects on MENA trade flows using gravity models, some studies exclusively focus on North-South integration; Peridy (2005a), Bergstrand et al.(2011), Bensasi et al.(2012) or on South-South integration agreements; Peridy (2005b). More recent research evaluates both NN and SS agreements; Abedini and Peridy (2008) and Cieslik and Hagemejer (2009). Overall most of them cover only the late 1990s and early 2000s and analyze the impact of FTAs only in exports using total values, which does not take into account the nature of the agreements.

Starting with the NS agreements, Bergstrand et al. (2011) study the impact of six trade agreements for the European Union, including the FTA between the EU and Jordan, Morocco and Tunisia. They used a gravity model for bilateral trade flows among 176 pairs of countries from 1966-2008. Their results show that the FTAs have only improved exports from the EU to Tunisia and Morocco but not in the opposite direction. Peridy (2005a) analyses the impact of regional arrangements between the EU and seven Mediterranean countries for the 1975-2001 period. He employs a gravity equation and he use different model estimators (Fixed effects, Random Effects, Hausman and Taylor Model and a dynamic estimation with GMM). His main findings indicate that the regional agreement between the EU and MENA countries have a positive and significant impact on increasing exports from MENA countries to the European Union in all estimations, with a trade creation at around 20%-27% for the static specifications and 36% in the dynamic version.

Bensassi et al (2012) use a gravity model to evaluate the impact of the Euromed agreement in the extensive and intensive margins of trade for four MENA countries, (Algeria, Egypt , Morocco and Tunisia) from 1995 until 2008 using disaggregate manufactured exports to the main European partners (France, Italy, Germany and Spain). They found that the Euromed agreement increase the extensive and intensive margins of MENA exports. Concerning the impact of SS-FTAs, Peridy (2005b) study focuses on the effects of the Agadir agreement analyzing the impact of regional trade agreement between 5 MENA countries and the EU from 1975 to 2001. His results show that despite the fact that the Agadir Agreement reduced trade barriers, due to the highest border effects and lack of complementarities countries involved in the Agadir agreement obtain a limited profit in terms of higher trade flows.

Abedini and Peridy (2008) measure the impact that the GAFTA agreement has had on improving exports of 15 member countries from 1988 to 2005 and obtain a positive and significant correlation in all estimates. They estimated a trade creation effect of around 16-24 percent. Their study also evaluates the impact of the Association Agreement (AAs) with the European Union and the new Euromed agreement, obtaining a positive and significant effect for the AAs with the EU and negative effect for the EUROMED agreement. Cieslik and Hagemejer (2009) also analyse both NS and SS FTAs using an augmented gravity model to estimate FTA effects on imports and exports for seven MENA countries between 1980-2004. Similar to Peridy (2005a), they include, county-pair specific effects and time specific effects, and present different specifications, e.g., OLS, two-way fixed effects and first differences, to check for robustness. According to their findings the EU-Association Agreement with MENA countries has a positive and significant effect on MENA imports from the EU and

Organization (WTO) and the Asia-Pacific Economic Cooperation (APEC) forum could have potentially dramatic effects on trading patterns of countries in the trans-Pacific region. This section considers the evolution of such bilateral trade agreements with an eye to understanding their origins, possible proliferation and expansion, as well as their impact on broad-based multilateral trade accords. Excerpt from Vinod Aggarwal has been taken for the theoretical framework. According to Aggarwal, two questions lie at the crux of the analysis. First, how might one categorize bilateral trade agreements in the broader context of the possible array of arrangements that might be used; and second, how we can explain the origins, evolution, and impact of bilateral accords.

Historically, countries have used a variety of instruments to influence trade patterns. Whether oriented toward protecting or opening markets, countries can choose among a panoply of accords, or simply open or close markets unilaterally. In terms of the number of actors involved, one can have unilateral actions or bilateral, minilateral, and multilateral arrangements. These arrangements can be further categorized as either geographically concentrated or dispersed. Additionally, agreements may vary in product coverage (few or many) and their effect on market behavior (opening or closing). As Aggarwal argues, the bulk of the Asia-Pacific's recent preferential agreements have been bilaterally focused and geographically open. To a large extent, most bilateral agreements in the Asia-Pacific have also been market-opening and relatively wide in their product coverage, while a large number of recently concluded bilateral agreements have excluded politically sensitive products and sectors, which is potentially inconsistent with the multilateral norm of GATT/WTO. It is this trend that underlies the focus of the volume: why are such arrangements being developed, how do they vary among country pairs, how are they likely to evolve, and what might their impact be?

With an eye to addressing questions about the evolution and impact of bilateral trade accords, Aggarwal[143] has presented a theoretical framework to categorize the phases of bilateral trade agreements[144].

Phase 1. Focusing first on the origins of bilateralism, Aggarwal has highlights the role of some type of external shocks. The pressure for a shift toward new Asia-Pacific bilateralism came about through three external shocks. First, broader security shifts such as the end of the Cold War made it politically easier for Asia-Pacific countries to pursue bilateral FTAs with each other. The end of bipolarity has reduced the significance of Cold War perceptions and divisions, breaking down barriers that had previously precluded formal trade arrangements between capitalist and communist blocs. In addition, the U.S. no longer adopts an antithetical position towards preferential arrangements.

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they do not help to increase MENA exports to the EU. In the case of FTAs with North American partners they find a positive and significant effect on imports and exports, whereas in relation to the Arab FTAs the parameter estimates are mostly not statistically significant. Individual effects for each MENA country are also estimated, showing mixed results. (Baier, S. and J. Bergstrand (2007). "Do free trade agreements actually increase members International trade?". *Journal of International Economics* 71 (1): 72-95)

[143] ibid

[144] Abedin, J. and N. Peridy (2008). "The greater arab free trade area (GAFTA): an estimation of the trade effects". *Journal Economic Integration*; 23(4): 848-72.

Anderson, J. (1979): "A Theoretical Foundation for the Gravity Equation", *American Economic Review*, 69 (1): 106-116

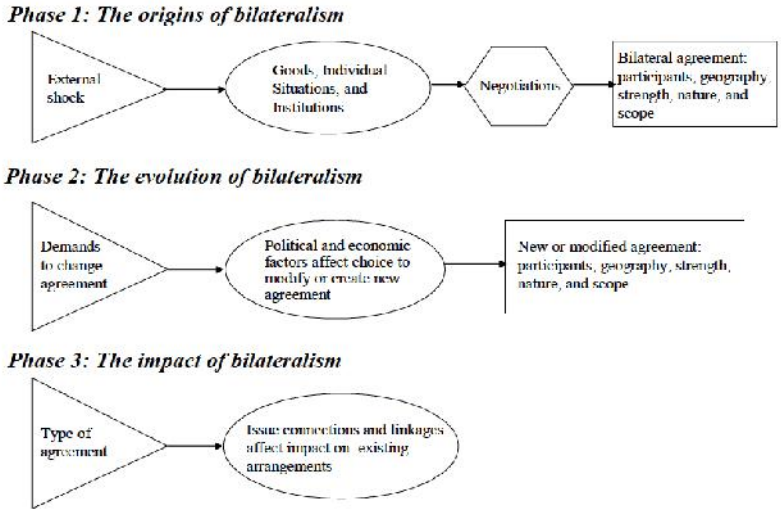

Figure 4: Three Phases of Bilateralism (Aggarwal, 2011)

The second critical turning point came in the wake of unprecedented economic hardships for the small and medium-sized economies in the region during the last years of the 1990s. Many of them came to recognize that tighter institutionalization—rather than loosely-structured regional production networks—might be a better commitment mechanism for providing economic security, and, therefore, began to actively weave a web of bilateral trade arrangements.

Thirdly, the Seattle meeting of the WTO created fears that the multilateral trading system would not continue to function smoothly. Although the WTO Doha agreement to start a new round of trade negotiations might have changed this view, the breakdown of the September 2003 WTO meetings in Cancun and subsequent success in getting the round moving again in July 2004 highlights the uncertainty that still surrounds the multilateral process. Furthermore, the Bush Administration's strong interest in pursuing a Free Trade of the Americas Agreement (FTAA) has been of concern for Asian countries, who fear a shift in U.S. interests.

Pursuant to a shock, the new trend in the Asia-Pacific reflects a convergence of interests in securing inclusive "club goods" in the face of anemic, if not shrinking, export prospects. The seemingly endless export boom of the 1980s and early 1990s began to face problems in the mid-1990s. The "trade triangle" that had linked Japanese (and overseas Chinese) capital, developing East Asian manufacturing capacities, and the U.S. market appeared to be in trouble, as the U.S. began to focus on its NAFTA neighbors, namely Canada and Mexico, as key trading partners. With traditional mechanisms within WTO and APEC offering no salient solutions, East Asian countries quickly turned toward bilateral FTAs to assure a market for their products. More generally, the key economic incentives to form bilateral agreements include trade creation, investment expansion, and financial stability. First, trade will increase when tariff and non-tariff barriers are removed, although product exclusions can create distortions and the actual benefits will depend on the fit between the participants' economic structures. It is also worth noting that trade diversion as a result of other countries' bilateral agreements may drive actors to pursue their own accords. Second, bilateral accords could also bring about an investment creation/expansion effect as well.

This could occur not only between the two countries involved but also through investment attraction from third countries that wish to secure access to specific markets. A good example of this is Mexico's increasing attractiveness to investors as it has developed a web of bilateral trade accords. Third, bilateral accords may lead to greater willingness to help one another in times of financial difficulty—particularly if the partner is large and financially powerful.

With respect to political arguments as driving forces, four arguments are most salient, namely the role of pressure groups, regime types, ideas, and international context. First of all, in the Asia-Pacific, individual bargaining situations in terms of pressure groups and regime type have changed significantly as a result of the end of the Cold War and the financial crisis. Though with different

degrees, many developing countries in the region experienced challenges to their political legitimacy and actual political turnover by groups and individuals who had previously tolerated cronyism and familism. Such a development in regime structure has altered the economic payoffs confronting individual countries, as they march toward more liberal and democratic regimes, rendering cooperative outcomes at the inter-governmental level more likely and the requirements of institution-building less daunting. In addition, countries' changing perceptions regarding the importance of supporting multilateral institutions has affected the choice of bilateral mechanisms. Many Asia-Pacific trade experts now are part of an "epistemic community" which shares the view that bilateral trade arrangements can be trade-enhancing and serve a similar purpose of multilateral trade liberalization. Finally, from an institutional perspective, the uncertainties about the prospects for the WTO Doha Round and the weak role of APEC have stimulated concern about alternative arrangements that might secure access to markets in a more difficult institutional environment.

Phase 2. In this phase, research has shown[145] how bilateralism may expand in terms of the number of participants involved and of the strength, nature, and/or scope of the accord. Depending on the perceived benefits from a bilateral accord as well as actions taken by other states, countries may be motivated to alter the agreement in some fashion. From an economic standpoint, as the pattern of economic flows begins to change, import competing firms, export-competing firms, and labor groups are likely to press for some changes. Similarly, financial groups, environmental groups, and human rights groups are also likely to become active—as will adversely affected groups in other countries.

From a political standpoint, the motivation of actors provides a first cut into understanding the likelihood of pressures for change. But the relative power of different groups, and the relationship of the government to interest groups, will affect their ability to realize their desired policies. Here, the type of political regime and its ability to resist pressures will affect its response. Its power position in the international system, both economic and political, will also influence the response to possible pressures from other states. In short, just as countries' individual situations affect the initial agreement, so too will differing situations influence the prospects for changes in the agreement as well as the likely characteristics of the modified accord—if that is indeed the path they choose to pursue.

Phase 3. In this third phase, how the characteristics or type of agreement will affect existing agreements has been researched[146]. Will new trade agreements smoothly fit within broader regional or multilateral arrangements or disrupt the current trading order? The negotiation of bilateral agreements, their possible expansion to minilateral agreements, and the trade and investment diversion that they may create will affect broader trade agreements such as AFTA, APEC, NAFTA, and the WTO. As John Ravenhill notes at length[147], the extent to which bilateral preferential agreements are consistent with Article 24 of the GATT/WTO will greatly influence the extent to which they might be disruptive to the broad-based trading system[148].

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[145] ibid

[146] ibid

[147] ibid

[148] An interesting contrast can be drawn on the African region and its efforts towards regional economic integration. This section of the annotation draws heavily on an article, titled, "Impacts and Challenges of Multilateral and Bilateral Trade Agreements on Africa", by Christopher Stevens, Fellow, Institute of Development Studies, Economic Research Working Paper No 79 (October 2005) (accessed online at 2356 hrs: 12 June 2014 from http://www.afdb.org/).

Quoting the author's own words, Africa's trade negotiators have 'punched above their weight' in recent years, and they have needed to do so as patterns of trade are changing fast. Change is under way in relation to the goods that are exported, imported and consumed locally; all with the effect of Africa being squeezed. Its status as a favoured recipient of trade preferences in some markets (but not in others) is being eroded rapidly. Increasingly its terms of access to non-regional markets will be on the same basis as its competitors'.

A corollary of this new-found instability in the region's global trade relations has been its exposure of the frailty – at all levels – of Africa's capacity to strategise and negotiate. The well-publicised problems faced by overstretched (or non-existent) diplomatic missions in Geneva to cope with the World Trade Organization (WTO) agenda is merely the tip of an iceberg comprising multiple overlapping trade negotiations. As old relationships come under strain and new ones need to

be forged, so the demands for a clear line of communication from economic stakeholders through line ministries to trade negotiators become ever more marked. And the gap between the ideal and reality becomes ever more stark.

Despite these disadvantages, African states have been able to engage in a very wide range of negotiations, both within and outside Africa. Trade integration within the Southern African Development Community (SADC), the Common Market for Eastern and Southern Africa (COMESA) and the Union Economique et Monétaire Ouest Africaine (UEMOA) is already under way. Africa has played a prominent role in the WTO. And negotiations for a successor to the current trade regime with the European Union (EU) are under way.

One arena in which Africa has clearly punched above its weight is the Doha Round. The Africa Group submitted almost two-thirds of all the specific submissions to the Committee on Trade and Development (CTD) and over one-third of the proposals on systemic cross-cutting issues in the period to July 2002 (WTO, 2002: Annexes 2 and 3). African countries also played a prominent role at the Cancún Ministerial, as well as in the committee-rich WTO negotiating process. But, at the same time, the experience emphasised the asymmetry of influence within the WTO. Groups with greater numerical than economic and technical strength have more power to prevent than to mould in cases where other members are not actively sympathetic. As was demonstrated most prominently at Cancún, they can prevent the adoption of proposals to which they object substantially on principle. But, by the same token, they cannot force other countries to accept their own proposals. The only way to move forward positively within the WTO, therefore, is to mould the technical details of proposals as they evolve in order to deal with African concerns – and then only if other members are receptive.

Africa's attitude towards multilateral liberalization is necessarily conditioned by the anticipated effects that this will have on its preferential trade regime with the EU, its main market. The relative merits of multilateralism and regionalism have been much debated, and there are clearly both pluses and minuses in shifting fundamentally from the status quo to a significantly more liberal world trade regime. The relative attractions depend critically upon the time period considered and the socio–economic actors involved. But this academic discussion is not necessarily directly relevant to the issues that have come before the Doha Round.

The worst-case scenario for Africa is one in which few if any of the identified benefits from multilateral liberal trade accrue to the region (because WTO change is too limited) but key advantages of the current preferential regime are lost. There has been little progress so far on agreeing detailed changes to the Agreement on Agriculture, but the portents such as they are cause concern. It is quite possible that such a worst-case scenario will be played out. This would be the result of changes in the multilateral arena and the preferential one.
Agriculture is the multilateral arena of most interest because the erosion of the key nonagricultural preference, on clothing, has already happened. In the case of temperate agriculture, however, robust preferences still exist. But they could be eroded by any combination of change under the following three headings:
· Significant multilateral liberalisation to reduce OECD market access barriers to agricultural imports;
· Autonomous actions by OECD states that have the effect of reducing the returns to preferential exporters; and
· Changes to the preferential trade agreements.

The most fundamental change in the WTO Agreement on Agriculture that could alter Africa's preferences would be substantial liberalisation. Preferences are the other side of the coin to protectionism. If a country has a liberal trade regime it cannot, by definition, offer preferential access to some suppliers. Only if it restricts imports in some significant way does the possibility arise of reducing these barriers to some extent for favoured trade partners The EU is overwhelmingly Africa's most important market importing almost 50 percent more items than the other three Quad states put together. There are very few items that are imported into one of the other three Quad members and not into the EU. In 2000 the EU imported 1,710 items from Africa to a value of $1 million or more and of these no fewer than 1,692 were covered by a preference for at least one exporter from the region. The USA, which was the next largest Quad importer, took only 491 items, of which preferences were available for one-half.

The EU has no fewer than eight trade agreements with Africa. All African states are eligible for the GSP. Those south of the Sahara (except South Africa) also benefit from the Cotonou trade regime3 and, in the case of the least developed countries, the 'Everything but Arms' (EBA) regime. In addition, South Africa and most of the North African countries have their own bilateral agreements. In the case of the North African countries, these are of long standing but are in the process of being transformed into reciprocal FTAs, many of the provisions of which are similar. This follows the Barcelona Declaration objective of creating a Euro–Mediterranean free trade area by 2010. Central to the argument on how Africa may be affected by change to its regional agreements is the concept of 'trade policy rents' (Box 4). An important paradox emerges: that Africa's greatest gains from exporting to Europe have been in the products that appear at first glance to be the most heavily protected and to receive the least generous preferences.

Africa's exports fall into three groups in terms of their market characteristics. These are:
1. Traditional products (such as beverages) that are exported to a relatively undifferentiated, liberal world market;

2. Other traditional exports (such as clothing, beef, sugar, citrus and olive oil) that are exported to markets that are heavily influenced by agricultural protectionism; and
3. Non-traditional products (such as horticulture) that are exported to markets characterised to a greater or lesser extent by protectionism.

The reason for differentiating between these groups is that they face very different 'value chains' and price characteristics. The secular decline in the terms of trade for the first category (beverages, etc.) was forecast over half a century ago in the pioneering work of Raúl Prebisch and Hans Singer; forecasts that have been borne out in reality. African exporters are price-takers on a declining world market. Some appear to have 'lost' their comparative advantage to new entrants such as Malaysia (as in the case of West African palm oil production).
The second category would have been expected, on the basis of the Prebisch–Singer analysis, to have suffered a secular decline in their terms of trade, were it not for the fact that OECD governments (and especially the EU) have stepped in with policies to support the prices received by their own farmers and have passed on some of these 'benefits' to some African exporters. Consequently, the relative returns from exporting these products have been much more attractive than for other traditional commodities (Stevens and Kennan, 2001: Figure 7.8). The third category (non-traditional exports) shares the same characteristic – but the scale of the price boost is less marked than for some category 2 items (such as sugar and beef) and the structure of the value chain through which the final price is distributed is very different. In broad terms, Africa's gains from the non-traditional exports have been less substantial than those from the protected traditionals, but the gains are less vulnerable to
policy change in the EU.

In general terms, the protection–preference nexus makes sourcing imports from some suppliers more attractive than from others, but who gains what depends upon the power distribution within a value chain. It may accrue to any combination of the producers, processors or shippers in the preferred countries, or the buyers in the importing country. The balance between them is affected by both the overall scale of the rent and the architecture of the rules that create it. Rents are most substantial in product markets (such as beef and rice) that face protectionism so severe that it restricts sharply the possibility of importing from non-preferred sources. At the other end of the scale are items for which protection is so modest as to render any preferences of limited commercial value. In the middle are commodity groups like horticulture where EU tariffs are moderately high but the advantage of a preference is available to a large number of countries (Dolan, Humphrey and Harris-Pascal, 1999).

For the recipient the existence of a preference is better ceteris paribus than its nonexistence, and a deep cut in protection is better than a shallow cut, but the matter does not end here. There are features of a preference agreement that can enhance or retard its development impact in addition to the simple matters of breadth (number of items covered) and depth (reduction in protection). And these can change. Who gains this rent within the value chain depends upon the bargaining power of the various elements – retailers, importers, shippers, exporters or producers – which depends in turn partly upon their inherent characteristics and partly upon the architecture of the preference agreement. There exists a host of ways in which the rules and procedures of a preference agreement can bias the result in favour of one party or another.

Relief (full or partial) from the CAP's protectionism is currently one of the most commercially valuable African trade preferences, and its relative importance will grow as other preferences are eroded. But autonomous change to the CAP may erode these preferences more rapidly than seems likely under the Doha Round.

It is important not to confuse 'CAP change' with 'liberalisation' which, in the normal sense, means changing the government rules, taxes and subsidies that stop high-cost domestic producers losing market share to lower-cost imports. It implies that the global location of production will change over time, with lower-cost producers increasing output and higher-cost producers declining. CAP change, by contrast, aims to sustain European production but to reshuffle the subsidies and taxes to make them less costly to the European budget and more easily defensible in the WTO. They will have very limited effects on the EU's overall agricultural trade since they will neither decrease production below domestic consumption nor increase market access. But they could erode developing country preferences.

Information source:

(i) African, Caribbean and Pacific (ACP) Group (2002) 'ACP Guidelines for the Negotiations of Economic Partnership Agreements', Brussels, 5 July.

(ii) Cerrex (2002) 'The Usage of the EU Trade Preferences (GSP and Lomé)', a study on behalf of Department for International Development (mimeo). London: Cerrex Limited.

(iii) Commission on Intellectual Property Rights (CIPR) (2002) Integrating Intellectual Property Rights and Development Policy. London: CIPR.

In his analysis, Aggarwal focuses on two aspects of institutional connections: how issues are connected and the nature of any issue connections. With respect to the former, Aggarwal defines four possibilities: nested links, whereby arrangements conform to broader accords (say through Article 24 of the GATT/WTO); horizontal connections, whereby arrangements reflect a division of labor among institutions; overlapping agreements, which may create conflict among institutions; and agreements that deal with different issues and that are thus independent of each other. And with respect to the nature of issue connections, he focuses on whether links are driven by power considerations or by some type of intellectual consensus. As he notes, when actors do not share a cognitive consensus on the relationships between issues, power-based tactical linkages will create conflict among institutions as power relationships change. In short, the characteristics of an initial bilateral agreement and its possible expansion in scope will be critical to how actors perceive its relationship to broader agreements.

As is seen from the summary of works examined[149], John Ravenhill undertakes three tasks to provide the setting for an analysis of bilateral trade agreements: (1) a survey of the move to bilateral preferential trade arrangements, focusing on those involving East Asian countries; (2) examination of their effect on the domestic political economy of the participants to these agreements; and (3) the impact that these arrangements are likely to have on regional and global liberalization. Ravenhill based his finding first by surveying the 12 bilateral preferential agreements that have already been implemented, another 15 currently under negotiation, and another 10 being studied. He shows that many of these agreements have been asymmetrical and driven by political factors, that larger concessions have been made by weaker parties, and that the resulting agreements generally exclude several sectors and are only weakly consistent at best with Article 24 of the GATT/WTO. Ravenhill's argument can be extended to include the 40 plus current and prospective FTAs that involve North and South American countries. These outcomes are consistent with the expectations developed by Aggarwal in the Phase 1 analysis reviewed above. Ravenhill then provides a detailed analysis of how the exclusion of sectors in the accords under negotiation may affect the domestic balance of power, and thus change the political atmosphere for negotiating further agreements (Phase 2 of Aggarwal's analysis). He suggests that while such agreements provide governments with political benefits, the agreements create a new structure of protectionism that may harm consumers, create trade diversion, and encourage further lobbying by those who manage to secure exclusion from bilateral liberalization efforts. Ravenhill notes that some analysts believe that liberalization along bilateral lines may lead to the strengthening of pro-liberalization forces, which may then foster overall market opening. Yet he believes that the more likely outcome is the one raised by Aggarwal and Ravenhill (2001) about open sectoral agreements in the information technology and telecommunications industries. As they suggest, piecemeal liberalization is likely to undermine the creation of a broad coalition for opening trade by giving pro-liberalization what they want through sector specific agreements, thus diminishing their incentives to lobby against protectionist interests. Ravenhill then examines how bilateralism is likely to impact and be linked to broader trading arrangements (Phase 3 in Aggarwal's framework). In reviewing the theoretical literature on the first issue and their impact, Ravenhill notes the sharply competing views of bilateral agreements as being possible "stepping stones" or "stumbling blocks" to broader accords. On the negative side are arguments about trade diversion resulting from a proliferation of preferential accords, the diversion of bureaucratic attention from broader arrangements, and the sunk costs from having focused on bilateral arrangements. On the positive side, some argue that excluded countries will be motivated to join such agreements, that bilaterals can be negotiated more readily, and that the possible inclusion of a broader range of issues in the arrangement may stimulate their consideration in broad-based, multilateral fora. How does the evidence from the Asia-Pacific stack up? Ravenhill finds

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(iv) European Commission (EC) (2002) 'Mid-Term Review of the Common Agricultural Policy', COM (2002) 394 Final, 10.7.2002. Brussels: Commission of the European Communities.

[149] ibid

that while some bilateral agreements have been negotiated rapidly, some of the same issues that beset broader negotiations may hinder bilateral efforts as well. With respect to the inclusion of previously excluded countries, the evidence for this is not there, with agreements being negotiated de novo, rather than incorporating new members. And with respect to issue scope, while new issues such as investment, competition policy, and the like have made their way into bilateral accords, these have not led to a new agenda at the broader level. Lastly, with respect to the second question of connections to broader arrangements, Ravenhill examines the Association of Southeast Asian Nations (ASEAN), ASEAN, APEC, and the WTO. With respect to the former, the record is mixed at best.

In terms of APEC's principles, the lack of clear directives makes it hard to evaluate inconsistencies. On several dimensions, however, there does seem to be conflict. At a minimum, the notion that sub-regional agreements would be extended to other members has been violated, the 2020 deadline for free trade in the region does not appear in bilateral agreements, and the current and prospective bilateral agreements are often incompatible with the calls for a comprehensive inclusion of all sectors. In terms of their impact on ASEAN, there appear to be some pluses in that bilateral agreements have stimulated some unity through the negotiations that they have undertaken with Japan and China. On the negative side, there have been disputes among ASEAN members on the decision of some states, such as Singapore, to actively pursue bilateral arrangements.

Finally, with respect to the WTO, research shows[150] the possible conflicts with Article 24. Beyond this, Ravenhill suggests that bilateral agreements will create a diversion of political-economic lobbying away from the WTO to bilateral arrangements.

Research by Fukunari Kimura[151] has extensively covered an economic overview of Asia-Pacific bilateralism. His chapter examines five aspects of free trade arrangements (FTAs)[152], namely: (1) the economic motivation driving bilateralism; (2) the role of international production and distribution networks in economic development; (3) the effects of FTAs on development strategies; (4) the limitations of computable general equilibrium (CGE) model simulations; and (5) future prospects for broader bilateral accords. Kimura's analysis begins by looking at the economic motivation for the negotiation of FTAs in the Asia-Pacific. He notes that although FTAs have been developed on a bilateral basis for the most part, the common view in the Asia-Pacific is that these efforts will ultimately result in economic integration of the entire East Asian region. As latecomers to FTA formation, East Asian countries share several distinct elements that have characterized their efforts in developing bilateral FTAs. These include: pressure to formulate FTA networks quickly; motivation from external rather than domestic sources; and the advantage of learning from the experiences of other regions.

Kimura then turns to an analysis of the development of international production and distribution networks, an important aspect of economic development in the Asia-Pacific region. He details three theories to help us better understand international production/distribution networks in East Asia—fragmentation, agglomeration, and internalization. Drawing from these theories, Kimura demonstrates the importance of production and distribution networks in East Asia by citing a case study on the machinery industry's production/distribution network involvement. Next, Kimura examines the impact that international production/distribution networks have had on development strategies in the Asia-Pacific. He shows that the evolving combination of import substitution and export promotion policies is linked to FTAs, because such agreements seek to reorganize inefficient import-substituting industries through increased international competition while simultaneously enhancing international production/distribution networks through measures that go beyond simple tariff removal. In his fourth section, Kimura points to several problems surrounding CGE models. As he notes, while CGE models are the most popular approach to evaluating the impact of FTAs, one

[150] ibid
[151] ibid
[152] Wonnacott, P. and M. Lutz (1989). "Is There a Case for Free Trade Areas?" In Schott, J.J (ed), Free Trade Areas and U.S. Trade Policy, pp.59-84. Washington, D.C.

must be cautious in interpreting their results. To this end, he offers several caveats for interpreting their results. Lastly, Kimura provides insight into the future prospects of Asia-Pacific FTAs. If East Asian countries are to continue towards region-wide integration, he argues that several policies must be followed in constructing FTAs. These include trade liberalization with minimal exceptions, forming bilateral FTAs with wide scope, learning from the experience of other regions, and utilizing other policy modes. He concludes by arguing that this approach would then allow bilateral accords to foster broader Asia-Pacific arrangements.

Among the Big Three players, the U.S. and Japan have shown a strong, if not the strongest, interest in forming bilateral FTAs with the rest of the Asia-Pacific, whereas China appears to be least interested in relying on the new bilateralism. The future evolution of Asia-Pacific bilateralism in terms of its economic impact largely rests on the Big Three who together represent about 79 percent of GDP of the Asia-Pacific region—primarily consisting of the North and South America, Northeast and Southeast Asia, and Oceania—and 62 percent of its total trade in goods and services as of 2002.1 The fact that small and medium-sized countries are approaching the Big Three as FTA partners illustrates the importance of a large market in enticing the negotiation of trade arrangements. This attractiveness, of course, provides larger countries with greater leverage in negotiations.

Yet what is most striking is in the Asia-Pacific bilateralism is that small and medium-sized countries—particularly, Singapore, Mexico, South Korea and Thailand—have played a central role in setting the pace toward bilateralism. In particular, Singaporein the Western Pacific and Mexico in the Western Hemisphere have served as inspiration and motivation for their neighbors, both big and small, to form bilateral FTAs for the past several years. This intriguing development indicates that the new Asia-Pacific bilateralism has resulted from a bottom-up rather than top-down strategy of small and medium-sized countries, as opposed to the post-war multilateralism that was largely imposed from top (the U.S.) to down (U.S. allies in the region).

First, this finding suggests that big economic players have strong incentives to form bilateral FTAs with each other since many of them consider bilateral FTAs as a promising avenue towards trade liberalization in the absence of alternative measures at the broad-based, multilateral level. Second, the growing interest in bilateral FTAs as an "insurance policy" to liberalize trade often goes beyond trade in goods and services. Many of the current and prospective bilateral FTAs among Asia-Pacific countries cover broader areas and elements like factor mobility, investment rules, intellectual property rights, government procurement, and other trade facilitation measures such as mutual recognition of product standards and harmonization of customs and quarantine procedures. At the same time, however, these agreements are potentially incompatible with the WTO provisions since some sensitive sectors are deliberately excluded, thus setting up the possibility of institutional conflict. Third, many East Asian countries had a strong incentive to secure financial resources, especially with the region's financial giant, Japan, when they began to consider preferential accords in the aftermath of the financial crisis of 1997-98. More recently, however, financial and monetary cooperation through bilateral FTAs and/or regional financial arrangements such as an Asian Monetary Fund has taken a back seat, as most countries have recovered from the crisis. With respect to political motivations for Asia-Pacific bilateralism, we found that for the majority of our selected countries (six out of nine), political leadership and institutions are the most important driving force. For the U.S, the new view of bilateralism as a building block rather than a stumbling block for multilateralism is the most important determinant. As for the two Chinas, international balance of power is the most important factor that drives their somewhat slow move toward bilateralism.

	Overall strength and extent of new bilateralism (1: highest; 4: lowest)	Economic factors (1: highest; 3: lowest)			Political factors (1: highest; 4: lowest)			
		Trade expansion	Investment expansion	Financial cooperation	Interest groups	Political institutions	Ideas	International balance of power
U.S.	2	2	1	3	4	2	1	3
Japan	2	1	2	3	3	1	4	2
China	4	2	1	3	4	2	3	1
South Korea	2	1	2	3	4	1	2	3
Singapore	1	1	2	3	4	1	2	3
Taiwan	3	1	2	3	4	3	2	1
Malaysia	3	1	2	3	3	1	2	4
Thailand	2	2	1	3	2	1	4	3
Mexico	1	1	2	3	2	1	4	3

Figure 5: Summary of Findings from Aggarwal's Study

It has also been found that interest groups play a relatively minor role in the politics of new bilateralism. In fact, interest group politics appears to be the least significant factor in five countries and the second least important for two countries out of nine. This implies that new bilateralism is driven from the top at the national level. In addition, these findings are closely related to the emerging consensus at the political leadership level that FTAs will advance national interests while presenting an alternative road to trade liberalization compatible with multilateralism. Unsurprisingly, most Asia-Pacific countries considered in our study, except for the U.S., are thought to have a "strong" state that is relatively free from societal pressure when pursuing preferred trade policy[153].

[153] For more detail, see Vinod K. Aggarwal and Min Gyo Koo (2005).

3.12 Agriculture of Jute in Bangladesh

3.12.1 Trade Negotiations under WTO and other regimes in Agriculture

Trade negotiations for the product group of Jute was always spearheaded by organisations like IJSG and primarily two governments, India and Bangladesh. A discussion on the nature and architecture of the organisations involved might be of use for overall comprehension of the issues at hand and how the region is addressing the issues.

3.12.2 INTERNATIONAL JUTE STUDY GROUP – Objectives and Functions

The International Jute Study Group (IJSG) was previously called International Jute Organization (IJO), initially established under the International Agreement on Jute and Jute Products, 1982 and maintained in existence under the International Agreement on Jute and Jute Products, 1989. The organisation is the outcome of a series of meetings and UNCTAD conferences, which commenced in March 2000 in Geneva and concluded in April 2001 also in Geneva.

The IJSG formally entered into force on and from 27 April 2002 with the completion of the process of Definitive Acceptance/Acceptance by Governments of Bangladesh, India, Switzerland, and the European Community representing its 27 member countries and representing over 60% jute trade (import and export). [Consistent with paragraph 23(a) of the Agreement, establishing the Terms of Reference (ToR) of IJSG - UN Conference on Jute and Jute Products 2001][154].

Providing effective framework for international cooperation, consultation and policy development related to the world jute economy; promoting expansion of international trade in jute and jute products by developing new markets and maintaining previous ones, introduction of new jute products and their uses; encouraging active participation of the private sector in the development of this sector; addressing the issues of poverty alleviation, development of human resources, employment generation especially for women in the jute sector; structural reforms in the sector through improvement of productivity, quality, new processes, techniques and their application; creating awareness about the use of jute as an environmentally friendly, renewable and biodegradable natural fibre; improving market intelligence ensuring greater transparency in the international jute market collaborating with other organizations such as Food and Agricultural Organization (FAO) of the UN .

It endeavours to achieve these objectives by fulfilling various functions such as developing appropriate strategies to improve the world jute economy emphasizing on generic promotion of jute and allied products; conducting consultations and information exchanges on the jute economy; initiating, sponsoring, supervising and monitoring and catalyzing the structural reforms of the world jute economy and the improving the conditions of the employed people; providing statistics and market intelligence on jute and related products in consultation with the FAO and other related bodies; undertaking studies on the world jute economy and related issues; and identifying and solving difficulties in this economy. [155]

The Group analyses and processes jute trade information and statistics collected from the Food and Agriculture Organization of the United Nations (FAO), other international and national institutions and the private sector. The Group provides and make available to members, associate members and other interested parties the market outlooks and intelligence, including information on stocks and consumption by specific markets and end-use industries also encouraging national institutions in producing member countries to improve data collection in the jute sector and to disseminate the results to all interested parties. [156]In so doing, every effort shall be made, as far as practicable, to minimize duplication.

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[154] International Jute Study Group, Official website: http://www.jute.org.

[155] FAO. 2009. STATISTICS 2009 for Jute, Kenaf, Sisal, Abaca, Coir and Allied Fibres. Rome: Food and Agriculture Organization (FAO).

[156] *Economic Cooperation among Developing Countries in Agricultural Trade*: FAO Economics and Social Development Paper 70. Pp. 139-162

The Group undertakes such studies related to the international jute economy as may be agreed to by the Council and The Group endeavours to ensure that information made available by it does not prejudice the confidentiality of the operations of Governments or persons or enterprises producing, processing, marketing or consuming jute.

Membership of the Group is open to all States and the European Community which are interested in the production or consumption of, or international trade, in jute and jute products, and, with the agreement of the Council, to any intergovernmental organization having responsibilities in respect of the negotiation, conclusion and application of international agreements, in particular commodity agreements. Rules concerning the eligibility, rights and obligations of associate Members are also spelt out.

The Group undertakes an annual assessment of the world jute situation and related matters in the light of information supplied by members and supplemented by information from all other relevant sources, including periodic evaluation reports by donors on a review of expected jute production capacity for future years and an outlook for jute production, consumption and trade for the following calendar year, for the purpose of assisting members in their individual assessments of the evolution of the international jute economy.

The Group in consultation with associated parties, identify constraints and opportunities in the world market for jute and jute products with a view to undertake appropriate activities, with particular reference to increasing the demand and developing the market for jute and jute products, as well as dissemination and commercial exploitation of emerging technologies. [157]

3.12.3 Product Specialisation Option for Bangladesh (which ultimately lead to the selection of Jute as a study subject)

The jute trade is centred mainly around Bangladesh which is the major jute producing country due to its natural fertile soil. Bangladesh is the largest producer and exporter of raw jute. Therefore, the local price of raw jute in Bangladesh is the international price.

Being a major player in the long history of jute trade and having finest natural fibre, Bangladesh has always had an advantage in raw jute trading and is still the largest producer and exporter of raw jute in the world.

This gives Bangladesh Jute Mills Corporation an advantage over other Jute goods manufacturer to produce and cater the needs of quality jute goods world over. Bangladesh Jute Mills Corporation, well known as BJMC is the world's biggest state owned manufacturing and exporting organization of all kinds of Jute goods. Research and innovative experimentation towards product development and modernization approaches are the other contributing elements to its unmatched success it has established over the years. [158]

The competitiveness of jute exports from Bangladesh has been measured through RCA (Revealed Comparative Advantage) which indicates the relative export performance situation of a country and industry, defined as a country's share of world exports of an item divided by its share of total world exports. [159] It has been indicated that Bangladesh enjoys higher RCAs compared to India in a number of jute items of export [160].

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[157] IJSG, Official Website

[158] Ibid

[159] As is known, the concept of Revealed Comparative Advantage (RCA) is used to identify a situation when free trade allows countries to gain from increasing specialisation in activities where they have (strong) comparative advantage. If RCA value of a product is more than 1, the product is considered to be having comparative advantage in the global market. (Comparative advantage as measured by Balassa's Revealed Comparative Advantage Index.)

[160] *Global Market Opportunities In Export Of Jute*, Occasional Paper: 93 by Mustafizur Rahman and Nafisa Khaled, **Centre for Policy Dialogue (CPD)**

Table 5: Revealed Comparative Advantage of Selected Jute Items for Bangladesh and india

HS Code	Description	Bangladesh		India	
		2005	2009	2005	2009
530310	Jute and other textile bast fibres, raw or retted	1021.2	648.7	2.4	2.6
530390	Jute and other bast fibres, not spun, nes, tow, waste	615.1	351.1	0.5	0.4
530710	Yarn of jute or textile bast fibres nes, single	978.9	688.9	7.2	2.7
530720	Yarn of jute, textile bast fibre nes, multiple, cable	179.7	529.2	68.5	13.2
531010	Woven fabric of jute/bast fibres, unbleached/bleached	326.8	200.9	51.8	37.7
531090	Woven fabric of jute/bast fibre, not unbleached/bleached	357.2	55.6	1.7	0.9
560710	Twine, cordage, ropes and cables, of jute, bast fibre	655.1	423.1	5.5	0.0
570500	Carpets and textile floor coverings, nes	3.5	0.1	21.9	14.2
630510	Sacks and bags, for packg of goods, of jute or of other textile bast fibres	451.2	239.9	39.0	18.0
640590	Footwear, nes	2.5	0.1	0.6	0.1

Source: Trade Map Database.

In 2009, Bangladesh enjoyed the highest RCA in all items of raw jute and jute goods except carpet. On the other hand, India had the highest RCA in carpet. Higher RCAs in many jute items indicate that Bangladesh's export specialisation in these products is higher than the average export specialisation in the world in these same products, and testify to the fact that Bangladesh's competitive strength in these products was greater than the world's average competitiveness. A matter of heightened concern for Bangladesh, however, was the loss of her comparative advantage in almost all jute products, except jute yarn (multiple cables), over time. This is clearly visible for woven fabric of jute/bast fibre (not unbleached/bleached) and twine, cordage, ropes and cables, of jute. Conversely, India's comparative advantage has been on the rise for raw jute, between 2005 and 2009. Even though, India had significantly higher RCAs for carpets, Bangladesh enjoyed price advantage for this product (USD 6,658 per ton and USD 3,594 per ton respectively for India and Bangladesh).[161]

3.12.4 RCA calculation

[161] Ibid

[2]Comparative advantage is measured by Balassa's RCA (Revealed Comparative Advantage) Index. The Index can be defined as:

$$RCA_{ij} = \frac{E_{ij} / E_i}{E_j / E} = \frac{S_{ij}}{S_j} \quad \text{.....(1.a) Or equivalently,}$$

$$RCA_{ij} = \frac{E_{ij} / E_i}{E_j / E} = \frac{C_{ij}}{C_j} \quad \text{.....(1.b)}$$

Where E_{ij} denotes country i's export of product j; $E_i = \sum_j E_{ij}$ represents country i's total export; $E_j = \sum_j E_{ij}$ represents the world export of product j (i.e. the size of the world export market of product j); $E = \sum_i \sum_j E_{ij}$ represents the total world export of all products (i.e. the size of the entire world export market). Thus, $S_{ij} = E_{ij} / E_j$ represents share of product j in country i's total export; $S_i = E_i / E$ represents share of world's export in product j; $C_{ij} = E_{ij} / E_j$ measures country i's export specialisation in product j; and $C_i = E_i / E$ measures the world export specialisation in product j.

According to equation (1.a), RCA_{ij} implies that country i's competitiveness in product j (measured by S_{ij}) is greater than its average competitiveness (measured by S_i). Alternatively according to equation (1.b), $RCA_{ij} > 1$ implies that country i's export specialisation in product j (measured by C_{ij}) is higher than the world average export specialisation in the product (measure by C_j). In summary, $RCA_{ij} > 1$ reveals that country i has strong comparative advantage in product j. Conversely $RCA_{ij} < 1$ implies that country i has weak RCA in product j (Leung and Cai 2005). 162 163

3.12.5 Overview of the Global Jute Sector

3.12.5.1 About Jute

Jute is a natural fibre popularly known as the golden fibre. It is one of the cheapest and the strongest of all natural fibres and considered as fibre of the future. Jute is second only to cotton in world's production of textile fibres. India, Bangladesh, China and Thailand are the leading producers of Jute. It is also produced in southwest Asia and Brazil. The jute fibre is also known as Pat, kosta, Nalita, Bimli or Mesta (kenaf).

Jute, as a natural fibre, has many inherent advantages since it is lustier, has high tensile strength, low extensibility, moderate heat and fire resistance and long staple lengths. It is biodegradable and eco-friendly and has many advantages over synthetics besides protecting the environment and maintaining ecological balance.

Jute is one of the most versatile fibres known to man. Raw jute fibre is obtained from two varieties of plant: Corchorus Capsularis **(White jute)** and Corchorus Olitorius (**Tossa jute)**, both native to Bangladesh.

3.12.6 Variants

3.12.6.1 White Jute (Corchorus Capsularis)

Several historical documents during the era of Mughal Emperor Akbar (1542–1605) state that the poor villagers of India used to wear clothes made of jute. Simple handlooms and hand spinning wheels were used by the weavers, who used to spin cotton yarns as well. History also states that

[162] Ibid

[163] Leung, P. and Cai, J. 2005. *A Review of Comparative Advantage Assessment Approaches in Relation to Aquaculture Development.* Available at: http://sard.ruc.edu.cn/zengyinchu/filesKecheng/Agricultural%20International%20Trade/A%20REVIEW%20OF%20COMPARATIVE%20ADVANTAGE%20ASSESSMENT%20APPROACHES%20IN%20RELATION%20TO%20AQUACULTURE%20DEVELOPMENT.pdf.

Indians, especially Bengalis, used ropes and twines made of white jute from ancient times for household and other uses.[164]

3.12.6.2 Tossa Jute (Corchorus Olitorius)

Tossa jute (*Corchorus olitorius*) is an Afro-Arabian variety. It is quite popular for its leaves that are used as an ingredient in a mucilaginous potherb called *molokhiya*, popular in certain Arab countries. The Book of Job in the Hebrew Bible mentions this vegetable potherb as Jew's mallow. Tossa jute fibre is softer, silkier, and stronger than white jute. This variety astonishingly showed good sustainability in the climate of the Ganges Delta. Along with white jute, tossa jute has also been cultivated in the soil of Bengal from the start of the 19th century. Currently, Bangladesh is the largest global producer of the Tossa jute variety.[165]

Jute is not only a major textile fibre but also a raw material for non-traditional and value added non-textile products. Jute is used extensively in the manufacture of different types of traditional packaging fabrics, manufacturing Hessian, sacking, carpet backing, mats, bags, tarpaulins, ropes and twines.

Recently jute fibres are used in a wide range of diversified products: decorative fabrics, chic-saris, salwar kameez, soft luggage's, footwear, greeting cards, moulded door panels and other innumerable useful consumer products. Supported by several technological developments today jute can be used to replace expensive fibres and scarce forest materials.

Jute processing in jute mills: Jute bales in godowns undergo selection, softening, piling/conditioning, carding, drawing and doubling, spinning, winding, beaming/dressing, weaving, damping and calendaring in that order. [166]

3.12.7 History and evolution of jute cultivation and production especially in Bangladesh

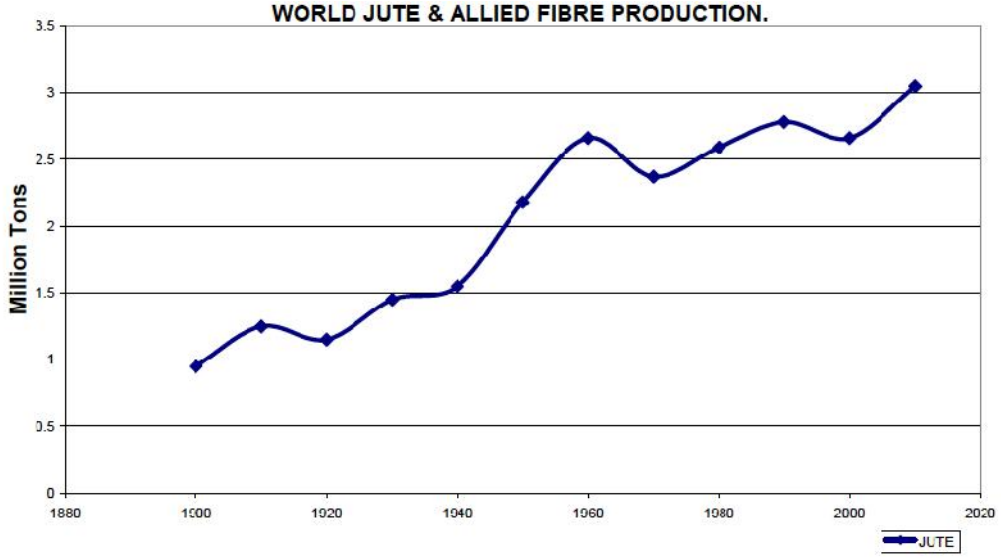
The people of India traditionally used jute to make rope, sacks, paper, and coarse hand woven fabrics for matting and bedding. English traders saw the potential of jute as a substitute for hemp and flax as early as 1793, and eventually a consignment found its way to Dundee in Scotland. The flax spinners there learned how to spin jute yarn by batching fibres with whale oil and water and modifying power-driven flax machinery. Before long they were producing jute goods in substantial quantities. The rise of the jute industry in Dundee and elsewhere in Europe saw a corresponding increase in the export of raw jute from the Indian sub-continent. World production reached one million tons per annum by 1900. By independence in 1947, production grew to over 1.5 million tons and jute was one of the leading producing and export sectors in the sub-continent. The coming of independence to India and the partition of Bengal into part India and part East Pakistan (later to become Bangladesh in 1971) can be seen as a major watershed for the industry. For centuries, jute has been an integral part of the culture of East Bengal, in the entire southwest of the present day Bangladesh. Since the seventeenth century the British East India Company started trading in Jute. During the reign of the British Empire Jute was also used in the military. English Jute Barons grew rich processing jute and selling manufactured products made from jute. Dundee Jute Barons and the British East India Company set up many jute mills in Bengal and by 1895 jute industries in Bengal overtook the Scottish jute trade. Many Scots immigrated to Bengal to set up jute factories. More than a billion jute sandbags were exported from Bengal to the trenches during World War I and also exported to the United States southern region to bag cotton and was used in the fishing, construction, art and the arms industry. Initially, due to its texture, it could only be processed by hand until it was discovered in Dundee that by treating it with whale oil, it could be treated by machine. The industry boomed throughout the eighteenth and nineteenth centuries ("jute weaver" was a recognised trade occupation in the 1900 UK census).

[164] http://www.jute-bd.com/

[165] Ibid

[166] http://www.worldjute.com/

Figure 6: World Jute and Allied Fibre Production (Copied)



After the end of the First World War in 1918, the world demand for raw jute decreased. This had a negative impact on the area under jute cultivation. The situation worsened for jute cultivation during the Great Depression of 1929-33. The prices sank so low that jute growing became unprofitable. As a result, peasants greatly reduced their area under jute cultivation. By 1939, economic recovery took place. The breaking out of the Second World War caused an increase in the demand for jute and between 1939 and 1945; peasants put more areas under jute cultivation.[167]
However, this trade had largely ceased by about 1970 due to the appearance of synthetic fibres. In the 21st century Jute again rose to be an important crop for export around the world in contrast to synthetic fibre, mainly from Bangladesh.

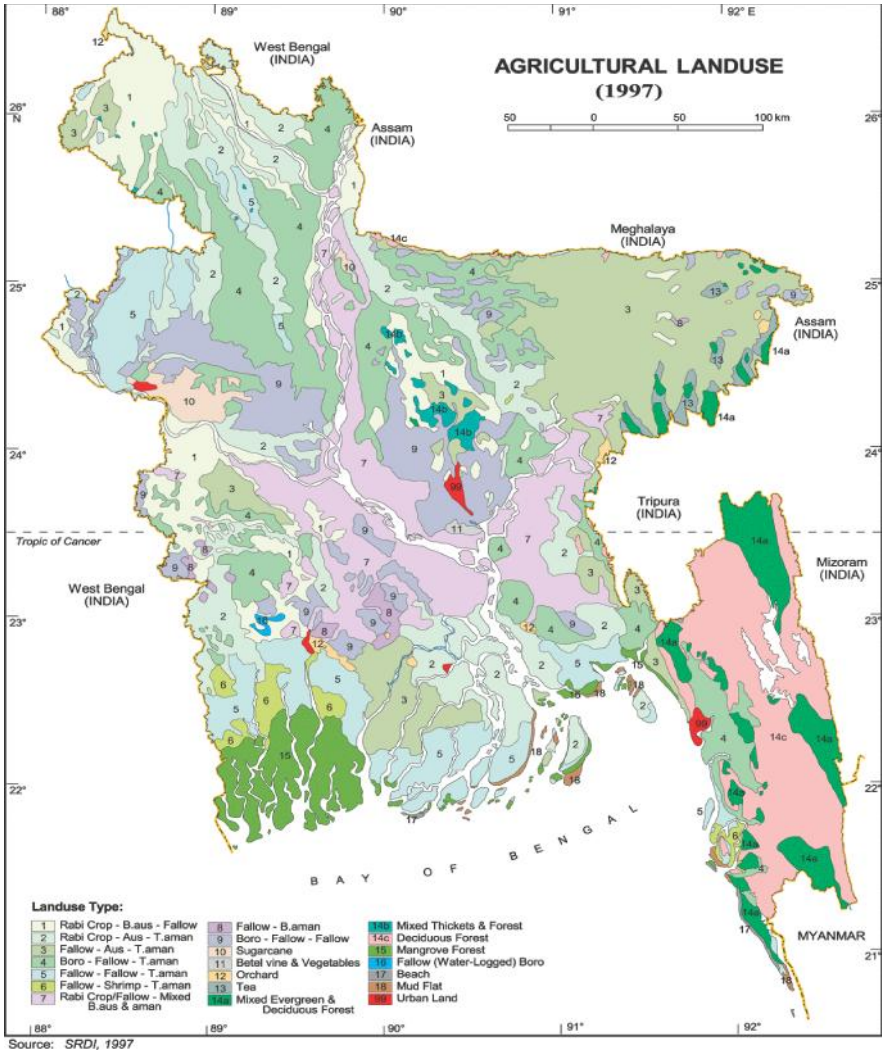
The practice of retting jute plants in the jute growing regions is to immerse the jute bundles in clear slow flowing water, in canals, rivulets, tanks, ponds or ditches. The minimum ratio of plant material to water in stagnant water should be 1:20. The important conditions for good retting are:

- The water should be non-saline and clear.
- The volume of water should be enough to allow jute bundles to float.
- Bundles, when immersed, should not touch the bottom.
- The same retting tank or ditch should not be used when water becomes dirtier.

Retting has been used for a long time in case of extraction of fibres from jute and allied vegetable fibre plants. Since the fibres are contained in the bark or the outer skins of stems, either stems or the outer skins called ribbons are retted for extracting the fibres. If the stems are retted, it is called stem retting and if ribbons are retted it is called ribbon retting. Retting is an important step in the production of good quality fibre.[168]

Figure 7: Agricultural Land Usage in Bangladesh (MAP)

[167] http://www.bjmc.gov.bd/industry-overview/
[168] http://www.jute.org



Source: *SRDI, 1997*

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Retting Practices in India and Bangladesh

Crop is harvested at different stages of maturity depending on various circumstances. Most common harvest stage is when 50% of the plants have produced pods. If the crop is harvested at this stage, both the yield and fibre quality are good. Bundles are kept under water in 2-3 layers. The retting of the whole plants gets completed in about 15-20 days.

Jute and Allied Fibres (JAF) are produced in many countries. India, Bangladesh, China, Thailand, Myanmar & Nepal are the major producing countries. Together they produce about 95% of the global production of JAF. India and Bangladesh produce mostly jute; China produces mostly kenaf while Thailand produces kenaf and roselle.[170]

Table 6: Area and Yield of Jute and Allied Fibre Production in Major Producing Countries

Country	Area (2002/2003) ('000 ha)	Yield (1998/99-2002/03) (mt/ha)
Bangladesh	500	1.79
China	56	2.53
India	1000	1.86
Myanmar	58	0.85

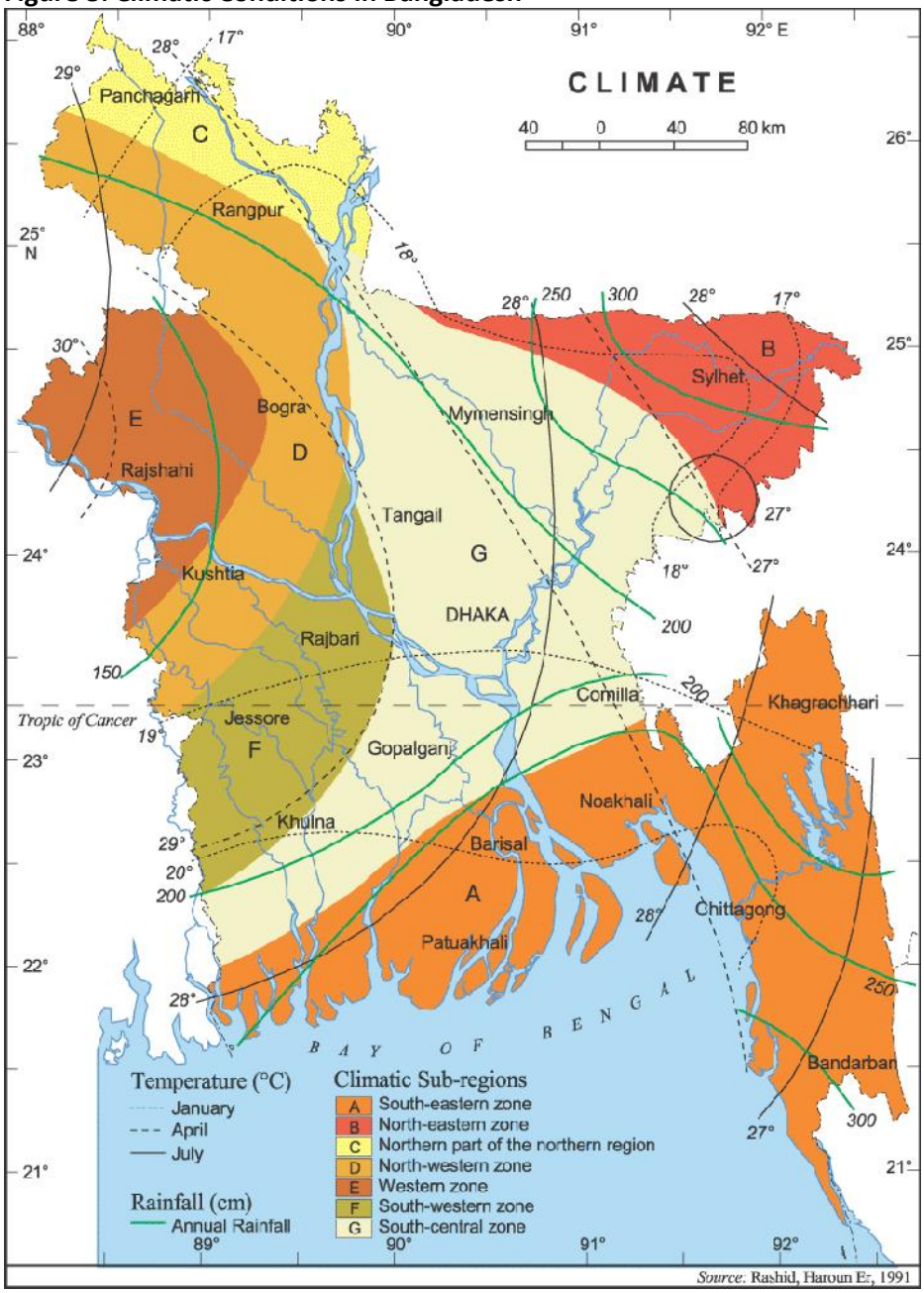
169 www.banglapaedia.com

170 Ibid

Nepal	11	1.13
Thailand	19	1.54

In general, jute needs a plain alluvial soil and standing water. The suitable climate for growing jute (warm and wet climate) is offered by the monsoon climate during the monsoon season. Temperatures ranging 20˚ C to 40˚ C and relative humidity of 70%–80% are favourable for successful cultivation. Jute requires 5–8 cm of rainfall weekly with extra needed during the sowing period.[171]

Figure 8: Climatic Conditions in Bangladesh

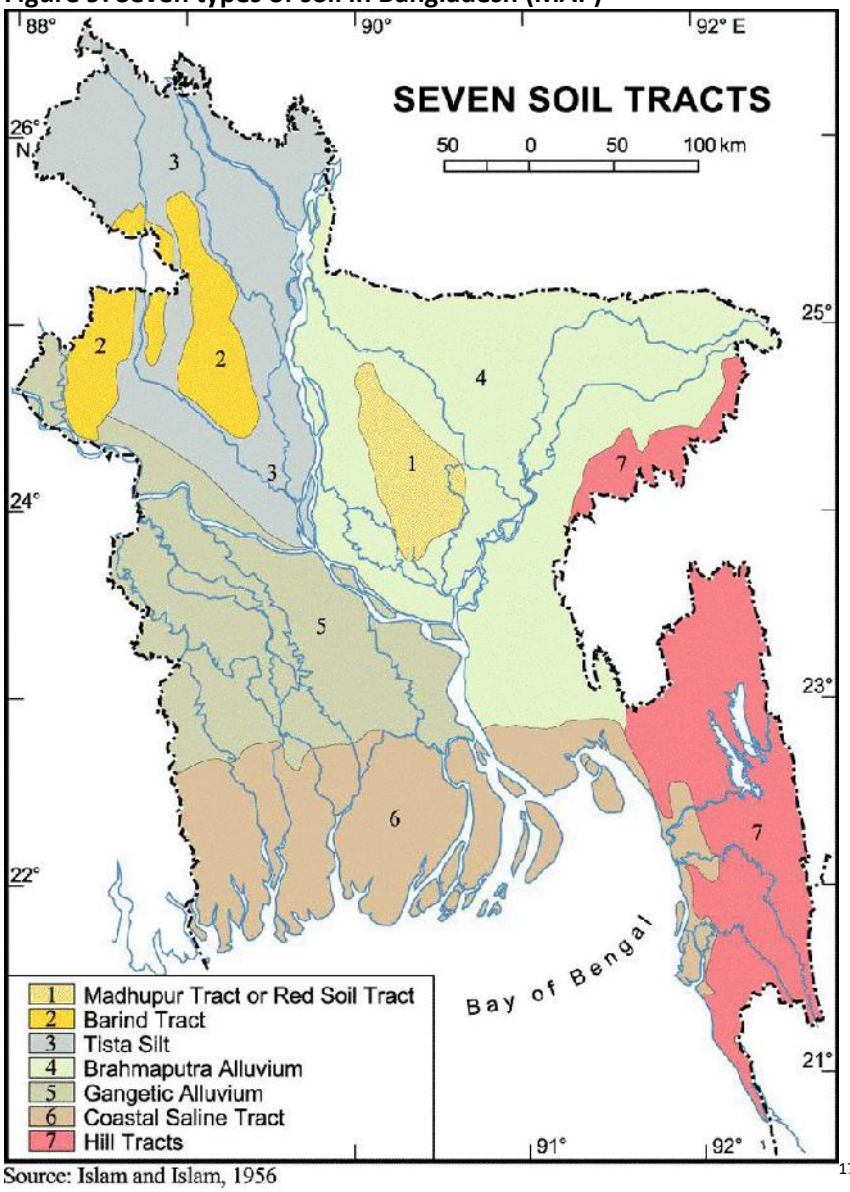


[172]

[171] http://www.jute-bd.com/

[172] www.banglapaedia.com

Figure 9: Seven types of soil in Bangladesh (MAP)



Source: Islam and Islam, 1956 [173]

An important point to be noted is that agriculture, and in this case, jute production has extremely strong forward linkages with the industry and exports. According to the World Bank report (1978) the supply of an 'adequate' amount of raw jute at 'reasonably low' prices is the key factor determining the financial position of jute mills as well as the long term viability of jute in the world markets since raw jute costs make up about a half of total production costs for jute goods. [174] However, the production of jute in Bangladesh has fluctuated widely, resulting in corresponding fluctuations in export price of raw jute as well as jute goods, thereby creating uncertainty for final jute consumers. A three pronged approach had been recommended in that WB report, to improve the supply situation of raw jute;

i. Efforts such as Intensive Jute Cultivation Scheme to be intensified to increase productivity in jute cultivation
ii. Sufficient price incentive to be given to jute growers by maintaining appropriate price relationship between jute and paddy; and

[173] Ibid

[174] 'Bangladesh Issues and Prospects for Industrial Development'. World Bank Report No 2191-BD. Vol II. Dec. 5, 1978. Industrial Development and Finance Division, South Asia Projects.

iii. Schemes such as buffer stock arrangements to be devised to minimize yearly fluctuations in jute availability particularly due to changing weather conditions. [175]

Notice how these recommendations given almost 4 decades ago still hold.

3.12.8 History and evolution of jute goods: trade and manufacturing with special focus on Bangladesh

ANCIENT TIMES

Jute has been used since ancient times in Africa and Asia to provide cordage and weaving fiber from the stem and food from the leaves. In several historical documents (Ain-e-Akbari by Abul Fazal in 1590) during the era of the great Mughal Emperor Akbar (1542 –1605) states that the poor villagers of India used to wear clothes made of jute. Simple handlooms and hand spinning wheels were used by the weavers, who used to spin cotton yarns as well. History also states that Indians, especially Bengalis, used ropes and twines made of white jute from ancient times for household and other uses.[176]

Chinese papermakers from very ancient times had selected almost all the kinds of plants as hemp, silk, jute, cotton etc. for papermaking. Qiu Shiyu, researcher of the Harbin Academy of Sciences and expert of Jin history, concluded that Jews used to take part in the work of designing "jiaozi", made of coarse jute paper.[177]

PERIOD FROM 17TH CENTURY

The British East India Company was the British Empire Authority delegated in India from the 17th century to the middle of 20th century. The company was the first Jute trader. The company traded mainly in raw jute during the 19th century. During the start of the 20th century, the company started trading raw jute with Dundee's Jute Industry. This company had monopolistic access to this trade during that time. Margaret Donnelly I was a jute mill landowner in Dundee in the 1800s. She set up the first jute mills in India. The Entrepreneurs of the Dundee Jute Industry in Scotland were called The Jute Barons.

In 1793, the East India Company exported the first consignment of jute, the first shipment, 100 tons, was followed by additional shipments at irregular intervals. Eventually, a consignment found its way to Dundee, Scotland where the flax spinners were anxious to learn whether jute could be processed mechanically. Starting in the 1830's, the Dundee spinners learned how to spin jute yarn by modifying their power-driven flax machinery. The rise of the jute industry in Dundee saw a corresponding increase in the production and export of raw jute from the Indian sub-continent which was the sole supplier of this primary commodity.[178]

PERIOD FROM 1855

Calcutta (now Kolkata) had the raw material in greatest proximity as the jute growing areas were mainly in Bengal. There was an abundant supply of labour, ample coal for power, and the city was ideally situated for shipping to world markets. The first jute mill was established at Rishra, on the River Hooghly near Calcutta in 1855 when Mr. George Acland brought jute spinning machinery from Dundee. Four years later, the first power driven weaving factory was set up. By 1869, five mills were operating with 950 looms. Growth was rapid and, by 1910, 38 companies operating 30,685 looms exported more than a billion yards of cloth and over 450 million bags. Until the middle 1880's, the jute industry was confined almost entirely to Dundee and Calcutta. France, America, and later Germany, Belgium, Italy, Austria, and Russia, among others, turned to jute manufacturing in the latter part of the 19th century. In the following three decades, the jute industry in India expanded remarkably, rising to commanding leadership by 1939 with a total of 68,377 looms, concentrated mainly on the River Hooghly near Calcutta. These mills alone have proved to be able to supply the

[175] Ibid

[176] http://www.worldjute.com

[177] Ibid

[178] Ibid

world demand. The earliest goods woven of jute in Dundee were coarse bagging materials. With longer experience, however, finer fabrics called burlap, or **hessian** as it is known in India were produced. This superior cloth met a ready sale and, eventually, the Indian Jute Mills began to turn out these fabrics. The natural advantage these mills enjoyed soon gave Calcutta world leadership in burlap and bagging materials and the mills in Dundee and other countries turned to specialties, a great variety of which were developed.[179]

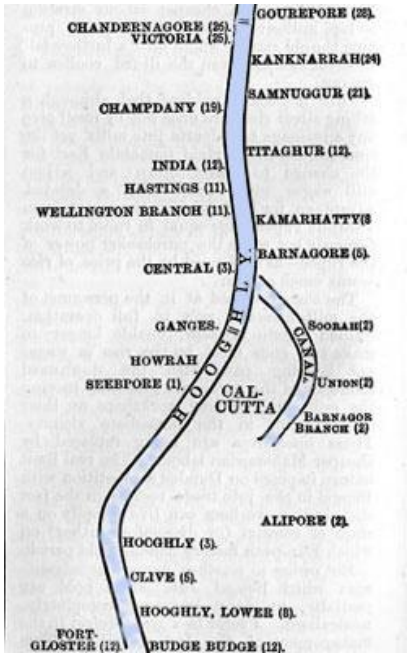


Figure 10: Jute Mills Concentrated on Both Sides of the Hoogly River 1894[180]

Before the partition of India, East Bengal was an agricultural area supplying first indigo and then jute and rice for the industries and people of Calcutta. At partition, only four percent of East Pakistan's GDP came from industry and only half a percent from medium and large scale industry. After partition, India received most of the industrialised areas and Pakistan undertook a strong industrialization program. From 1950-60, large and medium scale industries' output for all Pakistan grew at almost 15% per year while its overall GDP growth was about 3.5% p.a. [181] However, as stated in the World Bank Report (1978), this growth was concentrated in the western wing and few industries developed in the East. During and following the war leading to Bangladesh's Independence, many of the physical assets of the industries in the East Pakistan were damaged or destroyed and many West Pakistani managers and owners/entrepreneurs left the country. The new government thus changed the structure of ownership dramatically. The assets of the departing Pakistani industrialists were nationalized and in particular, jute, cotton and sugar industries were totally nationalized. The new enlarged public sector comprised of some 400 firms and included about 85% of the assets of medium and large scale industries.[182] This government not only owned but also controlled and operated an industrial sector which had been drained of its managers and was deprived of its principal markets.
Despite erratic fluctuations during the six years after independence, production slowly returned to the pre-war levels and the industry produced around 8% of the GDP (in 1978). [183]

JUTE INDUSTRY AFTER 1947

Although after partition, there were negligible large of medium scale industries except for some cotton textile

[179] Ibid
[180] http://www.worldjute.com/about_jute/juthist.html
[181] 'Bangladesh Issues and Prospects for Industrial Development'. World Bank Report No 2191-BD. Vol I – Main Reprt. Dec. 5, 1978. Industrial Development and Finance Division, South Asia Projects

[182] Ibid

[183] Ibid

mills in East Pakistan, during the 1950s and 60s, there was a large shift within the sector towards large scale production and growth concentrated on jute and cotton textiles apart from foods, beverage and tobacco subsectors. [184] By FY 70, they accounted for about 2/3rd of industrial production. Most importantly, the jute industry grew to process raw jute which was the major crop of the region and the consumer goods industry grew under the Government's policy of favouring import substitution. While the pre-partition jute of East Bengal was processed in Calcutta, the post-partition East Pakistan developed its own processing industry in the light of declining trade with India, wherein India began to cultivate its own jute. [185]

Thus, after the fall of British Empire in India during 1947, most of the Jute Barons started to evacuate India, leaving behind the industrial setup of the Jute Industry. Most of the jute mills in India were taken over by the Marwari businessmen. East Pakistan after partition in 1947 lacked a Jute Industry but had the finest jute fibre stock. As the tension started to rise between Pakistan and India, the Pakistani felt the need to setup their own Jute Industry.

Several groups of Pakistani families (mainly from West Pakistan) came into the jute business by setting up several jute mills in Narayanganj of the then East Pakistan, the most significant ones are: Bawanis, Adamjees, Ispahanis and Dauds.[186]

Thus, the jute and cotton textile industries were the first to be developed in the then East Pakistan and even by FY 70 they still produced more than 44% of the value-added in the organized industrial sector. By FY 76 they accounted for less than a third of the total output and capital goods had increased their share by more than 50% from 6% of the total to more than 9%. However some of this change may also be due to relative price changes since many prices were controlled directly by the Government. Interestingly, consumer goods showed an increase in proportion to value added with a decrease in employment which could be attributed to an increase in the share of value added in total output. [187] On the other hand, the structure of gross output over the same period showed a decrease in the share of intermediate goods. The possible reason of switching of consumer and intermediate goods could be that while the consumer goods has increased the ratio of value added to gross output (from 42.5 in FY 70 to 47.1% in FY 76), the ratio of intermediate goods has fallen (from 47.9% in FY 70 to 26.4% in FY 76) with textiles falling from 51% to 32.5%. [188]

After the liberation of Bangladesh from Pakistan in 1971, most of the Pakistani owned Jute Mills were taken over by the government of Bangladesh as mentioned above. Later, to control these Jute mils in Bangladesh, the government built up Bangladesh Jute Mills Corporation (BJMC).

By 1978, 77 public enterprises had been disinvested in two years with a value of around Tk 330 mn. However, GOB had no intentions of disinvesting major sectors of the jute, textiles and sugar industries. [189]

3.12.9 Global trends/patterns in trade in raw jute and jute goods with special focus on Bangladesh

The jute trade is centered around Bangladesh as discussed above, which is the major jute producing country and also jute is widely grown here due to its natural fertile soil which suits the crop.

[184] Ibid

[185] Ibid

[186] http://www.bjmc.gov.bd/

[187] 'Bangladesh Issues and Prospects for Industrial Development'. World Bank Report No 2191-BD. Vol I – Main Reprt. Dec. 5, 1978. Industrial Development and Finance Division, South Asia Projects.

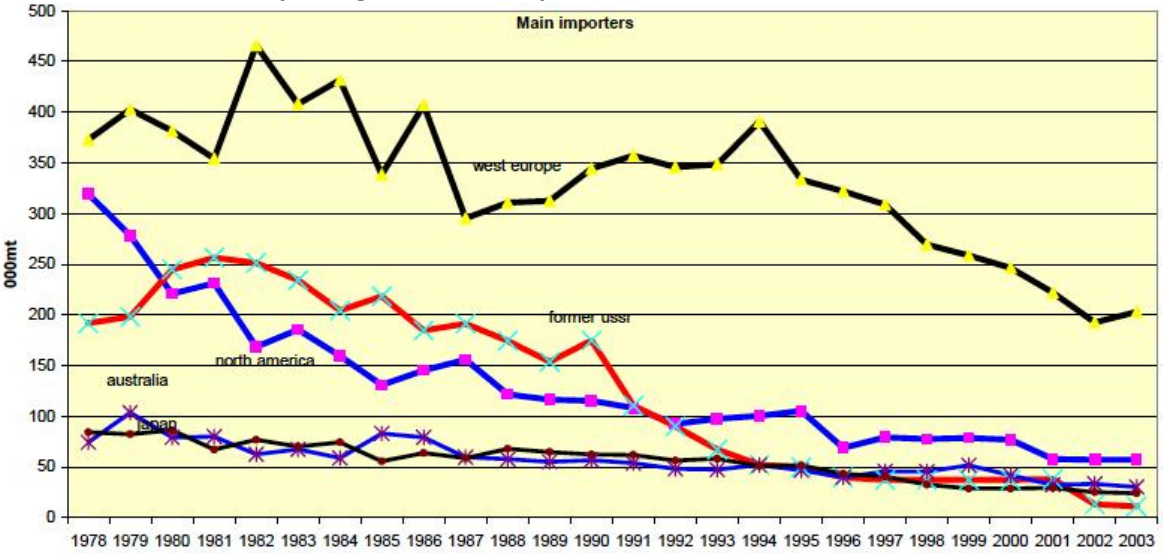
[188] Ibid

[189] Ibid

Raw jute was imported from Bengal by the British East India Company. English Jute Barons grew rich processing jute and selling manufactured products made from jute. Dundee Jute Barons and the British East India Company began to set up jute mills in Bengal and by 1895 jute industries in Bengal overtook the Scottish jute trade due to which many Scots immigrated to Bengal to set up jute factories. More than a billion jute sandbags were exported from Bengal to the trenches during World War I and more predominantly during WWII, also exporting to the Americas, especially the southern region of United States to bag cotton and coffee.

However, exports of jute goods face a number of long-run problems like export marketing, mill management and raw jute supply. Competition from the synthetic substitutes has been the most important challenge faced[190]. Jute goods and synthetic substitutes compete heavily, especially in hessian and carpet backing markets, the share of which is mostly determined by the sales prices of both.

Figure 11: Evolution of Importing Countries (Copied)



Source: FAO

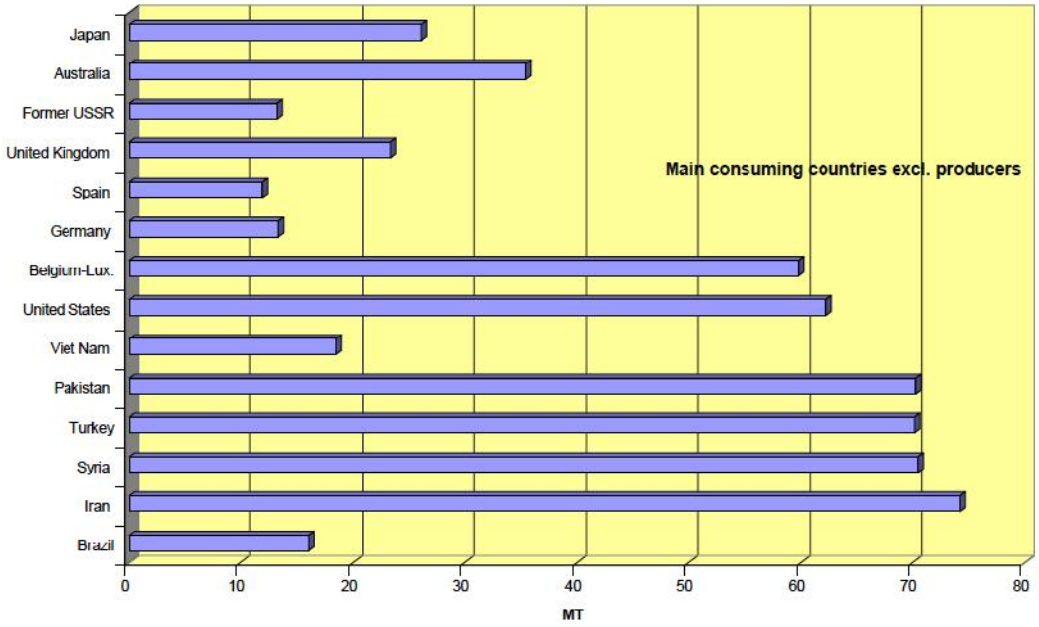
[190] The search for value addition led to replacement of production in Scotland and Europe by that in jute growing countries. This process was already under way at the same time as the arrival of low cost Polypropylene polymer on world markets. This new material, made from feedstock priced arbitrarily, was easily and cheaply extruded into thin filmstrips and woven on wide looms for carpet backing or woven on circular looms to make sacks and bags. Loss of production in Europe also led to loss of markets with many former producers and distributors diversifying into synthetic bag production.

Carpet backing was the first major casualty to the competition from synthetics (especially primary backing) although there were other factors to blame as well such as unreliable deliveries. Jute had been favoured both as primary and secondary backing for tufted carpets as well as use in woven carpets. Tufted carpets grew in popularity in the 1960s. They were an important end-use for jute at one stage in the early 1970s amounting to 240,000 tons of exports but today use is down to below 25,000 tons. The decline in use of jute primary and then later secondary CBC is reflected in the sharp decrease in exports to USA and later to Europe. With widespread Polypropylene polymer availability, PP resin prices fell rapidly relative to jute, and by the early 1970s it was apparent that jute textile packaging would lose much of its market share to PP. A 1-kilo jute sack to carry 50 kilos of contents could be replaced by a PP circular woven bag weighing 90 grams, costing a quarter of the price of a kilo jute sack. In China and Thailand woven PP bags were allowed to compete freely, and this was largely responsible for the collapse of the Chinese Jute sacking industry from an annual peak of 1,000,000 tons in 1984/86 to about 165,000 tons in 2004.

Loss of market share for sacking is a long-term process. Sacking is the most important traditional use for jute. In fact, the fibre had almost become synonymous with that end-use. It was the growth in sacking that had initially propelled jute production, and in the case of India, is still doing so. In the 1970s jute sacking was increasingly substituted with that of PP worldwide and the process is still continuing today in most developed countries except for the fact that replacement by bulk handling is also contributing to the decline.

The decline and collapse of the Soviet Union was another major market reversal for jute resulting in a loss of market of the same proportion as that of CBC in USA. From a peak of 250,000 tons in 1981, imports had fallen to below 25,000 tons in 2003 although they now show some signs of revival. Together with the continued decline of the North American market and markets in Africa and South America, the overall impact was a major reduction in jute goods trade. The closure of jute mills in Europe (those that had remained in the jute spinning business) using imported Bangladesh fibre for the production of yarns used by the woven carpet industry was already under way by the 1980s. As mills closed, the spinning machinery was transferred, some to India, but mostly to Bangladesh during the 1980s and 1990s. More recently, there has been an accelerated decline in exports to Western Europe. This became more pronounced after 1995 in all major end-uses including transfer of part of the yarn market away from Europe towards carpet weaving countries in the Middle East. However, overall the export market for jute yarns combining both Europe and the Middle East and elsewhere, of about 120,000 tons in 1980, had grown to over 300,000 tons a year by 2004[191].

Figure 12: Main Jute Consuming Countries (Copied)



Source: FAO

Earlier, when jute goods were priced much higher than their synthetic counterparts, jute market shrank considerably. However, with the devaluation of Taka in May 1975, export prices of jute got stabilized and became fully competitive with synthetics. As a result, the jute industry's export volume increased significantly from 379,000 tonnes in FY 75 to 437,000 tonnes in FY 76 and further to 449,000 tonnes in FY 77 finally reaching the FY 70 level in FY 77, which was the highest recorded export till that time.[192] However, due to world-wide shortage of raw jute, the prices again started increasing from FY 78, and synthetics took over again in heavy hessian and carpet backing. These trends clearly show that maintaining price competitiveness is the most important factor to increase the market share of jute vis-à-vis synthetics. [193]

Yet, being a major player in the long history of jute trade and having finest natural fibre, Bangladesh has always had an advantage in raw jute trading. Bangladesh still being the largest producer and exporter of raw jute in the world, gives Bangladesh Jute Mills Corporation an advantage over other Jute goods manufacturer to produce and cater the needs of quality jute goods world over.[194]

[191] The cumulative effect of developments in North America, the former Soviet Union, Western Europe, Africa and Latin America has been a steady and substantial erosion of the export market for jute and jute goods for both Bangladesh.

[192] 'Bangladesh Issues and Prospects for Industrial Development'. World Bank Report No 2191-BD. Vol II. Dec. 5, 1978. Industrial Development and Finance Division, South Asia Projects.

[193] Ibid

[194] http://www.bjmc.gov.bd/

Table 7: Jute Exports vis-a-vis Others

Table 4.2: MANUFACTURED EXPORTS

Commodities	Value (Million US$) Average FY73-FY77	Value (Million US$) Estimate FY78	Percentage Distribution Average FY73-FY77	Percentage Distribution Estimate FY78
Jute Goods	186.1	227.5	84.7	76.3
Leather	25.0	40.0	11.4	13.4
Forest Products	3.2	8.2	1.5	2.7
Special Jute Products	0.5	1.3	0.2	0.4
Handicrafts	0.4	1.3	0.2	0.4
Petroleum Products	3.7	16.0	1.7	5.4
Others	0.8	4.0	0.4	1.3
Total	219.7	298.3	100.0	100.0

Source: EPB and Mission Estimates; Annexes IV.7 and IV.8.

Table 4.1: EXPORTS (million US$)

Commodities	Average FY66-FY70	Average FY73-FY77	Estimate FY78	Annual Growth Rate FY73-FY77	Increase in FY78 over FY77
Jute	331.0 (304.0) /a	302.0	340.0	-1.6%	18.5%
Others	145.8 (28.9) /a	65.5	150.0	35.7%	28.0%
Total	476.8 (332.9) /a	367.5	490.0	4.4%	21.3%

/a Excluding exports to West Pakistan.

Source: BBS, EPB and Mission Estimates.

As noticed earlier, the export earnings of Bangladesh from raw jute and jute goods averaged about US $ 116 mn and US $ 186 mn respectively uring FY 73-77. Production of raw jute accounted for 6% of the value added in agriculture and the jute industry for 15% of the value added in industry. Non-jute exports (such as tea, semi-tanned leather and shrimps) accounted for only US $ 66 mn during this period. [195] Total export earnings fell by 15% in the year FY 77 as compared to the pre-independence times in the years FY 66-77. The reasons for this decline is that the exports to West Pakistan (which constituted about 30% of total exports) ceased at the time of independence and thus Bangladesh found a major problem in finding alternative export markets. Moreover, jute exports were particularly stagnant (even showing a decline of 1.6% p.a.) in this period due to competition from synthetic substitutes as discussed elsewhere. [196]

Export earnings from jute were projected to grow by 19% in FY 78 as compared to the FY 77 level due to increase in prices of both raw jute and jute goods owing to the low jute production in the period. Of the manufacturing exports (constituting 85% of this share. amounting for 60% of the total exports), jute has been the most important item.[197]

The WB report (1978) has stated that Bangladesh producers have 'potential' comparative advantage (which I will show that is a realised one over time) in jute goods due to their high quality and low wage costs. Moreover the comparative superiority of synthetics had reduced due to increased oil prices high capital costs of new plants.[198]

[195] 'Bangladesh Issues and Prospects for Industrial Development'. World Bank Report No 2191-BD. Vol I - Main report. Dec. 5, 1978. Industrial Development and Finance Division, South Asia Projects.

[196] Ibid

[197] Ibid

[198] Ibid

Table 8: Share of Jute Exports

Year	Value (Million USD)	Share (%)
FY1972-73	313.1	89.9
FY1980-81	487.3	68.6
FY1990-91	394.6	23.0
FY2000-01	297.5	4.6
FY2004-05	334.9	4.0
FY2007-08	483.4	3.4
FY2008-09	417.0	2.7
FY2009-10	736.4	4.5

[199]

Source: Export Promotion Bureau (EPB) Year Book, various years.

Table 9: Growth PErformance of Jute and Jute Good Exports from Bangladesh (percent)

Item	FY1973 – FY1981	FY1981 – FY1991	FY1991 – FY2001	FY2001 – FY2010	FY1973 – FY2010
Raw jute	1.0	-1.2	-1.2	13.3	-0.4
Jute goods	9.7	-1.5	-1.4	6.4	0.7
Total raw jute and jute goods	6.8	-1.4	-1.4	8.3	0.4
Total export from Bangladesh	10.3	9.9	13.6	12.4	10.9

[200]

Source: Estimated from the Export Promotion Bureau (EPB) data.

Figure 13: Exhibit (copied)

Table 8 : Input Cost Ranking in Five Countries

COST/ RANKING	1	2	3	4	5
Labour Cost (a) (US$/hour)	Bangladesh (0.32)	Cambodia (0.53)	Pakistan (0.55)	India (0.83)	China (1.44)
Hours Worked (b)	Bangladesh (2336)	China (2328)	Pakistan (2324)	India (2280)	Cambodia (1960)
Power Cost (c) (US$/KWH)	Bangladesh (0.053)	China (0.065)	Pakistan (0.071)	India (0.086)	Cambodia (0.14)
Ocean Transport (d) (US$/20 container)	China (1800)	Bang./ Camb. (1900)	Pakistan (2000)	India (2100)	
Land Transport (US$/20 container)	Bangladesh (250)	Pakistan (300)	India (400)	China (470)	Cambodia (600)
Building Cost (US$/Sq .m)	China (97)	Bangladesh (120)	Cambodia (130)	India (140)	Pakistan (150)
Vat for Textile and Apparel Export (%)	Bangladesh, Pakistan, Cambodia(0)				India (12.5%) and (0) in SEZ
Corporate Tax (% of profits)	Cambodia (20)	China (25)	India (33.6)	Bang./Pakistan (35)	

Source: **Werner International . Reproduced in** "Benchmarking of International Competitiveness of the India Textile and Apparel Industry", ICRIER, New Delhi, January 2011.

3.12.10 Jute sourcing and destination

[199] Export Promotion Bureau, Official Website.
[200] Ibid

Recently, the global demand for diversified jute products has been growing particularly in developed country markets such as USA, Canada, Australia and Japan, where consumer groups are becoming increasingly conscious about carbon footprint of consumer goods. Bangladesh is in a unique situation to take advantage of this growing consumer concern and the resultant interest. [201]

For the five years period from 2005 to 2009, export of raw jute in the world market has increased by 39.5 per cent, and export of jute products has increased by 57.6 per cent. In 2009, Bangladesh was the largest raw jute exporter with a share of about 85.7 per cent of the total global export. On the other hand, China occupied the topmost position among the exporters of jute goods accounting for 58.1 per cent of the total global export. India accounted for 8.5 per cent and Bangladesh for 6 per cent of export of jute products in the world market. Between 2005 and 2009, China's export of jute goods increased by 181.1 percent, whilst that of Bangladesh declined by 11.1 per cent, although the benchmark figures for the two countries were significantly different.[202]

Table 10: Top exporters of raw jute and jute goods

(Million USD)

Exporter	2005		2009		Change in 2009 over 2005 (%)
	Value	Share of World Export (%)	Value	Share of World Export (%)	
Raw Jute					
World	139.5	-	194.5	-	39.5
Bangladesh	121.9	87.4	166.7	85.7	36.7
India	2.9	2.1	7.1	3.6	139.4
Tanzania	0.3	0.2	8.6	4.4	3333.7
Jute Goods					
World	2979.9	-	4695.5	-	57.6
China	970.9	32.6	2729.6	58.1	181.1
India	398.2	13.4	398.3	8.5	0.0
Bangladesh	318.9	10.7	283.7	6.0	-11.1

Source: Trade Map Database (2010).

According to the annual statistical report of the Bangladesh Jute Mills Corporation (BJMC), among the major exported jute products export of such items as hessian, sacking and carpet backing cloth (CBC) accounted for 82.6 per cent of total jute goods exports from Bangladesh in FY2007-08.

Major destinations of Bangladesh's jute goods export were Middle East, North Africa, European Economic Community (EEC) countries, South East Asia, Australia, USA and East Africa in FY2007-08, which accounted for 94.3 per cent of total export of jute goods in FY2006-07 compared to 93.5 per cent in FY 1999-00.

Region-wise distribution of jute goods export revealed that Middle East was the major destination (21.6 per cent) of exported jute items from Bangladesh (Table 5). North Africa, the second most important destination, imports about 11.9 per cent of Bangladeshi jute items. Other major importers were – EEC countries, South East Asia and Australia. Hessians were mainly exported to Middle East, EEC countries, America and North Africa. Sackings were exported to North Africa, South East Asia, Middle East, East Africa, West and South Africa and Australia. CBC is generally exported to Australia, EEC countries, Middle East, rest of America, rest of Europe and USA.[203]

Market analysis shows that, Bangladesh's top export destinations (country-wise), in the year 2009 were Pakistan, China, Turkey, India, Belgium, Australia and Indonesia. Exports to majority of these countries had

[201] *Global Market Opportunities In Export Of Jute*, Occasional Paper: 93 by Mustafizur Rahman and Nafisa Khaled, **Centre for Policy Dialogue (CPD)**

[202] Ibid

[203] Ibid

declined during 2009 compared to 2008. Pakistan imported almost the entire quantity of its jute fibre requirements from Bangladesh (96.6 per cent of her total import). China and India obtained 99.8 per cent and 100 per cent of their total raw jute import from Bangladesh. Yarn export of Bangladesh to Turkey, India and USA covers 96.7 per cent, 98.9 per cent and 89.5 per cent of their total market demand respectively. Fabric export to Australia meets 79.5 per cent and sacks export to India meets 69.1 per cent of the respective total market volume. Turkey and Belgium primarily imported multiple jute yarn from Bangladesh, which accounted for 91.3 per cent and 65.1 per cent of their total jute yarn import.

India was the largest exporter of jute fabrics. India met 54.9 per cent of the world's total demand which was followed by Bangladesh with 27.2 per cent of the global export share.

In case of jute fabric (531010), India's major markets were USA (15.1 per cent), Netherlands (11.6 per cent), Germany (11.4 per cent), Egypt (8.6 per cent), and Iran (6.7 per cent). These are also the potential export markets for Bangladesh. For woven fabric (531090), China was the largest exporter in 2009, whose exports to Thailand and USA markets covered 42.4 per cent and 4.7 per cent of the respective total global markets.

China is also a major exporter for carpets. Her market for this product is mainly concentrated to Germany, Japan, USA and Italy which could be potential markets for Bangladesh. India is the nearest competitor of Bangladesh for sacks and bags. With a view to expand her global market, Bangladesh should design a strategy to gain additional market share away from countries which have in recent years eaten into her market, particularly in Thailand, Ghana, USA and UK. [204]

There are good prospects and possibilities for export of jute and jute products by Bangladesh in the North America, particularly in the USA market. Bans on polythene bags and related legislations such as in San Francisco (in 2007), or taxation on plastic bags in Italy and Belgium have boosted the demand for jute manifold, thus creating significant possibilities for export of jute bags from Bangladesh. UK, Belgium, Germany, Netherlands and a number of other EU countries have good demand for jute products in their home market. [205]

Bangladesh's export to EU market have also benefited from preferential treatment. Bangladesh, thus, should strategise to further expand her market share in the EU countries. As the quality of jute produced in Bangladesh is best among those available in the world, she could leverage on this advantage in view of renewed emphasis on and interest in quality in the major jute markets. It has been found that jute also possesses excellent properties for packaging of food items. From this perspective, this could potentially create new markets which could be targeted by Bangladesh. Egypt is one of the major importers of jute goods.

Also, exports of such items as shopping bags and food grade jute clothing bags are on the rise in Asia in recent times. Price competitiveness of some of the Bangladeshi jute export to East Asian market is also found to be significantly strong, and should serve as a contributing factor in raising her market share in this growing market.[206]

[204] Ibid

[205] Ibid

[206] Ibid

Table 11: Region-wise distribution of jute export from Bangladesh (BJMC / BJMA)

(Million USD)

Destination	Hessian	Sacking	CBC	Others	Total
Total	37.8	104.5	18.6	32.5	193.4
Rest of the world	5.9	34.4	2.9	0.2	43.3
Middle East	11.8	14.4	0.2	15.4	41.8
North Africa	3.0	17.1	0.0	3.0	23.0
EEC countries	8.1	2.1	4.7	5.5	20.3
South East Asia	0.6	16.0	0.0	1.4	18.0
Australia	0.8	2.9	10.6	0.9	15.1
USA	5.5	1.3	0.0	3.8	10.7
East Africa	0.1	10.1	0.0	0.0	10.2
West and South Africa	0.1	4.2	0.0	0.4	4.6
Rest of America	1.8	2.1	0.1	0.4	4.4
Russia	0.0	0.0	0.0	1.3	1.3
Rest of Europe	0.2	0.1	0.1	0.3	0.7

Source: BJMC (2009).

3.12.11 Evolution in the state of competition and competitiveness environment in jute production and manufacturing in Bangladesh, and associated challenges

Price competitiveness analyses of the raw jute and jute products reveal that export prices of almost all Bangladeshi jute items were found to be competitive (excepting yarn). Price of raw jute export from Bangladesh has remained more or less similar when compared to the world average.
Government of Bangladesh is redefining its approach to industrial development in order to obtain a greater contribution from industry to general development. A central objective of the new approach is to increase participation in industry by private investors. Important changes have been introduced in policies and institutions affecting both the private and public sectors. The response from private investors has been positive, but somewhat less rapid than was hoped; the response of the public sector has been limited by its burden of structural problems. So far, general industrial objectives have been identified, the new direction of desirable development has been indicated, and some progress is evident; but there are both long and short term problems to be tackled.

Prices tended to remain significantly lower during the early 2000s compared to the ones prevailing during FY1995-96. Following a decline till FY2002-03, this has again started to rise since FY2003-04. In FY2007-08, prices of hessian and CBC reached as high as USD 966 per ton and USD 929 per ton respectively. Bangladesh faced stiff price competition in exports of yarn of jute (multiple) vis-à-vis India. Although export of fabric was higher than Bangladesh, data shows that Bangladesh's offered price was lower compared to India. Prices tended to remain significantly lower during the early 2000s compared to the ones prevailing during FY1995-96. Following a decline till FY2002-03, this has again started to rise since FY2003-04. In FY2007-08, prices of hessian and CBC reached as high as USD 966 per ton and USD 929 per ton respectively. [207]
Many choices in industrial development are pre-empted by the limited resources of Bangladesh and by the tangible and intangible legacies of past policies. The industrial sector is dominated by, and the country is dependent on, the production and export of jute goods by an industry which has yet to realize its potential comparative advantage. Other state enterprises, established for the purpose of surviving a larger internal market, are struggling with excess capacity and low efficiency. Bureaucratic controls, policies and attitudes aimed at restricting the private sector still shape part of the policy framework. [208]Ongoing projects - some of

[207] *Global Market Opportunities In Export Of Jute*, Occasional Paper: 93 by Mustafizur Rahman and Nafisa Khaled, **Centre for Policy Dialogue (CPD)**

[208] Report No.2191-BD Issues and Prospects for industrial Development (in Two Volumes) Volume I: The Main Report December 5, 1978 Industrial Development and Finance Division, South Asia Projects.

them 10 years old - still make a large fraction of planned industrial investment. Industrial and managerial skills are scarce; and knowledge and information necessary to diversify and develop the industrial sector are not widely available. This does not mean that there are no choices in industrial development. It means that choices are difficult to identify and must be considered carefully. Greater reliance on private investment and market forces in determining industrial efficiency alone will not be sufficient to transform the industrial sector of Bangladesh. There is too much uncertainty among businessmen; lack of knowledge of alternatives and opportunities; lack of appreciation of the nature of some of the current problems in the public sector and a consequent unreality in formulating policies and planning. [209]

A new approach to industrial policy making is needed. GOB has acknowledged this need by preparing a Two-Year Plan which, in effect, is a period of preparation for the Five-Year Plan, 1980-85. This pause gives time for the work of determining development options in general and for considering specific strategies in industry. If this opportunity is exploited GOB could move towards an industrialization program, together with a policy framework, which directs industrial activity into a pattern more consistent with achieving national goals within the constraints confronting Bangladesh.

While formulation of a specific industrial strategy is important, it is clear that industrial development in Bangladesh must be based on a more diverse and more efficient industrial sector. There are three areas in which problems affecting efficiency and diversification can be attacked immediately: policy towards private industry; policy towards public enterprises; and export development policy. Much of this report is devoted to analysis and recommendation in these areas. [210]

Jute prices tend to be subject to extreme volatility and seasonal fluctuations. Jute has to face competition with other fibres, especially polypropylene. Whereas the price of jute fibre is about half of propylene, jute sack price generally tends to be more than twice as expensive as polypropylene sack. This price difference affects the competitiveness of jute sacks. Carpet backing also got severely affected due to such price differential with synthetics; although this was not the only reason. Jute is generally favoured as backing material for both primary and secondary carpet for both tufted carpets and woven carpets. [211]

3.12.12 Market access issues in jute goods

The term 'Market Access' denotes the degree of openness that a countries face while exporting a commodity to another country. Countries apply various measures to restrict imports to benefit local industries or favour particular countries. In the 1970s and 1980s, tariff was the major instrument to enhance or limit market access. Average tariff on manufacturing import came down significantly in recent years, from about 40 per cent to 4.7 per cent (Kumar et al. 2007). However, NTBs still remain on a large number of tradables.

Traditionally, such measures included – quota restrictions, price control measures, financial measures, automatic licensing, quality control measures, monopolistic measures and technical measures. Apart from the technological changes and competitiveness factors, which have contributed to Global Market Opportunities in Export of Jute and jute goods globally, another reason for this had been the limits imposed by the prevailing market access conditions.

The tariff barriers faced by Bangladesh in case of jute products vary widely from country to country (export destination), and also from item to item. In UK, Japan and Australia duty rates are zero for all the jute items under the Most Favoured Nation (MFN) status, while Kenya and Iran impose the very high tariffs of 73.4 per cent and 50 per cent respectively.

Bangladesh faces highest tariff rate for raw jute in Singapore, Colombia and Vietnam with 10 per cent, and Brazil with 8 per cent. Twine and ropes have highest duty in the range of 15 per cent in Venezuela, 10 per cent

[209] Ibid

[210] Ibid

[211] *Global Market Opportunities In Export Of Jute*, Occasional Paper: 93 by Mustafizur Rahman and Nafisa Khaled, **Centre for Policy Dialogue (CPD)**

in Philippines and Barbados. For fabric, highest duties are levied by Algeria (30 per cent), Tanzania and Kenya (25 per cent), Brazil and Iran (20 per cent). Bangladesh has to face high tariff for exporting sacks and bags of jute in Iran (65 per cent), Kenya (59 per cent) and Vietnam (40 per cent). Brazil imposed very high anti-dumping duty (ADD) on sacks and bags of jute. These have limited Bangladesh's export opportunities in these countries.[212] Bangladesh also receives preferential market access in markets of North America, European Union and South Asia.

Also, marketing in and around FY 78 has been too passive and marketing channels have been too weak and nearing incompetitivenes. Efforts were made to strengthen the Marketing Directorate of BJMC to develop an effective marketing strategy, organizing a marketing information service and export promotion campaigns. [213] Also, attempts were made to remove barriers on jute goods imports in Europe and Japan through various trade negotiations.

Bangladesh faces a number of NTBs which inhibit her global export. Some of these have been notified to the World Trade Organization (WTO). NTBs faced by Bangladeshi exporters could be categorised in the following broad areas:

a. NTBs similar to sanitary and phytosanitary (SPS) measures
b. NTBs related to consular information
c. NTBs related to technical barriers to trade (TBT) measures
d. Quantitative restrictions including ban
e. Labelling requirement
f. Rules of Origin
g. Visa requirement

Apart from these, exporters also face obligatory compliance requirements with regard to various standards such as health, safety, child labour, working hours, wages and benefit, freedom of associations, environmental compliances, etc., which also control trade activities. With MFN tariffs coming down, NTBs are becoming more of a cause for concern than the tariff barriers. It is to be noted in this context that, Bangladesh faces NTBs with regard to yarn, twine and jute sacks in her exports to different countries.[214]

3.12.13 Evolution and status of jute substitutes

Use of synthetic packaging is limited in Bangladesh. There are 30 small units making polyethylene film and bags; their combined capacity is about 2500 tonnes. The Bangladesh Chemical Industries Organization (BCIO) produced polyethylene liners for jute bags used to pack fertilizers. There are about 103 mills in Bangladesh, including 32 yarn mills. The numbers of looms are 25ooo as reported by FAO World Demand Prospects for Jute. The total installed capacity is 68000 tonnes with actual output of over 55000 tonnes.[215]

Polypropylene polymer resin prices fell rapidly compared to jute due to widespread availability, as a result of which, during the early 1970s, jute textile packaging lost much of its market share to synthetics. Especially, during FY1984-85, when jute prices increased sharply due to some unfavourable weather conditions in major producing countries, this brought about shortages of jute supplies in the international market. This resulted in sharp rise of jute prices, which provided synthetic fibres an opportunity to further penetrate into the jute markets, particularly in the developed countries; and once the jute products lost its market share to polypropylene, it could not regain the previous share due to its higher cost price and supply constraints. In China and Thailand, woven polypropylene bags were allowed to compete freely, which resulted in the collapse of natural fibre market.

[212] Ibid

[213] Report No.2191-BD Issues and Prospects for industrial Development (in Two Volumes) Volume I: The Main Report December 5, 1978 Industrial Development and Finance Division, South Asia Projects.

[214] Ibid

[215] Bagchi, Jayanta. 2006. *Jute: Reginal Focus*. p 30

Loss of market share of sacking is a long-term process. Sacking is the most widely used item for Bangladeshi jute. During 1970s, jute sacking was increasingly replaced with that of polypropylene plastic bags. Closure of jute mills in Europe, and transfer of part of yarn market away from Europe towards carpet weaving countries in the Middle East had a cumulative affect which caused substantial erosion of the export market of both jute and jute goods for Bangladesh. A series of country studies undertaken by FAO on Egypt, Ethiopia, Kenya and Indonesia have revealed that during 1990s, jute or sisal bags were about 50 per cent costlier than plastic bags. In Pakistan also, price of synthetic bags were almost half the price of jute bags manufactured domestically from imported jute fibre (UNCTAD 1996).[216]

Table 12: Jute and Synthetic Fibre Comparison

JUTE	SYNTHETIC
Natural fibres have been found or have been raised.	Synthetic fibres are manmade.
Natural fibres have been made of something that can be found in nature	Synthetic fibres have been made in a factory of some sort.
Jute sacks can be used four times.	Synthetic one can be used only once.
The percentage of leakage is low for jute bags.	The percentage of leakage is high for synthetic bags.
Less pilferage in bags made of jute when hooks are used.	The synthetic bags leak and become unusable If hooks are used.
The ignition temperature of jute is 193^{o}c that is higher than synthetic.	The ignition temperature of synthetic is 193^{o}c that is lower than jute.
When burnt, jute emits the same fume as a burning wood, which is nothing dangerous.	When burnt, synthetic emits the fume, which is dangerous.
Jute has no adverse effect on human body.	Synthetic has some side effects.
Jute does not plug the natural pore of the earth soil and surface.	Synthetic plugs the natural pore of the earth soil and surface.
Above all, the jute bags should be used for its eco-friendliness and long-term sustainable benefits.	Above all, the synthetic bags should be avoided for its long-term adverse effect on human body and ecological balance.

Source: BJMC Official Website

3.13 Overview of the Bangladesh Jute Sector

3.13.1 History and evolution of jute goods manufacturing in Bangladesh

After the Partition of Bengal in 1947, it was found that all jute mills of the region were in West Bengal, which became a part of India and all major jute growing districts became part of East Bengal, a province of Pakistan. As it had no jute mills, East Bengal faced problems in marketing of raw jute. The problem was, however, quickly overcome by establishing jute mills in East Bengal[217].

[216] *Global Market Opportunities In Export Of Jute*, Occasional Paper: 93 by Mustafizur Rahman and Nafisa Khaled, **Centre for Policy Dialogue (CPD)** p 35

[217] Ibid;

The post-war period 1940-60 saw the fastest rates of growth in jute production. It rose from 1.5 to 2.7 million tons per annum. Also countries without a prior history in jute manufacturing especially China, Thailand, Brazil and others, expanded their jute and kenaf crops and established processing industries primarily to make textile sacks and bags. Overall jute Production steadily increased with minor glitches in 1970 and in 2000, it is now around 3 million tons and there is reason to assume growth could continue.

The jute industry in the public sector, by virtue of its location in East Pakistan, became the property of Bangladesh after independence in 1971. Pakistani mill owners (about 68% of the total loom strength) left the country, leaving the industry in disarray. Abandoned jute mills were subject to heavy looting. The new government of Bangladesh had to take up the responsibility of rebuilding the industry. By a Presidential order, about 85% of industries, including all jute mills, were nationalized.
Bangladesh Jute Mills Corporation (BJMC) was formed to manage and look after all the 73 jute mills having 23,836 looms at that time. At one stage the number of jute mills under the jurisdiction of BJMC went up to 78. BJMC had to revive the industry from a ruined position. Immediately after liberation, it became very difficult to solve problem of financial hardship of the jute industry because financial institutions were not working well. The short supply of spares, labour unrest, wastage in production etc. shook the industry severely.[218]

Until the liberation of Bangladesh in 1971, the textile sector was primarily part of the process of import substitution industrialization (ISI) to replace imports. After the liberation, Bangladesh adopted export-oriented industrialization (EOI) by focusing on the textile and clothing industry, particularly the readymade garment (RMG) sector. Immediately after the founding of Bangladesh (1971), tea and jute were the most export-oriented sectors. But with the constant threat of flooding, declining jute fibre prices and a significant decrease in world demand, the contribution of the jute sector to the country's economy deteriorated.[219]

In 1972 the newly formed government of Sheikh Mujibur Rahman who was also the head of the Awami League, enacted the Bangladesh Industrial Enterprises (Nationalization) Order, taking over privately owned textile factories and creating a state-owned enterprise (SOE) called Bangladesh Textile Mills Corporation (BTMC). President Rahman promoted democracy and a socialist form of capitalism. The BTMC never managed to match the pre-1971 output and lost money every year after the 1975–1976 fiscal year. Until the early 1980s the state owned almost all spinning mills in Bangladesh and 85 percent the textile industry's assets (not including small businesses)[220]. Under the 1982 New Industrial Policy (NPI) a large number of these assets including jute mills and textile mills were privatized and returned to their original owners. [221]

Global Jute & Allied Fibre Production

	1999/20	2000/01	2001/02	2002/03	2003/04
Bangladesh	731.5	814.7	924.7	793.3	963.0
China	164.0	126.0	136.0	155.0	165.0
India	1,404.0	1,620.0	1,890.0	2,060.6	1,977.3
Indonesia	7.5	7.0	10.2	6.8	7.0
Myanmar	26.5	27.8	50.8	41.9	42.0
Nepal	15.7	15.2	16.4	17.0	17.5
Thailand	47.2	29.7	56.0	41.0	57.0
Vietnam	11.3	14.6	14.6	20.5	12.5
World	**2,496.3**	**2,698.3**	**3,144.9**	**3,185.6**	**3,292.0**

Source: FAO in '000 metric tons

[218] http://www.bjmc.gov.bd/industry-overview/jute-industry-overview/

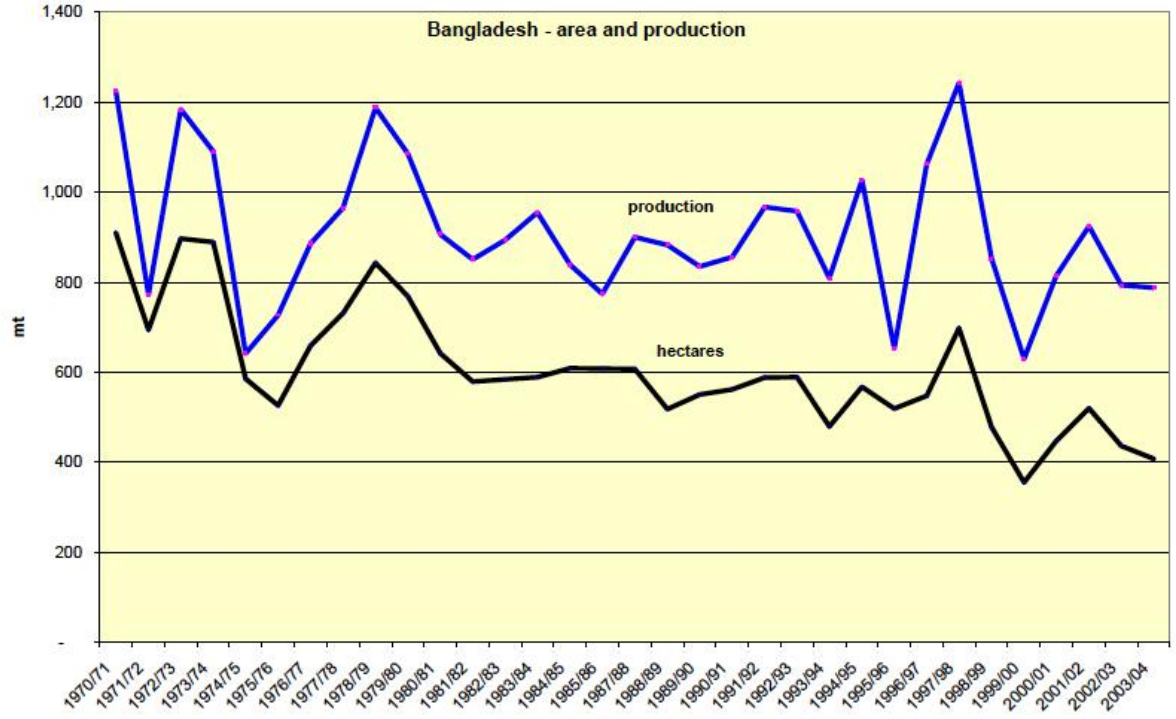
[219] Spinanger, D. (1986). "Will the MFA keep Bangladesh Humble?" In the World Economy (Basil Blackwell Publisher) 10 (1): 75–84.

[220] Ibid;
In Bangladesh, there is no Minimum Support Price (MSP) for jute. However there is a large publicly owned mill sector, the BJMC, which sets the price, buys and processes jute fibres. There is also a history of accumulated losses and debts that a World Bank loan in the early 1990's had intended to tackle. In Bangladesh there is an official price support for rice, which has lead to stronger domestic prices for rice, and this brought about a national surplus with farmers switching from jute to rice. In consequence there has been a long-term reduction in area devoted to jute, although with a less than proportionate reduction in output volume. This is explained by rising yields of fibre per hectare.

[221] Momen, Nurul."Implementation of Privatization Policy: Lessons from Bangladesh"(PDF). The Innovation Journal: The Public Sector Innovation Journal (Rajshahi, Bangladesh)

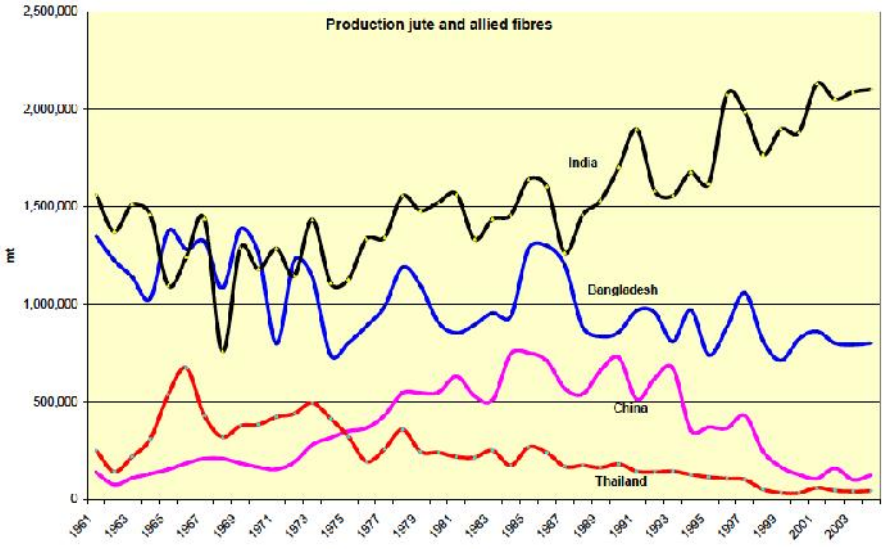
Fast forward a decade. What has changed is that India is now by far the leading producer, Bangladesh lost its lead role in the mid 1970s, and the gap between the two has been widening since then. The more recent growers like China and Thailand decreased output in the 1980s and 1990s and are now minor producers. Amongst the other smaller producers are Myanmar, Nepal, and Brazil which all continue some production[222].

Figure 14: Bangladesh - Area and Production of Jute and Allied Fibre (Copied)



Source: FAO

Figure 15: Production of Jute and Allied Fibre (Copied)



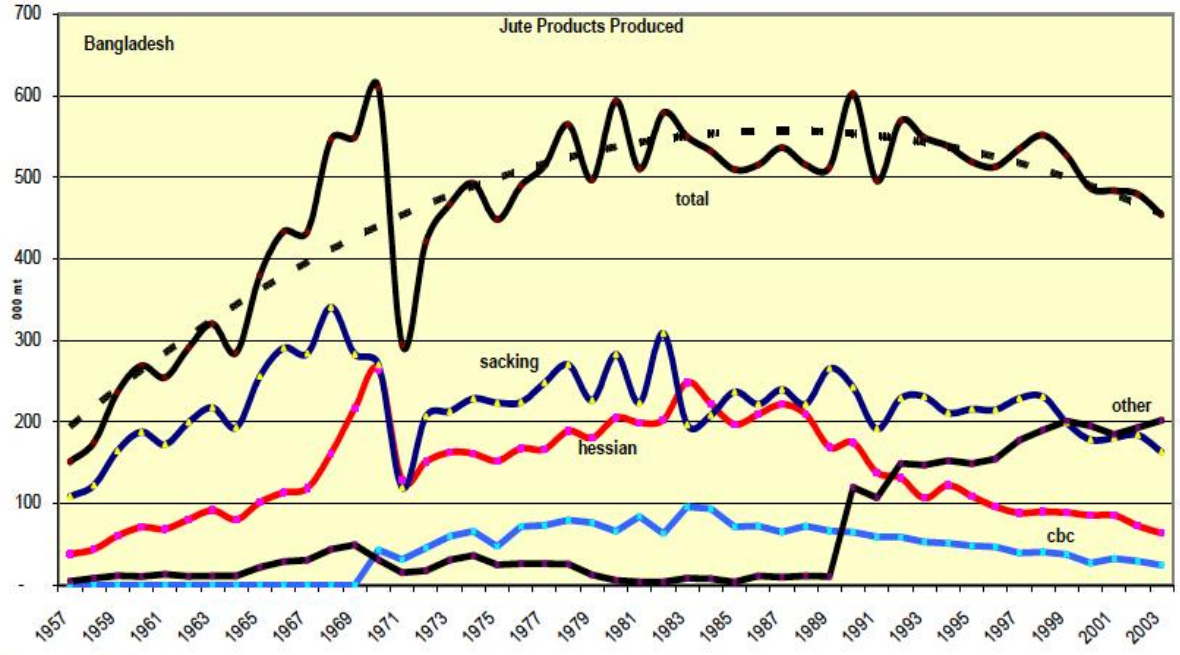
Source: FAO

Both India and Bangladesh have a matrix of regulatory measures and Government policies that impinge directly or indirectly on the production, trading, processing and export of jute fibre and products. The jute sector is considered socially and politically too important to be left entirely to market forces. The increase in Indian production since 1970 has been mainly due to rising consumption of jute sacks within the domestic economy. The jute sector was and is of very considerable importance to India and Bangladesh[223]. Four million

[222] Ibid
[223] Ibid;

farmers with 20 million dependents earn their living from its cultivation and hundreds of thousands work in the sector[224].

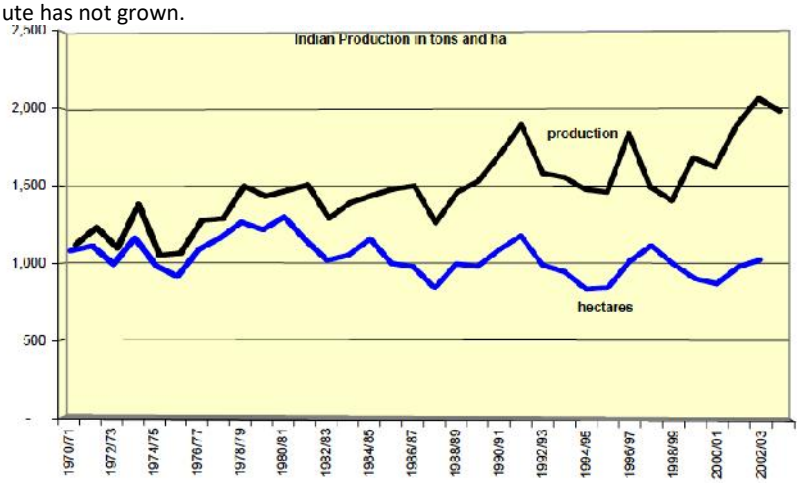
Figure 16: Bangladesh: Jute Product Composition over the decades (copied)



Source: FAO

Although production of jute products in Bangladesh declined from the mid 1980s, there has at the same time been a major product re-orientation. In particular, output of yarn for export increased very substantially with much of the former European spinning machinery moving to the country. At the same time, production of Carpet backing Cloth (CBC) and Hessian cloth declined while sacking remained the leading sub-sector[225].

There has been a marked increase in yield rates in India with production steadily rising from 1970 levels while the land area devoted to jute has not grown.



Source: FAO

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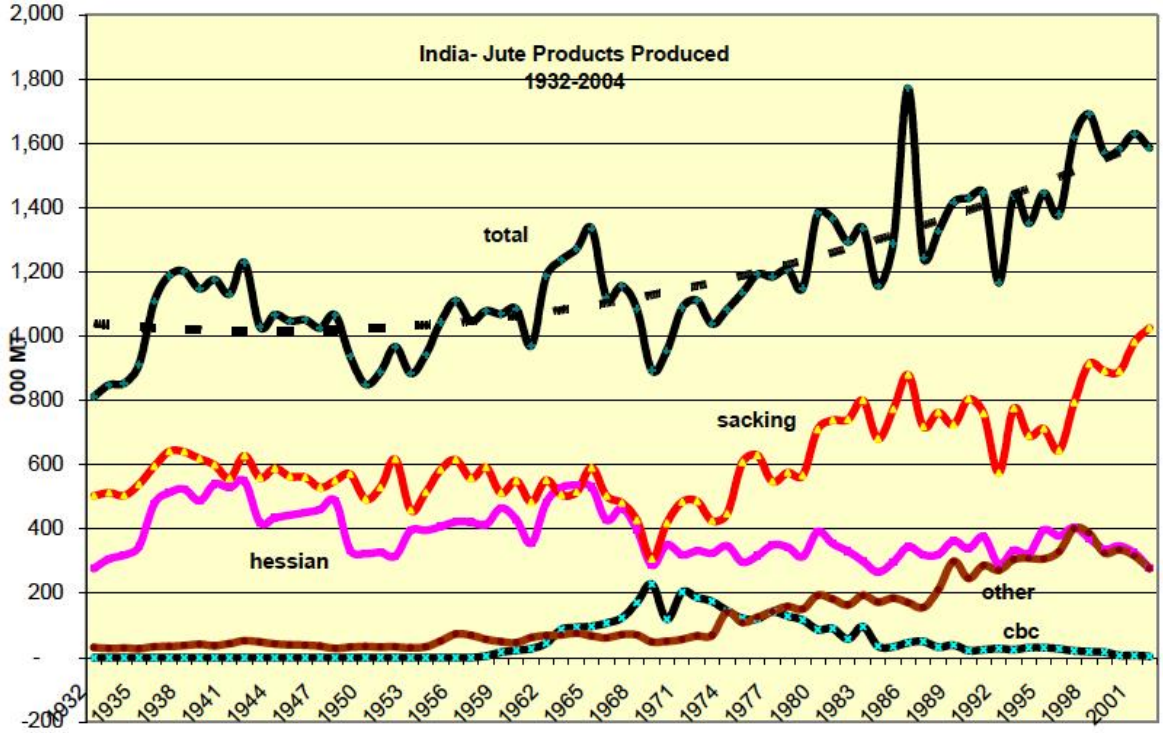
[225] Ibid

In India, demand for jute sacking continues to expand. As population and food grain output grew, so did the demand for textile packaging. Indian consumption of locally made sacking was 200,000 tons in 1960, 327,000 tons in 1970, 626,000 tons in 1980, 781,000 tons in 1990 and 900,000 tons in the year 2000. The increase in production of sacking (along with yarn and other items) accounts for the substantial increase in production of jute products[226].

Figure 17: Evolution of Indian Jute Product Composition (Copied)



Source: FAO

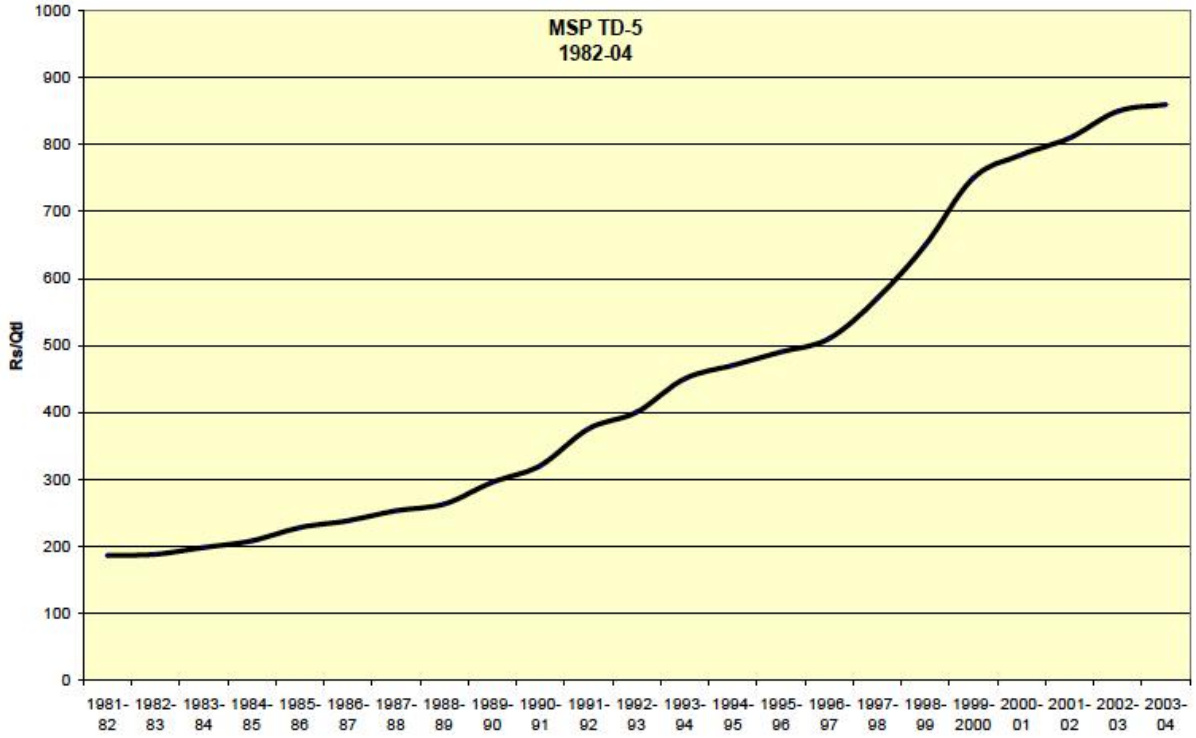
Together with other agricultural commodities, jute has enjoyed minimum support price, MSP, in India since the 1960s. MSP has actually been increased at a very similar sort of rate to which the rupee has devalued against the US dollar.

Farmers have the right to sell any quantity of jute fibre at the prevailing MSP. In practice, it works a bit differently but the spirit of the measure is to assure what is considered a viable price. The Jute Corporation of India, charged with implementing MSP tends to intervene mostly at harvest and tries to limit its market intervention. Its activities are increasingly targeted at smoothening seasonal price variations. The MSP combined with the mandatory packaging order has encouraged demand and led to increasing volume production through higher productivity rather than area under jute. Production has increased through higher yielding varieties and the increased use of nutrients. The same phenomenon was earlier observed with Chinese production, which also increased fibre output without a commensurate change in area[227].

[226] Ibid

[227] Ibid; The threat from cheaper locally made Polypropylene and High density Polyethylene woven plastic bags largely from imported feedstocks led the jute industry to lobby the government successfully for protection by having the textile packaging of food grains, sugar and cement made into a reserved market for jute sacks. The instrument used by the central Indian Government was the mandatory packaging order, first implemented in 1987. However today, cement and fertiliser are no longer widely packed in jute sacks. This Order reserves use of jute sacks for stipulated produce and this together with the fact that the public sector buys 66% of sacks made by the jute industry, has led to healthy and growing demand for jute sacks. The legislation creates a market situation where the MSP can be used sparingly and without a high cost to the Exchequer. The local price for sacks may at times be higher than it would be otherwise but the premium helps the living standards and viability of millions of very poor farmers while protecting the environment against degradation.

Figure 18: Indian MSP (Copied)



3.13.2 Profile of jute sector stakeholders

Jute and Jute Textiles Industry-stakeholders

Jute growing farmers
Jute Yarn Spinning Mills
Jute Cloth weaving units (including jute packaging units)
Jute item manufacturing units
Jute textiles and goods exporting units (large and small operators)

3.13.3 Jute Growers (farming units)

Supply of Raw Jute can directly benefit jute growers. The supply of an "adequate" amount of raw jute at "reasonably low" prices is a key factor determining the financial position of jute mills as well as the long-term viability of jute in world markets since raw jute costs make up about a half of total production costs for jute goods. Unfortunately, the production of raw jute in Bangladesh has fluctuated widely. This has resulted in corresponding fluctuations in the export price of raw jute as well as jute goods and, thereby, created uncertainty for final consumers of jute goods. A three pronged approach is required to improve t:he supply situation of raw jute: (i) Efforts (such as the Intensive jute Cultivation Scheme) need to be intensified to increase productivity inI jute cultivation 1/; (ii) sufficient price incentive needs to be given to jute growers by maintaining appropriate price relationship between jute and paddy; and (iii) some schemes (such as a buffer stock arrangement:) can be devised so as to minimize yearly fluctuations in jute availability particularly due to changing weather conditions.[228]

In 1872, when industrial use of jute had begun, it was mainly grown in the districts of Pabna, Bogra, Darjeeling, Dinajpur, Rangpur and Hughli (West Bengal). The ratio of land under jute cultivation to total cropped land in

[228] Report No.2191-BD Issues and Prospects for industrial Development (in Two Volumes) Volume II: The Main Report December 5, 1978 Industrial Development and Finance Division, South Asia Projects.

these districts in 1872 was 14%, 11%, 9%, 7%, 6% and 5% respectively. Subsequently, jute cultivation spread to other districts. In 1914, leading districts in terms of the above ratio were Rangpur (28 %,) Bogra (25%), Tippera (comilla, 24%), Pabna (21%), Dhaka (18%), Faridpur (16%), Hughli (West Bengal, 13%), Rajshahi (11%), Jessore (10%), Nadia (10%), and Dinajpur (7%).

After the end of the First World War in 1918, the world demand for raw jute decreased. This had a negative impact on the area under jute cultivation. The situation worsened for jute cultivation during the Great Depression of 1929-33. The prices sank so low that jute growing became unprofitable. As a result, peasants greatly reduced their area under jute cultivation. By 1939, economic recovery took place. The breaking out of the Second World War caused an increase in the demand for jute and between 1939 and 1945; peasants put more areas under jute cultivation.[229]

3.13.4 Remunerative Returns to Farmers: Challenges

Jute marketing at the village level is monopolized by the middlemen who frequently exploit farmers by short weighing and undergrading the produce. Lack of storage facilities in production areas causes fibre spoilage and lack of baling presses increases transport costs and strains the limited transport facilities. Farmers do not receive full reward for efforts to improve production. The poor rates of growth of output should be attributable largely to poor extension service, poor communication, imperfect land tenure system, farmers' indebtedness and small scale production units.

The common variables used in the analysis to explain jute acreage changes are weather changes, floods during sowing time and damage caused by flooding in the subsequent period.[230]

Farmers in Bangladesh have not completely ceased growing jute, however, mainly due to its demand in the internal market. The jute market recovered in the period from 2004 to 2010 and the price of raw jute increased approximately 500%. [231]

3.13.4.1 Jute Mills

Table 13: Growth of Jute Industry in Bengal, 1879-1939

Year	Mills	Looms	Spindles	Employment
1879-80	22	5,000	71,000	27,000
1900-01	36	16,100	331,400	114,800
1920-21	77	41,600	869,900	288,400
1938-39	110	69,000	13,70,000	299,000

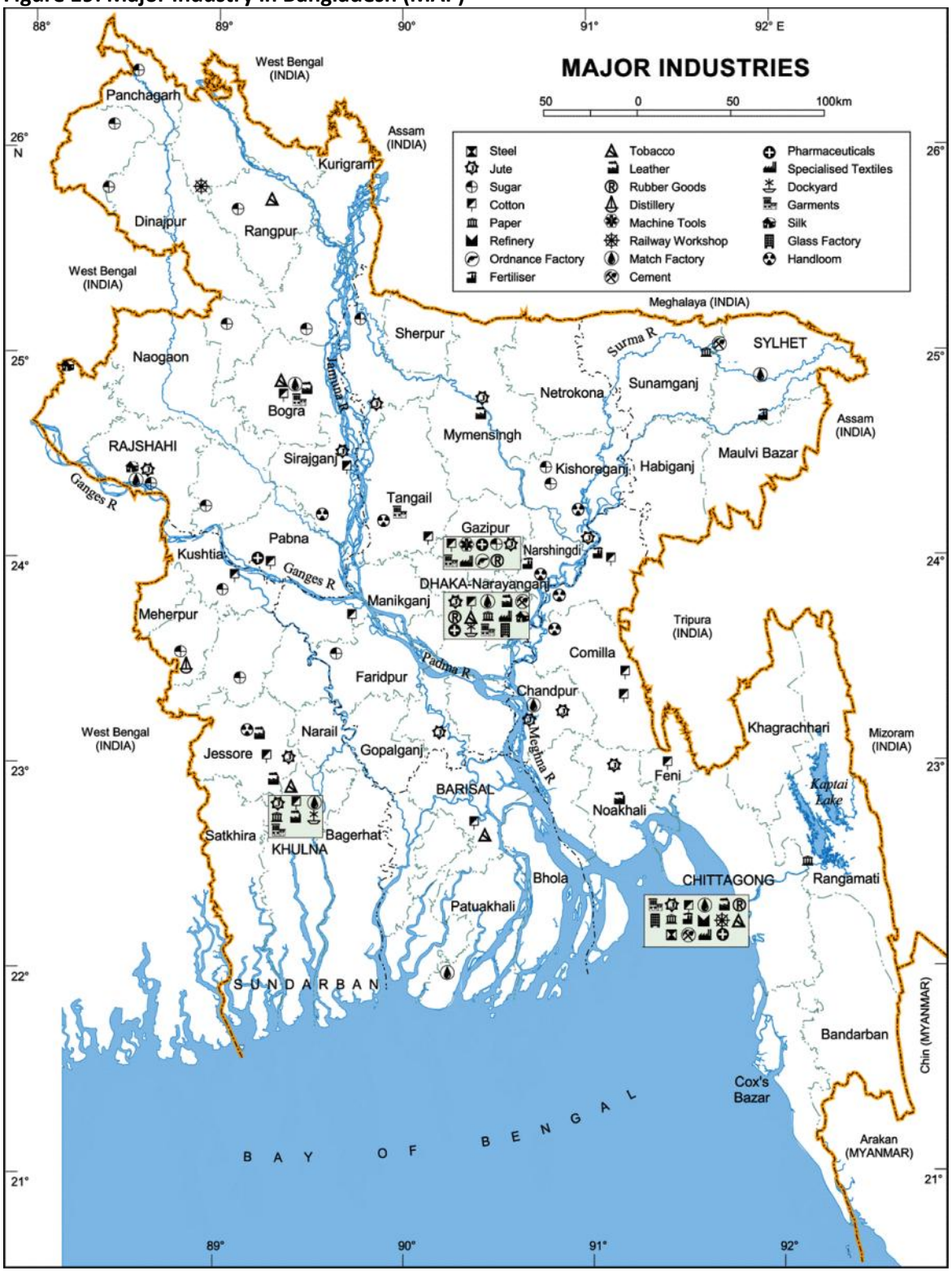
Source: BJMC Official Website

[229] BJMC Official Website

[230] Jayanta Bagchi, *Jute: Regional Focus,* 2006 p 23

[231] http://www.bjmc.gov.bd/industry-overview/jute-overview

Figure 19: Major industry in Bangladesh (MAP)



Source: Banglapaedia Maps

The public sector plays a very important role in jute manufacturing, marketing and trading. The government owns about 78% of the equity in all jute mills, including full ownership of 29 mills and a minority share in all private mills. Almost all the mills are running in losses. In recent years, the losses have taken a heavy drain on the government budget and pose a serious threat to the stability of the financial sector. Considering the

[232] Banglapaedia.com

criticality of the jute sector, the World Bank has been providing considerable support to the Government of Bangladesh.

In sixty years between 1880 and 1940, the number of mills increased by 5 times, that of looms by about 14 times, of spindles by 19 times, and of persons employed by 11 times (see Table). The growth of the industry was significant during the 20 years between 1900 and 1920. During the Great Depression of 1929-33, the jute industry was severely hit since the demand for jute goods declined drastically throughout the world. [233]

A total of 72 jute mills were operated by the public sector in 1982, immediately before the initiative of denationalisation. Since 1982-83, government started to denationalise the public sector jute mills — out of 72 public sector jute mills, the government denationalised 34 jute mills between 1982 and 1985. Out of these 34 privatised jute mills, 6 were composite, 21 were conventional and 7 were CBC jute mills. A total of another 22 jute mills were privatised during the last two decades. Besides, a number of new jute mills (mostly of spinning type) were established under the private sector initiative. Currently a total of 129 jute mills are in operation, of which 18 mills operated under the public sector and the remaining 111 mills operated under the private sector (Table 3). Of the 111 private mills, 61 mills were owned by the BJMA members while the remaining 50 mills were owned by the BJSA members.[234]

Table 14: Time Profile of Denationalisation of Jute Industry in Bangladesh

Types of Mills	Denationalisation of Jute Mills					
	Number of Mills as on 31.06.1982	1982-83	1983-84	1984-85	Total	Total Retained
Composite	19	5	1	0	6	13
Conventional	31	18	3	-	21	10
CBC	15	6	-	1	7	8
Jute carpet producers	2	-	-	-	-	2
Other specialised mills	3	-	-	-	-	3
Inoperative mills	2	-	-	-	-	2
Total	**72**	**29**	**4**	**1**	**34**	**38**

Source: BJMC

By December 1979, BJMC had 77 jute mills, two carpet backing mills, and two spare parts producing units. In 1980, six twine mills were disinvested to the private sector. In June 1981, BJMC had 74 mills under its administration. These mills had about 165,000 workers and 27,000 managerial and office staff.[235]
Denationalization of jute mills started in July 1982. Among the jute mills owned by BJMC, 46 had satisfactory financial performance in 1982-83, when their profit before contribution to national exchequer was about Tk 240 million.[236]

The same mills incurred total losses of about Tk 430 million in the previous year. Jute mills incurred losses regularly over years and external donor agencies pressed hard for denationalization. More and more mills were put into the denationalization list. In 1999, BJMC had 33 mills. The World Bank continued to work closely with the government to restructure the jute sector, especially through denationalization, merger, dissolution, closure and setting up of new units.[237]

An export ban on raw jute was imposed in Bangladesh from late 1984 to mid 1985 to ensure availability of raw jute for domestic mills. Jute mills in Bangladesh incurred higher costs due to high price of raw jute.

[233] BJMC Official Website
[234] *Manufacturing Sector of Bangladesh Challenges, Opportunities and Policy Options,* Occasional Paper 78 by Khondaker Golam Moazzem, Md. Tariqur Rahman and Abdus Sobhan, **Centre for Policy Dialogue (CPD).**

[235] http://www.bjmc.gov.bd/industry-overview/jute-overview
[236] Ibid
[237] Ibid

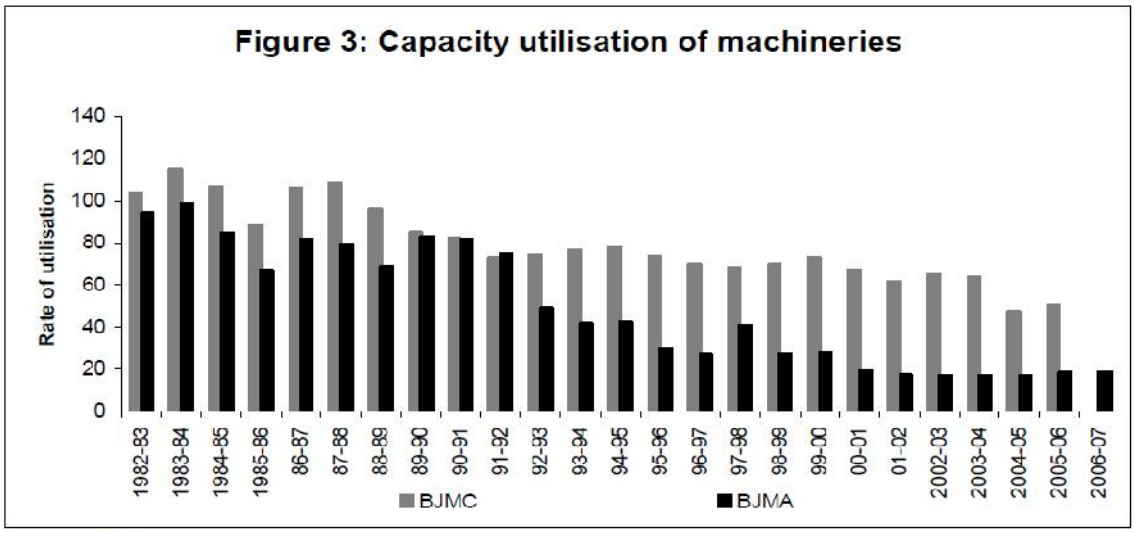
Consequently, in FY1984-85 Bangladesh experienced the highest ever stocks of raw jute as goods could not be sold at the higher asked-for price.[238]

The long decline in demand forced Adamjee Jute Mills, the largest jute mills in the world to close in Bangladesh. The government nationalized Latif Bawany Jute Mills, the second largest mill in Bangladesh. It was formerly owned by the businessperson, Yahya Bawany.[239]

In July 2007, Government of Bangladesh (GoB) took a number of decisions as regards public sector jute mills and their poor performance. The major decisions included: closing down four jute mills – Peoples, Karnaphuli, Forat-Karnaphuli, and Kaomi and retrenchment of 14,000 workers from 22 state-owned jute mills, of which 6,000 workers were from the four closed down jute mills and another 8,000 workers were from the remaining 18 jute mills as a result of which the total work force of Bangladesh Jute Mills Corporation (BJMC) mills was decreased by 50 per cent. The government agreed to provide Tk. 200 crore to finance procurement of raw jute of which Tk. 138 crore was to be financed from banks through issuing of government bonds. Procurement target was set at 55 lakh tonnes of raw jute from 58 procurement centres for the 18 jute mills. Government also took the initiative to sell 120 acres of land (out of BJMC's 1,200 acres of land) to generate more funds for the industry.[240]

The jute industry of Bangladesh is half the size of that in India; however it meets about 40% of world requirements for jute manufacturers. There are 71 mills which until the 80s were all publicly-owned and controlled by the BJMC and 32 small scale yarn mills in the private sector. Of the total industry capacity, 60% is for producing hessian, 30% for sacking and 10% for carpet backing. According to a report of a working group set up up by the Government of Bangladesh; with proper balancing, modernization and rehabilitation, the capacity of the mills could be raised by 1,20,000 tonnes. However the present emphasis has been upon improving the capacity utilization. [241]

Figure 20: BJMA Exhibit on Capacity Utilisation of Machineries



Source: BJMA.

3.13.4.2 Jute Traders

[238] *Global Market Opportunities In Export Of Jute*, Occasional Paper: 93 by Mustafizur Rahman and Nafisa Khaled, **Centre for Policy Dialogue (CPD)**

[239] http://www.bjmc.gov.bd/industry-overview/jute-overview.

[240] *Manufacturing Sector of Bangladesh Challenges, Opportunities and Policy Options,* Occasional Paper 78 by Khondaker Golam Moazzem, Md. Tariqur Rahman and Abdus Sobhan, **Centre for Policy Dialogue (CPD).**

[241] Jayanta Bagchi, *Jute: Regional Focus,* 2006 p 30

After the separation of Bangladesh (East Pakistan) from Pakistan in 1971, the jute trading was not limited to specific groups like India or Pakistan. After the independence of Bangladesh, most privately owned jute mills were nationalized under the socialist policies of the Awami League government. Later, to control these jute mils in Bangladesh, the government built up Bangladesh Jute Mills Corporation (BJMC) as discuused above. No other jute mills were allowed to grow in the private sector before 1975. After Ziaur Rahman became Bangladesh president a new age dawned upon the Bangladesh jute industry. This incident grew many raw jute traders from different corners of Bangladesh who used to supply raw jute to BJMC owned jute mills. This group of traders are called **Beparis**, who buy raw jute directly from the farmers.[242]

A number of trade unions/organizations of traders have been formed which strive to achieve higher market shares both domestically and abroad. The following are the examples:
Bangladesh Jute Association (BJA) was established in 1949 as a sister organization of Narayanganj Chamber of Commerce and Industry. It emerged as an independent organization in 1949 as Pakistan Jute Association (PJA) on 13th March 1959. After the emergence of Bangladesh this organization was renamed Bangladesh Jute Association (BJA). BJA is a National Representative body of all jute traders and exporters in the private sector. The number of members is about 500. The member exporter of raw jute exports to as many as 35 countries of the world. Every year the exporters export raw jute at a tune of about 20 lakh bales amounting to Tk. about 2000 (Two Thousand) crore and contribute a lot to the national economy. [243]

Mawada Traders was established in the year 1997 and are engaged in exporting raw jute, Kenaf, jute & kenaf cutting, jute goods, jute yarn, jute yarn waste, jute caddies and other jute items since inception. Mawada Traders claim to be one of the reliable exporter and supplier of Raw Jute, Traditional Jute Goods and Diversified Jute products from Bangladesh. It is a prestigious associate member of IJSG, Bangla craft and many more since the beginning of this organization. They supply wide range of Jute and Jute products, to cater to the diverse requirements of people of various sectors of the country and abroad.[244]

Between FY73 and FY77, exports of jute goods averaged 423,000 tons per annum, generating exports earnings of US$188 million. As compared with the pre-independence period of FY66--FY70, this was an increase of 4% in export volume and 39% in export earnings in current prices 2/. During FY78, export demand for jute goods remained quite strong, resulting in record exports estimated at 496,000 tons, valued at US$223 million. [245]

3.13.5 Government/Legislative interventions in Bangladesh

BACKGROUND

Jute Industry played an important role in the economic development of Bengal. At the beginning of the twentieth century, Bengal could boast of only one manufacturing industry - jute. It employed about a half of the total industrial workforce of Bengal. In 1900-1, the export value of jute manufactures accounted for nearly a third of the entire export trade of Bengal. Prior to the establishment of the first jute mill in 1855, handloom weavers used jute fiber to make twines, ropes, coarse fabrics for the poor, and also for fishing and for mooring vessels. Towards the end of the eighteenth century, jute attracted the attention of the British east india company, which sent a consignment of jute samples to England in 1791 that were successfully spun by flax machinery. Several historical events were responsible for the growth of the jute industry. In 1838, the Dutch government specified bags made of jute instead of flax for carrying coffee from the East Indies. At that time

[242] BJMC Official Website
[243] http://bja.com.bd/
[244] http://www.mawadabd.com/

[245] 'Bangladesh Issues and Prospects for Industrial Development'. World Bank Report No 2191-BD, Vol II. Dec. 5, 1978. Industrial Development and Finance Division, South Asia Projects.

flax was imported from Russia. However, the Crimean War of 1854-56 led to the stoppage of supply of flax from Russia and forced Dundee, the famous jute-manufacturing centre of UK, to look for substitutes. In Dundee, the flax mills were converted into jute mills. The American Civil War (1861-65), on the other hand, gave further impetus to the jute trade, as supplies of American cotton were much restricted. Since then, the industry did not return to flax or cotton. The main reason for this permanent shift had been its comparative cost advantage. The jute industry grew rapidly and jute mills were established in many countries, including USA, Germany, France, Belgium, Austria, Italy, Holland, Spain, Russia, Brazil and Bengal. This led to a rapid increase in the demand for jute. The Bengali peasants responded quickly to meet the world demand by increasing the area under jute cultivation. Soon after, the outbreak of the First World War led to a rapid increase in the demand for raw jute, since it was used to manufacture sandbags to protect soldiers in trenches and to produce gunny bags for carrying food grain for the army. Inevitably, the price of jute also rose sharply. Although Bengal, particularly Eastern Bengal, was the main producer of quality raw jute, the first jute mill was established at Risraw near Calcutta on the bank of the Hugli only in 1855, after 20 years of mechanical spinning of jute in Dundee. The delay was due to the non-availability of technical hands and power to drive machines. In 1854, coalmines were opened at Raniganj.[246]

By 1866, three new mills were established. Between 1868 and 1873, these mills made large profits. Five new companies started in 1874 and 8 more in 1875. Thus, Bengal experienced a real boom in jute industry towards the end of the nineteenth century. With the establishment of jute mills, Bengal became a major exporter of sacking bags. [247]

The jute industry in the public sector, by virtue of its location in East Pakistan, became the property of Bangladesh after independence in 1971. Pakistani mill owners (about 68% of the total loom strength) left the country, leaving the industry in disarray. Abandoned jute mills were subject to heavy looting. The new government of Bangladesh had to take up the responsibility of rebuilding the industry. By a Presidential order, about 85% of industries, including all jute mills, were nationalized. Bangladesh Jute Mills Corporation (BJMC) was formed to manage and look after all the 73 jute mills having 23,836 looms at that time. At one stage the number of jute mills under the jurisdiction of BJMC went up to 78. BJMC had to revive the industry from a ruined position. Immediately after liberation, it became very difficult to solve problem of financial hardship of the jute industry because financial institutions were not working well. The short supply of spares, labour unrest, wastage in production etc. shook the industry severely. [248]

The reasons for lack of response to the relative growth in the private industrial investment as stated in the WB report (1978) could be divided into two - general and policy-related. At the general level, there was uncertainty due to factors like suspicion by the businessmen about the unwillingness of the government to extend its 'full support' to the private industry. Secondly, businessmen were afraid of unfair competition from government assisted public enterprises and were unclear about the private sector's role, and finally another aspect was that of general political instability. [249] Then, neither the government nor businesses were clear about industrial activities which should be encouraged or which would be profitable. There has been a knowledge gap on industrial opportunities, reflecting the challenges to the task of developing GOB's industrial strategy. [250]

Private manufacturing activities were earlier dominated by the west Pakistanis, and as a result of their exodus during independence, the new government was left with various abandoned units which they nationalised with fixed assets of more than Tk 1.5 mn while disinvesting the rest. [251] The government nationalised the jute, cotton and sugar industries irrespective of the ownerships and thus, by 1973, the public Industrial sector consisted of about 350 units organized under 11 corporations. In an attempt to improve the management

[246] BJMC Official Website
[247] Ibid.
[248] Ibid.
[249] 'Bangladesh Issues and Prospects for Industrial Development'. World Bank Report No 2191-BD.Vol 1. Dec.5, 1978. Industrial Development and Finance Division, South Asia Projects.

[250] Ibid
[251] Ibid

control, in 1976, GOB decided to disinvest smaller units to the private sector. In 1978, 275 units were organized under seven corporations which were publically owned.[252]

In the devastating famine in 1974, one million people died, mainly of starvation caused in part by the flooding of the Brahmaputra River in 1974, and a steep rise in the price of rice. Partly in response to the economic and political repercussions of the famine, the Bangladesh government shifted public policy away from its concentration on a socialist economy, and began to denationalize, disinvest and reduce the role of the public sector in the textile industry while encouraging private sector participation. The 1974 New Investment Policy restored the rights to both private and foreign investors. Bangladesh's development model switched from a state-sponsored capitalist mode of industrial development with mainly state-owned enterprises (SOE) to private sector-led industrial growth. [253]

Denationalization of jute mills started in July 1982 as discussed above. The government ordered BJMC to complete the process by 16 December 1982, but only 10 mills could be handed over to Bangladeshi owners by that time. The valuation process and settlement of other organizational matters relating to handing over of the mills took a long time. [254]

Global restructuring processes, including two non-market factors, such as quotas under Multi Fibre Arrangement (MFA) (1974–2005) in the North American market and preferential market access to European markets, led to the "emergence of an export-oriented garment industry in Bangladesh in the late 1970s" and ensured the garment sector's continual success. [255]

The evolution of the agricultural policy can be seen in two parts- before independence and after independence.

Pre-independence period (before 1971)

Agricultural trade policy and price incentives mechanism in East Pakistan (present Bangladesh) through to 1971 were heavily influenced by overall trade and macro-economic considerations of united Pakistan. During the 1950s and 1960s, Pakistan followed an import substitution trade strategy that involved taxation of agricultural exports and protection of domestic industry through import tariffs. It also tended to avoid currency devaluations and instead rely on quantitative controls on imports to limit effective demand for foreign exchange at the official exchange rate (Lewis and Guisinger (1971). In the early 1950s, Pakistan introduced quantitative import controls through a system of import licenses to favour use of foreign exchange for capital and intermediate goods and limit imports of consumer goods. At the same time, cotton and jute exports were taxed through export duties.

Overvaluation of the Pakistan rupee, combined with these explicit export taxes, contributed to a 70 percent decline in the real value of total exports between 1952 and 1958 (Dorosh and Valdes 1990, p. 15).

In 1959, the government's introduction to the export bonus scheme in an effort to spur export earnings represented an effective devaluation of the exchange rate for exports receiving vouchers and for imports purchased with these vouchers (World Bank 1963).

Jute was the most important export earnings of that time. The high implicit taxation of raw jute reduced domestic prices and production incentives, leading to lower levels of exports and higher world prices. To some degree, this policy may have facilitated the development and adoption of synthetic fibres that ultimately

[252] Ibid

[253] Bhattacharya, D.; Rahman, M (2001). "Bangladesh's Apparel sector: Growth trends and the Post-MFA challenges". Proceedings of a National seminar on ready-made garment industry

[254] http://www.bjmc.gov.bd/industry-overview/

[255] Kabeer, Naila; Mahmud, Simeen (29 July 2004) (PDF).Rags, Riches and Women Workers: Export-oriented Garment Manufacturing in Bangladesh(Report). Women in Informal Employment: Globalizing and Organizing (WIEGO)

replaced jute in many markets. Value added in jute milling in East Pakistan was low in the late 1960s, but profits were high because of the export bonus scheme (World Bank 1975).

Post-independence period (after1971)

After the independence, Bangladesh followed a highly restrictive trade and exchange rate policy characterized by import regulations, high import tariffs, export taxes, persistent quantitative restrictions and an overvalued exchange rate similar to policies of the 1960s. The policy regime in this period was particularly restrictive for the agricultural sector. The government had a monopoly on import of most agricultural commodities and placed major restrictions on exports of raw jute, the major agricultural export. As a result of these distortions, agricultural price incentives were substantially reduced throughout the period (Rahman 1994).

The agricultural reforms have been undertaken from the early 1980s to the mid-1990s. Two waves of reforms took place namely in the early to mid-1980s where subsidies on inputs were cut back and domestic trading of inputs was liberalised.

The second wave of reforms showed up in late 1980s and early 1990s that included the liberalisation of imports of inputs, private trading in grain markets both domestically and internationally and major reductions to longstanding programmes for public distribution of grains.

Over the era of fifteen years, comprehensive and widespread reforms in agriculture policy were initiated. As a result, the market for both inputs and outputs had been almost completely liberalized than any previous time of considerable and pervasive state interventions and controls. Domestic support and subsidies to agriculture shrink down than public investment in agriculture research and extension, flood control and rural infrastructure development. In the breadth and depth of agricultural reforms, Bangladesh stands alone amongst its South Asian neighbours, where reforms have been much more limited (Ahmed 1996).

The reform appears to have seen very successful because the public transfer to farmers and to food consumers have been reduced while private markets in the input and outputs have functioned reasonably well.[256]

As identified in the WB report (1987), the true profitability could be measured only by making a clear distinction between public enterprises as *firms* and public enterprises as *welfare institutions.* For it to be the former, GOB had to direct all salaries, wages, staffing, operations etc. to a single motive of profit generation.[257] Yet, many enterprises could never be profitable despite attempts.
In the mentioned report, the Bank mentioned about possible interventions such as its participation in the Monitoring Committee, assisting government in disinvestment (especially of smaller inefficient plants), helping organize and provide assistance in training, assistance to GOB to rationalize managerial tenure, incentives and establishing stronger relations between productivity, rewards, and sanctions; and revision of pricing policies separating consumer subsidies from productive efficiency. [258]

PRESENT SCENARIO

There has been a renewed interest in jute as an environment-friendly, bio-degradable product The jute sector is viewed as a special development sector with investments in the form of low interest rate loans, low shipment costs, bond facility, technological upgradation, international market expansion, attracting FDI, POA to strengthen research and increase productivity in the sector, identification of and minimizing obstacles in exporting jute and jute products and most importantly, popularizing the sector by way of Bangladeshi Missions abroad, cooperation with entrepreneurs for participation in international fairs an exhibitions, establishing design development centres and so on. According to the industrial policy 2010, reform measures

[256] (Mohammad Monirul Hasan Agricultural Policy Reforms and Structural Adjustments in Bangladesh Corvinus University of Budapest, Hungary, Institute of Microfinance
(InM), University of Bonn, Germany)

[257] 'Bangladesh Issues and Prospects for Industrial Development'. World Bank Report No 2191-BD, Vol I - Main Report. Dec. 5, 1978. Industrial Development and Finance Division, South Asia Projects.

[258] Ibid

to reactivate closed jute industries have and should also be initiated. Due to this special treatment to the sector, various financial benefits shall accrue to the investors such as tax-exemption and exclusion from double-taxation i.e. tax holidays.[259]

3.13.6 Subsidies pattern in jute in Bangladesh

For jute industry of Bangladesh, the first two years after liberation was the period of reorganization. The government offered cash subsidy to the industry, which amounted to Tk 200 million annually. The annual cash subsidy was reduced to 100 million since 1976-77. Thanks to this policy and periodic devaluation of currency, Bangladesh could retain its position of a prime exporter of jute goods in the dollar areas of export. The industry earned profit in 1979-80, when the subsidy was withdrawn. [260]

In order to compensate losses, the government provided various kinds of support to jute mills. Between 1985 and 1988, the then government compensated losses incurred by the mills against difference in the exchange rate between Bangladesh and India in the form of 'XPB.' From 1989 to 1991 government paid 'cash subsidy' to all mills against their losses. Under the World Bank programme (Jute Sector Adjustment Credit or JSAC), government compensated the mills through export loss finance for BJMA mills between 1992 and 1995 and up to 1995-96 for BJMC mills. The loss of finance to BJMC mills ranged between 31 per cent and 67 per cent, i.e. on an average 50 per cent; on the contrary for the BJMA mills this was 16 per cent during 1992-93 and 20 per cent between 1993 and 1995. According to the BJMA, private sector mills are yet to receive the support in the form of export loss finance, which was Tk. 52 crore. It is also important to note here that when the mills were denationalised in 1982 some were given back to their former management, and some given to new management. In both these cases all th previous loans and liabilities were also transferred. Those debts and liabilities, according to private entrepreneurs, had come into surface because of inefficient management during the nationalised regime. However, a part of those liabilities also originated even before that period, in the 1960s. [261]

Exchange rates and Subsidies

After the independence, when Bangladesh devalued the Taka by 53% and abolished the "Bonus Voucher System" (instituted to promote manufactured exports), the value to Taka deteriorated considerably due to high inflation rates and by May 1975, the profitability of the export sector deteriorated since the ER became increasingly unfavourable to exports. As a result, the government introduced export cash subsidy scheme and subsidy rated increased to 30% of the f.o.b. value covering 90 commodities (other than raw jute, jute goods and others). After the 1975 devaluation, all export subsidies were abolished and minor adjustments were made. [262]

The combined effect of official ER and different types of export subsidies and taxes called Effective ER were calculated for major export products especially raw jute and jute goods; and these subsidies included direct cash subsidies, benefits under the XPL scheme and ad hoc subsidies to the jute industries (equivalent to the cash deficits incurred by the jute industry) except export subsidies in the form of lower interest rates and income tax reduction.[263]

The real effective exchange rate has been a critical factor in determining the profitability of the export sector reflected in the 1975 Taka devaluation leading to higher profits for most export products with notable 'exception' of the jute industry. This was because jute industry had to pay a much higher price for raw jute due to this devaluation and the export of raw jute was also transferred to the private sector. [264]

3.13.7 Tax and Subsidy trends

[259] *Global Market Opportunities In Export Of Jute*, Occasional Paper: 93 by Mustafizur Rahman and Nafisa Khaled, **Centre for Policy Dialogue (CPD)**

[260] http://www.bjmc.gov.bd/industry-overview/

[261] *Manufacturing Sector of Bangladesh Challenges, Opportunities and Policy Options,* Occasional Paper 78 by Khondaker Golam Moazzem, Md. Tariqur Rahman and Abdus Sobhan, **Centre for Policy Dialogue (CPD).**

[262] 'Bangladesh Issues and Prospects for Industrial Development'. World Bank Report No 2191-BD, Vol I - Main Report. Dec. 5, 1978. Industrial Development and Finance Division, South Asia Projects

[263] Ibid

[264] Ibid

Income from non-traditional exports i.e. the ones other than raw jute and jute goods qualified for income tax reductions of up to 50% of the income tax attributable to export sales depending on proportion of export sales to total sales. [265]

The reasons for introduction of explicit export subsidies were the deteriorating financial position of the jute industry as a result of its accumulated losses since independence and these were provided at 10% of f.o.b. value for sacking, 15% for carpet backing and 20% for hessian (weighted average subsidy of 16% for all jute goods exports). [266]
For the purpose of maintaining the domestic price of raw jute, at reasonably low level, an export tax on raw jute had been introduced at 10% ad valorem for log jute and 8.5% for cuttings. Yet, since an export tax is a response to short-term changes in the demand and supply situation, it was recommended to be flexibly adjusted to new situations and the basis for its calculation and application is clearly for the benefit of the producer. [267]

The agricultural reforms have also been undertaken from the early 1980s to the mid-1990s. Two waves of reforms took place in the early to mid-1980s as discussed under government interventions where subsidies on inputs were cut back and domestic trading of inputs was liberalised.

3.14 Evolution in jute production and manufacturing

3.14.1 Patterns in Economic evolution

Bangladesh is an agricultural country with some three-fifths of the population engaged in farming. Jute and tea are the principal sources of earning foreign exchange.
Major impediments to their growth occur due to:

- frequent cyclones and floods,
- State-owned enterprises,
- inadequate port facilities,
- a rapidly growing labour force that cannot be absorbed in agriculture,
- delays in exploiting energy resources (natural gas),
- Insufficient power supplies and slow implementation of economic reforms.

Historical evolution
Right from the beginning, Calcutta appeared to be a strong competitor of Dundee and successfully penetrated into Dundee's hessian market in many parts of the world, including America, primarily because Calcutta had the cost advantage in producing jute goods. Secondly, it was situated in close proximity to the jute growing districts of Eastern Bengal and Assam. Thirdly, it had cheap labour. Fourthly, the mills ran for 15 to 16 hours, and sometimes even for 22 hours daily. This led to a clear advantage of Calcutta manufacturers in monetary terms. [268]

Exports of jute and jute goods were the two most important sources of foreign exchange of Pakistan during the 1960s. However, both share and importance of jute and jute goods in manufacturing, export and overall foreign exchange earnings, and the Gross Domestic Product (GDP) have gradually declined over time. The sector currently accounts for a more 3.9 per cent of the country's total export, which is of extremely low significance when compared to its contribution in the overall export observed during the1970s (89.9 per cent in 1973). The ascendancy of the export-oriented readymade garments (RMG) was a major reason. However, this was also the result of successive policies pursued by Bangladesh alongside decline in the demand for jute goods in both domestic and international markets over time.[269]

[265] Ibid
[266] Ibid
[267] Ibid
[268] BJMC Official Website
[269] *Jute Manufacturing Sector of Bangladesh Challenges, Opportunities and Policy Options,* Occasional Paper 78 by Khondaker Golam Moazzem, Md. Tariqur Rahman and Abdus Sobhan, **Centre for Policy Dialogue (CPD)**

Economic Efficiency

Since financial indicators can provide ambiguous indicators of economic efficiency particularly for public enterprises, the domestic resource cost (DRC) of foreign exchange must be estimated in order to measure economic efficiency of the production process in selected firms and industries in the public sector (as postulated in the 1978 WB report). [270]

To this end, data have been collected by questionnaire supplied to the public sector corporations by the WB project. These data are used to estimate three different DRCs: (i) the financial DRC; (ii) the economic DRC; and (iii) the incremental DRC. [271] The first value comes from using directly the financial costs of the firms and is merely the total domestic cost (net of taxes and duties) divided by the net foreign exchange earned or saved. It uses actual prices paid ignoring distortions, shadow costs, etc. Capital costs were assumed to be covered by the depreciation plus interest charges divided between foreign and domestic costs. The economic DRC measures this ratio using economic or real rather than financial costs. The incremental DRC ignores fixed costs (i.e., capital) and calculates the DRC using the other economic variables. The following table gives the DRC for jute as of financial year 1977.

Figure 21: Domestic Resource Cost (FY 1977)

Industry	Financial DRC (Tk/$)	Economic DRC (Tk/$)	Incremental DRC (Tk/$)
JUTE[/b] TEXTILES			
1. Hessian			
(a) Industry Average	27.0	53.2	16.6
(b) Good Mill	14.8	12.7	11.1
(c) Bad Mill	66.4	45.0	25.5
2. Sacking			
(a) Industry Average	22.7	39.2	15.8
(b) Good Mill	13.0	11.6	10.4
(c) Bad Mill	25.0	20.9	14.9
3. Carpet Backing			
(a) Industry Average	30.8	397.0	14.3
(b) Good Mill	23.7	108.2	12.1
(c) Bad Mill	123.1	NEG	14.5

More recently, between 2002 and 2007, total domestic production has increased by 5.7 per cent, which indicates an annual rise of about 1.14 per cent (Table 23). Considering the growth of the manufacturing sector of the country during the same period (8.1 per cent), performance of the jute mills was not satisfactory. The increase in total production, however, was due to substantial growth in the production of yarn/twine (8.1 per cent per year). Then again production of conventional products such as hessian, sacking and CBC declined during the period under consideration (-5.28 per cent, -2.81 per cent, and -5.15 per cent per year respectively), and their shares in the overall product basket have also declined during this period, which corroborates the national figures of growth in production of jute goods. Production of diversified products, though a small share in overall products, achieved a considerable increase of 24.3 per cent per year, particularly in the private sector (Table 24). During this period, average production of BJMC and BJMA mills declined by 43 per cent and 6 per cent respectively (Table 25). BJSA mills achieved a growth of 22.9 per cent. Thus, spinning mills that produce yarn and twine, performed very well during this period, and it is important to identify the factors that were responsible for their growth.

[270] 'Bangladesh Issues and Prospects for Industrial Development'. World Bank Report No 2191-BD, Vol I - Main Report. Dec. 5, 1978. Industrial Development and Finance Division, South Asia Projects.

[271] Ibid.

BJMA mills sold their products at a higher price both in domestic (65 per cent) and international markets (55.6 per cent), compared to that of BJMC mills (54 per cent and 46 per cent respectively). BJSA mills, for their specialised product (yarn/twine), attracted relatively higher price in international market compared to other types of factories. Then again, these mills received a relatively lower price in the domestic market compared to that of BJMC and BJMA mills. It is interesting to examine why BJSA mills received relatively low price for their products in domestic market. In general, BJSA mills sold their goods at 86 per cent higher price in domestic market in 2007 compared to that in 2002, while they sold at 36 per cent higher price in international market. [272]

The rise of per unit price of jute has been partly explained by domestic inflation and depreciation of Taka against most of the major currencies during the comparable period; however, a major reason for the rise of prices is because of increasing price offered by buyers and retailers.

For higher GDP growth, investments in both public and private sectors need to be accelerated. The prevailing political and economic stability has greatly encouraged investment in the private sector. The trend of foreign direct investment is very encouraging.
The government is committed to market economy and has been pursuing policies for supporting and encouraging private investment. A number of measures have been taken to strengthen the planning system and intensify reforms in the financial sector. The present government believes that **the wastage of resources is a far greater obstacle to development than inadequacy of resources.**[273]

3.14.2 Patterns in Technological evolution

3.14.2.1 Machinery Used in Different Factories

On the average, there were 403 looms in operation in a BJMC mill, which was more than double the number that were in operation in a private sector jute mill (191 looms). Large scale BJMC mills are operated with 745 looms.6 Average market value of machineries in a BJMC mill in 2007 was Tk. 54.7 crore, while that of a BJMA mill was less than half the amount at Tk. 16.93 crore. Thus, it was to be expected that BJMC mills with their relatively large size of capital would be able to produce more goods comparedto the mills under the private sector.

BJSA mills usually had relatively less number of machineries, mainly because operation of these mills ended in the mid-stage of the production chain (i.e. in the spinning stage). Hence, these mills used relatively lower number of workers compared to other mills.

Nature of operation in a spinning mill is not significantly different from composite mills where hessian, sacking and CBC are produced. However, in order to ensure quality of output, use of raw materials and some other applied techniques are different in those composite mills.

It was found through the survey that both public and private sector jute mills were operating with machines that were installed during the 1960s and 1970s. Most of the mills established in the 1980s, 1990s and after 2000 have used machineries which were used earlier by BJMC and BJMA mills. It was found that a number of factories established after 2005 used machineries that were used in the Adamjee Jute Mills. This indicates that machineries which are not being used for various reasons in public and private sector jute mills can be easily made operationable with a minimum cost for repairing. A large amount of investment is not required to serve this purpose. Some of the jute mills have started to use new machineries (but in a very small way) in order to enhance productivity and to produce acceptable output which meets the quality standards. [274]

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[272] *Manufacturing Sector of Bangladesh Challenges, Opportunities and Policy Options,* Occasional Paper 78 by Khondaker Golam Moazzem, Md. Tariqur Rahman and Abdus Sobhan, **Centre for Policy Dialogue (CPD).**

[273] http://www.bjmc.gov.bd/

[274] *Manufacturing Sector of Bangladesh Challenges, Opportunities and Policy Options,* Occasional Paper 78 by Khondaker Golam Moazzem, Md. Tariqur Rahman and Abdus Sobhan, **Centre for Policy Dialogue (CPD).**

Thus, on the whole, balancing and modernization programs have been established for jute. In this sector and others, production is well below nominal capacity and the reasons for the same include poor state of equipment suffering from inadequate supplies of spare parts, lack of maintenance programs and shortage of skilled labour and management. [275]

3.14.2.2 Capacity Utilisation

Total number of looms in sample jute mills declined between 2002 and 2007. Number of looms operated in 2002 was 328, which fell to 265 in 2007. Use of looms in public sector jute mills has declined by 12 per cent, while in private sector jute mills by 11 per cent. Low level usage of machineries in public and private sector jute mills partly explains the reduction of production in those mills.
It was evident from the survey that a significant portion of the mill capacity remains unutilised. This was true for all sections of public and private sector jute mills. Capacity utilisation is relatively low in public sector jute mills compared to that in the private sector. More importantly, rate of capacity utilisation in most sections declined substantially in BJMC mills during 2002-2007. Interestingly, private sector jute mills in the same period have enabled the use of productive capacity in some sections; while others in capacity utilisation has declined, though not to the same extent as in the public sector mills. [276]

3.14.2.3 Productivity of Capital

An examination of the other aspects of technologies such as productivity of capital, i.e. output per unit of machine, reveals a mixed scenario. In case of public sector jute mills, machine-productivity declined in all major sections of operations, except in weaving and calendaring. On the other hand, machine-productivity increased in the private sector jute mills, particularly in softener, spinning, winding and weaving. This implies that machine-productivity fell for both public and private sector jute mills by 1 to 2 per cent in the sections of preparatory works before spinning (such as in softening, spreading, carding, drawing). Maximum machine-productivity (10 per cent) deteriorated in the calendaring section of the private sector jute mills. [277]

A decline in machine-productivity in major operation in public sector jute mills indicates technical inefficiency, which can be related to the use of raw jute, handling and maintenance of machines, time-use pattern for manufacturing goods, etc.

3.14.3 Patterns in Operations evolution

Operational inefficiency of the management appears to be responsible for the low productivity of the available machineries. Reasons for low capacity utilization vary across subsectors but also from plant to plant. These are – irregular and inefficient raw material supply, lack of demand, equipment breakdown and poor maintenance, insufficient labour training and migration to the Middle East, administrative delays linked to excessive centralization, frequent power cuts, inadequate transportation, lack of working capital and space and so on. [278]

Procurement of the required amount of desired quality raw jute is the most important activity for jute mills at the initial phase. A total of 1.45 lakh maund raw jute is procured by an average mill. Raw jute procured by a spinning mill is relatively higher since they used more jute for manufacturing export quality yarn/twine.

It is generally claimed that BJMC mills were unable to procure jute in sufficient amount in the harvesting season due to inadequate funds. Survey showed that there were no wide variations in terms of time of

[275] 'Bangladesh Issues and Prospects for Industrial Development'. World Bank Report No 2191-BD, Vol I - Main Report. Dec. 5, 1978. Industrial Development and Finance Division, South Asia Projects.

[276] Ibid
[277] Ibid

[278] 'Bangladesh Issues and Prospects for Industrial Development'. World Bank Report No 2191-BD, Vol I - Main Report. Dec. 5, 1978. Industrial Development and Finance Division, South Asia Projects.

procurement among BJMC, BJMA and BJSA mills. One possible explanation of similar pattern of jute procurement of all types of jute mills is that most of these mills usually tend to depend on various sources of working capital, which includes government (mainly for BJMC mills), financial institutions, own capital and suppliers credit, etc.[279]

It is somewhat alarming that because of such huge amount of outstanding loans both public and private sectors were required to pay a large amount of interests, which added to their cost of production, and consequently, made the operation of the jute mills less profitable and often incurring huge losses.

3.14.4 Organization

Each corporation was managed by a Board of Directors which consisted of the chairman (the Chief Executive) and usually five directors responsible for: finance, production, marketing, planning, research and quality control. The government appointed this Board without any term although in practice, chairman was changed frequently which the directors tended to remain for longer. The WB report (1978) recommended that the chairmen remain in their posts for at least 3 years such that they get enough time to play a more effective role. In most cases, each plant was directly controlled by the corporation and especially in the case of Forest, Jute and Textile Corporations; zonal officers were appointed who had to take care of data collection and served as a contact point between the mill and corporation's head office. Because decision-making was a problem for the head office directors to look at the administration of dozens of mills, the Jute Mills Corporation decided to establish a board of Directors for each plant. [280] Under the 'Rules of Business'; greater autonomy was given to the management as compared to the government. Yet, progress was still needed in personnel management and capacity to incur local expenditures such purchase of raw material etc. These rules have also been suggested to emphasise on performance accountability and incentive enhancement.

3.14.4.1 Patterns in Workers' evolution

Jute manufacturing is a labour intensive sector. Since the entire operation of a jute mill I carried out within an integrated system, a minimum number of workers are always required in every section of the mill.

BJMC mills are over burdened by excess workers. Total number of workers in public sector jute mills is more than double the amount when compared to that in private sector jute mills. Besides, BJMC mills are burdened by paying about 100 per cent higher wage for workers, than the private sector jute mills. Thus, rationalisation of workers in terms of size in the BJMC mills needs immediate attention.[281] It may therefore be inferred that because of a large part of inoperative machineries in the BJMC mills, many workers, who are employed as "permanent" workers in these mills, remain underutilised or unutilised.

Yet, the percentage of people employed in textile decreased from 64% of the total labour force covered in the census of manufacturing Industries in FY 70 to 60.6% in FY 76. The proportion of other intermediate workers in capital goods has increased in proportion to their share of output. [282]

As per the WB report of 1978, there has been a major problem in worker incentivization. Bangladesh's traditional system, a characteristic of South Asia employs permanent workers supplemented by occasional labourers who fill-in in the absence of permanent ones. Several bonuses granted to all workers are just a supplement to wages and are not incentives for individual workers and as a result, absenteeism has been a

[279] *Manufacturing Sector of Bangladesh Challenges, Opportunities and Policy Options,* Occasional Paper 78 by Khondaker Golam Moazzem, Md. Tariqur Rahman and Abdus Sobhan, **Centre for Policy Dialogue (CPD).**

[280] 'Bangladesh Issues and Prospects for Industrial Development'. World Bank Report No 2191-BD, Vol I – Main Report. Dec. 5, 1978. Industrial Development and Finance Division, South Asia Projects, Pp. 13

[281] Ibid

[282] 'Bangladesh Issues and Prospects for Industrial Development'. World Bank Report No 2191-BD, Vol I – Main Report. Dec. 5, 1978. Industrial Development and Finance Division, South Asia Projects, Pp. 13

major problem in many enterprises, especially during planting and harvesting seasons when many permanent as well as temporary ones leave to work on farms where they could earn twice as much as mills could pay. [283]

While labour unrest was a source of considerable disruption in production in the first year after independence, these reduced in the following years, especially after the political changes of 1975 and the passing of Industrial Relations Regulations Ordinance, Dec 1975 which brought about improvement in industrial relations.[284] However, in the textiles sector, labour problems continued and reduced about 30% of the mills' efficiency.

There were six major national labour federations linked to political parties of which jute and textile mills had sectoral branches with enterprise unions, at the level of which trade union activities took place. [285]Collective bargaining was widely practiced on issues of bonuses, social benefits and others reflecting a growing communication between labour and management.

Since workers in BJMC mills were appointed as "permanent," while workers in BJMA mills were appointed on a "contract" basis. Besides, the structure of wage is different between public and private sector jute mills, which would have direct impact on productivity, cost and overall earnings of the mill. It is important to note here that since majority of the workers were skilled to a certain degree, they can be utilised fully if the operation of all installed looms could be ensured. Number of workers who are not engaged directly in production was also very high in the public sector jute mills. The excess of workers in the public sector jute mills is possibly because of recruitment of more than required number of workers during different regimes under political considerations or as a result of pressure from the trade unions.

Since BJMC mills were unable to employ the workforce adequately, their overall production was relatively lower than others. Output per worker, which is a proxy variable of labour productivity, was found to be only half in a BJMC mill compared to that in a BJMA mill. On the other hand, labour productivity in a BJSA mill was almost 3 times higher compared to that of a BJMC jute mill. This indicates the low level of productivity of the workers in a public sector jute mill. [286]

3.14.4.2 Patterns in Managerial evolution

The basic cause of low production efficiency and high costs in the jute industry had been the poor management of mills marked by inexperienced managers, shortage of skilled workers, irregular power supply, lack of incentives and performance monitoring mechanisms, bureaucratic rigidities in decision-making etc. [287]
Operational efficiency of jute mills comes through examining efficiency of the management which further depends on the manager's duration of experience and service in a particular jute mill, level of understanding of different critical issues and level of performance in terms of way of execution of various activities.

Managers working in public sector jute mills were found to be working only for a short period of time (not more than six years), while managers working in private sector jute mills, especially in BJMA mills, tended to work for longer periods of duration (between 10 and 20 years). Long term employment in a mill allowed better understanding of the operations in a particular mill and also added to its efficiency, which was difficult to achieve during short term tenures in public sector mills.[288]

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[283] 'Bangladesh Issues and Prospects for Industrial Development'. World Bank Report No 2191-BD, Vol I – Main Report. Dec. 5, 1978. Industrial Development and Finance Division, South Asia Projects.

[284] Ibid

[285] Ibid

[286] *Manufacturing Sector of Bangladesh Challenges, Opportunities and Policy Options,* Occasional Paper 78 by Khondaker Golam Moazzem, Md. Tariqur Rahman and Abdus Sobhan, **Centre for Policy Dialogue (CPD).**

[287] 'Bangladesh Issues and Prospects for Industrial Development'. World Bank Report No 2191-BD, Vol II. Dec. 5, 1978. Industrial Development and Finance Division, South Asia Projects.

[288] *Manufacturing Sector of Bangladesh Challenges, Opportunities and Policy Options,* Occasional Paper 78 by Khondaker Golam Moazzem, Md. Tariqur Rahman and Abdus Sobhan, **Centre for Policy Dialogue (CPD).**

Thus, efficiency of management in public sector jute mills was found to be lacking. Since most of the management personnel in public sector jute mills worked for a short period of time in a particular mill, they did not have the time to familiarise themselves with the nitty-gritty of a specific mill. Private sector jute mills are operated by management personnel who work in the same mill for a longer period of time. Performance level of management personnel (as judged by their superiors) was found to be lacking in the case of public sector jute mills compared to the private ones. It was found in the course of the survey that poor management is one of the major weaknesses in the jute sector which subsequently aggravated performances in other areas such as technical, operational, productivity and efficiency. [289]

3.14.4.3 Patterns in Financial evolution

Most of the jute mills have been experiencing poor financial conditions for a large part of the time since Bangladesh's independence in 1971. According to the World Bank (1986), jute mills were profitably operated by the pre-independence regime, when financial profit per unit of manufacturing hessian product was Tk. 4,977; however, when considering the other economic costs such as subsidy and fiscal incentives, overall economic profit can be considered to be negative (-Tk. 1,545) (Table 4). In the following years, both financial and economic profits of jute mills have continued to decrease. According to the BJMA, private jute mills suffered a loss of Tk. 7,420 for manufacturing one MT of hessian in 1988, which marginally declined to Tk. 6,640 during 1996-97. Similarly, BJMC mills had a negative profit of Tk. 5,184 from manufacturing of one MT of hessian product in 1988, while the loss further increased to reach Tk. 11,075 during 1994-95.[290]

The optimism generated by the high level of exports achieved in FY 78 could not offset against the losses of approximately Tk 550 mn (without subsidies) which BJMC incurred during this period, despite favourable export prices for jute goods. The financial viability of this industry thus, needed to be restored quickly through improved production efficiency as well as low costs of raw jute. [291]

Even more recently, price of raw jute increased by about 30 per cent between 2002 and 2007, coupled with escalated cost of production as well. The rise in price can be also related with the high inflation in domestic market. High procurement price of raw jute would encourage farmers to produce jute in the country, although given the food security situation this will need to be viewed in the context of procurement price of rice and seasonality factors.

In the case of procurement of raw jute, jute mills were found to be heavily in debt. Survey revealed that jute mills, both in private and public sectors, suffered from large debt burden. Often it is difficult for mills to repay their debts because of lack of sufficient net income from their current transactions. Because of huge debt burden, with large amount of long overdue loans, it is difficult for mills to repay those debts which have consequently left those mills financially weak.[292]

3.14.5 Production Cost

Production cost of jute mills comprised of cost of raw materials, wages and salaries, repair and maintenance, fuel, depreciation, interest on current loan, insurance and other charges, etc. Major expenditure were cost of raw jute and workers' wages, which constituted about 60-70 per cent of total production. Cost of production of BJMC mills was substantially higher than was the case with BJMA and BJSA mills.

In case of manufacturing CBC products, cost of production in BJMC mills was about 100 per cent higher than other types of mills. High cost in BJMC mills was largely because of high expenditure on account of workers'

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[289] Ibid

[290] *Manufacturing Sector of Bangladesh Challenges, Opportunities and Policy Options,* Occasional Paper 78 by Khondaker Golam Moazzem, Md. Tariqur Rahman and Abdus Sobhan, **Centre for Policy Dialogue (CPD).**

[291] 'Bangladesh Issues and Prospects for Industrial Development'. World Bank Report No 2191-BD, Vol II. Dec. 5, 1978. Industrial Development and Finance Division, South Asia Projects.

[292] Ibid

salary, interest payment of large amount of outstanding loan, and high cost for repair and maintenance. It is interesting to note here that in spite of the high expenditure on repair and maintenance in BJMC mills compared to that of BJMA/BJSA mills, productivity of machines in BJMC mills was found to be lower than other mills.

3.14.5.1 Gross Revenue

Gross revenue of jute mills comprised of earnings from sale proceeds cash incentives, in export and domestic markets, and others. Jute manufacturers in general received 7.5 per cent of their export earnings through cash incentives.

Public sector mills earned relatively less for most of their products both in the domestic and international markets except sacking (in the domestic market). As noted earlier, this is related to the markets that are targeted for selling the products, which in BJMC's case was mostly in Asian and African markets where price tended to be relatively low. Also, instead of directly exporting to the retailers most of the BJMC's products were exported through local buying agents and international buying houses. As a result, their products attracted relatively low price compared to that of the BJMA or the BJSA products. Another important aspect is that price of output is related to the quality of the product, which, according to jute experts, are low for BJMC products. It appeared during the survey that private jute mills spent more to procure good quality jute, which BJMC mills did not do, as depicted in the procured price of different kinds of raw jutes by different types of jute mills.

3.14.5.2 Profit

Profit estimated for sample jute mills revealed a grim picture, especially for public sector jute mills, both in gross and net amount. In the case of gross profit where operating costs and income are considered, public sector jute mills suffered negative profits in all kinds of products (Table 43). Moreover, total amount of loss increased in BJMC mills during 2007 compared to that in 2002. On the other hand, BJMA mills earned profit in 2007 for all kinds of products they produced, especially by producing hessian products and diversified products. This was mainly because those products were sold in high-priced markets of Europe, USA and also in Asia. BJSA mills, in their specialised products, yarn and twine earned high level of profits. They also earned high amount of profit in manufacturing diversified products. It could be inferred from the above analysis that production of diversified products ensured high returns.

Figure 22: Gross Profit for Manufacturing Jute Goods

(Tk. per MT)

	Hessian		Sackings		CBC	
	BJMC	BJMA	BJMC	BJMA	BJMC	BJMA
1965-70	4977					
1973-75	-2007					
1975-80	-1887					
1980-85	-582					
1987-88	-5184	-7420	-4413	-3971	-8226	-4390
1988-89	-5710	-8742	-4885	-5923	-9546	-10023
1989-90	-9971	-7773	-6895	-5283	-13623	-10664
1990-91	-11303	-9678	-9877	-6649	-19439	-12058
1991-92	-16917	-11052	-12141	-8074	-15599	-10508
1992-93	-19340	-26575	-11108	-17463	-17642	-20941
1993-94	-20828	-20454	-12412	-8609	-20632	-14569
1994-95	-11075	-10764	-8883	-7137	-12639	-10808
1995-96		-8585		-7209		-12690
1996-97		-6640		-4339		-10348

Source: World Bank Report 1986; BJMA.

Figure 23: Exhibit

Table 3.2: NET PROFITS OF SECTOR CORPORATIONS /a
(Tk million)

Corporation	FY73	FY74	FY75	FY76	FY77
BJMC	-325	-332	-239	-285	-525
	(-18.5)	(-20.0)	(-11.6)	(-9.6)	(-17.8)
BTMC	100	163	123	27	-132
	(13.0)	(12.6)	(8.3)	(1.4)	(-7.5)
BCIC	-42	3	-327	-233	149
	(-8.5)	(0.4)	(-37.2)	(-17.1)	(8.1)
BSEC	-19	48	121	118	76
	(-5.4)	(8.2)	(13.3)	(9.7)	(5.3)
BSFIC	-6	105	93	7	51
	(-1.9)	(17.8)	(9.6)	(0.5)	(3.6)
BFIDC	44	26	20	-12	-4
	(44.2)	(26.3)	(19.9)	(-11.7)	(-3.6)
Total	-249	13	-207	-377	-385
	(-7.1)	(0.3)	(-2.2)	(-4.3)	(-4.1)
Total (excluding BJMC)	76	345	32	-93	140
	(3.9)	(10.5)	(0.7)	(-1.6)	(2.1)

/a Figures in parentheses are net profits as percentages of sales.

Source: Sector Corporations.

Public sector corporations including jute industries thus incurred heavy losses since independence. Despite total taxes and duties collected by the government exceeded these losses, these corporations were a net drain on the budget and the cost of capital was never fully covered. [293]

Among the various corporations, the jute industry (BJMC) suffered largest losses to the extent that the average ratio of net profits over sales in FY 77 increased from -4.1% to +2.1% by excluding BJMC from the total. Financial difficulties suffered by BJMC as well as BTMC were analysed in recent WB reports.[294] Export prices of jute had to be maintained at relatively low levels in view of stiff competition from synthetic substitutes and even other jute goods manufacturers, and the cost of production remained high due to poor maintenance of machinery and inefficient management especially in raw jute purchasing. [295]

3.15 Structural adjustment of the 90s and 2000s

The agricultural policy reforms and structural changes in Bangladesh from independence to the present times have undergone great changes. Bangladesh agriculture has experienced major structural changes and achieved major successes over the last three and a half decades.

In order to correct these structural problems affecting the jute industry, an action program was suggested by the World Bank report, 1978, encompassing various measures in areas of spare part maintenance, inventory control, financial reporting, management and export marketing to be initiated in the context of IDA Import Program Credits. [296]

[293] 'Bangladesh Issues and Prospects for Industrial Development'. World Bank Report No 2191-BD, Vol I – Main Report. Dec. 5, 1978. Industrial Development and Finance Division, South Asia Projects.

[294] Ibid

[295] Ibid

[296] 'Bangladesh Issues and Prospects for Industrial Development'. World Bank Report No 2191-BD, Vol II. Dec. 5, 1978. Industrial Development and Finance Division, South Asia Projects

Reforms began in the late 1970s and early 1980s by liberalizing the input markets. Both domestic and trade policy got a vibration of liberalization in the early 1990s. After the independence, Bangladesh followed a highly restrictive trade and exchange rate policy characterized by import regulations, high import tariffs, export taxes, persistent quantitative restrictions and an overvalued exchange rate. With a decade long half-hearted attempt towards trade liberalization, the democratic government in 1991 took courageous steps towards reforming the trade regime. Reforms instigated during this period included reducing and compressing tariffs, implementing and publishing a less complicated import tax structure, gradually eliminating non-tariff import restrictions, and promoting exports through income tax exemptions, bonded warehousing, and flexible exchange rate management. The recent Import-Export Policy 2009-2012 is a major step to the continuation of the liberalization of international trade.[297]

These reforms began in the early 80s, leading to partial reversal of this nationalization policy when over 50 percent of the mills (35 out of 66) under BJMC were privatized. Notwithstanding this change, market forces were still not allowed to guide the operation of the mills and both public and private sector mills remained mired in large financial losses. [298]

Then in the 90s, the government focused again on the jute sector problems through a restructuring program in order to create a commercially viable jute industry. Supported by the World Bank's Jute Sector Adjustment Credit (JSAC), the government put together a Jute Sector Restructuring Program (JSRP) in 1993 to rationalize the cost structure in the jute industry and to introduce mechanisms through which financial discipline and accountability could be established. The measures under the program included closing the worst performing mills (9 out of 29) and downsizing two large public mills, privatization of at least 18 of the remaining 20 public mills, retrenching 45 percent of labor force, and debt restructuring of about Tk.35 billion (roughly US$900 million). [299] For the retrenched workers the JSRP had a safety net program, which included separation benefits varying between $2,600 and $13,000 depending on the years of service, and re-training. All the 20,000 retrenched workers got the separation benefits, but the retraining program failed to attract their participation. [300]

It was anticipated that at the completion of the reform program, most of the jute mills would be in private hands, however, political instability in the following years stalled the reforms. Debt restructuring, loss financing and labour retrenchment were implemented but closure and privatization of jute mills were put in abeyance. [301] There was an unintended and adverse shift in production from the relatively more efficient private mills to less efficient public mills largely because of the creation of an uneven playing field for private mills. BJMC's access to budgetary funds as well as a guarantee of loss financing for several years allowed it to under-price its products, making it harder for private mills to compete. [302] The poor financial performance of jute mills thus continues to be a major concern. Today BJMC is the second largest loss maker among public sector manufacturing enterprises, with annual losses of Tk.2.3 billion, accounting for over 50 percent of total manufacturing SOE losses in FY2006.

Recent reforms

In 2002, jute sector reforms got a new lease of life with the closure of Adamjee Jute Mills (AJM) as mentioned elsewhere. This alone led to a decrease in BJMC's losses from Tk.3.9 billion in FY2002 to

[297] Hasan, Mohammad Monirul. 2012. *Agricultural Policy Reforms and Structural Adjustments in Bangladesh.*

[298] *Bangladesh Jute Industry: Time to Rise to the Occasion* (Op-ed), The World Bank, Official Website.

[299] Ibid
[300] Ibid
[301] Ibid
[302] Ibid

Tk.2.1 billion in FY2003. It also led to an increase in BJMC's productivity, which jumped from roughly Tk. 25,000 per employee in FY2001 to Tk. 39,000 per employee in FY2003. [303] The conversion of Adamjee into an Export Processing Zone (AEPZ) in 2006 is a landmark in the country's economic management and industrial development history and all developed plots have been allocated to both local and foreign companies and as of January 2007, industries in operation have created direct employment for 34,000 people. Once fully operational, AEPZ is estimated to employ 70,000 people since the closure of AJM resulted in loss of 25,000 permanent jobs and 5,000 temporary jobs. [304]

Closure of public mills has resulted in growth of private mills, particularly in northern Bangladesh, a jute growing area, where industrialization is much needed, five small mills have been set up in the Greater Rangpur area, mostly with old machinery of closed public mills. Investment in these five mills has been around Tk.1 billion (US$14 million) and they provide employment for around 3,000 workers, producing about 40 tons of jute bags and fibre daily. Three more mills are also expected to be established in the northern districts shortly, which will provide employment for an additional 5,000 people. [305]

Success of the private sector

Contrary to the performance of the public mills, there has been a private resurgence in the jute sector represented in the Bangladesh Jute Spinners Association (BJSA). Their members are engaged in the production of profitable yarn and twine and with the growth of the wholly private spinning sub-sector, there are now 118 privately-owned mills in the jute sector. [306]
The deteriorating performance of BJMC mills did not have an unfavourable effect on the total production of jute, which has remained relatively stable between 500,000 to 600,000 metric tons. Instead, there has been major product re-orientation: from traditional products such as hessian, sacking and CBC, to yarn and twine. The share of traditional products in total production has fallen from 80 percent in the early 90s to 45 percent in FY2006, with yarn/twine now making up more than half of total production. Since FY2000, export earnings of the spinning sector have grown at an average 12 percent annually and account for 60 percent of export earnings (US$180 million) from jute goods. [307]

3.16 Opportunity cost in jute sector

Opportunity cost in the sector is the investment and labour inputs in other important and high yielding sectors of Bangladesh such as cultivation of other cash and food crops like tea, rice etc. Similarly in the manufacturing sector, Readymade Garments industry is gives cut throat competition to the jute sector and overtook the jute sector in the past decades. Finally production and trade of jute substitutes like synthetic fibres also offer huge opportunity costs to the jute sector.

The opportunity cost of not cultivating jute may be keeping the land fallow. In highland rain-fed areas, jute is a competing crop. The labour component in jute cultivation accounts for nearly 70% cost of cultivation. This provides gainful employment to family labour for a couple of months in a year. This is substantial contribution t employment and income of large number of families in jute growing countries, however the nature of labour-intensive agriculture often creates the problem of costly labour in the near future. [308]

[303] Ibid
[304] Ibid
[305] Ibid
[306] Ibid
[307] Ibid
[308] Roul Chhabilendra, 2009. *The International Jute Commodity System*. Published by Northern Book Centre.

An important question is about justifiable subsidy or of closure, which requires a careful analysis of social costs and benefits of continued operations. While analyzing public sector firms in the context of an industrial strategy, special attention must be paid to analysing social efficiency and their contribution should be estimated in social opportunity cost terms and not on purely financial terms. [309]

3.16.1 Changes of production and trading capabilities

Rapid growth of manufactured exports achieved through active government promotion by way of appropriate export incentive schemes and of course an effective institutional framework requires few pre-conditions such as; presence of reasonably well developed industrial base, availability of well disciplined labour force at relatively low costs, existence of fairly experienced entrepreneurial community, and, use of liberal import regime of raw material, intermediate goods and capital. [310] Bangladesh qualifies many of these pre-conditions as evaluated by the WB reports, in the light of presence of medium and large scale industries, intermediate, capital and of course consumer goods and cottage industries. It also has a well developed industrial base with a pool of experienced businessmen and managers. The major shortcomings however, are low efficiency due to factors like focus on domestic markets marked by rigid import controls and protection from competition.

Performance of the public enterprises has been hampered by factors like lack of appropriate incentives, lack of autonomy and performance monitoring mechanisms. Moreover, since exporting is highly competitive, private players tend to perform better public enterprises characterised by bureaucratic rigidities and this is one of the major reasons for the poor performance of the Bangladeshi jute sector, dominated by public enterprises. [311]Foreign investment (which can contribute expertise in export marketing and product development) could also play a catalytic role in export development in Bangladesh.

As found, throughout the 1960s, employment and the value added per worker increased by more than 50% while the average real wages almost remained constant and in the 70s, productivity fell while the employment and capital stock increased (capacity utilization fell to about 49% in FY 73).[312] While at independence, Bangladesh undertook an industrial policy framework focusing on controls of all kinds, including licensing and bureaucratic allocations, the ownership structures transformed dramatically with sectors, majorly jute getting wholly nationalized.

Export development incentives as mentioned elsewhere include export performance licences, rebate of indirect taxes, income tax reduction on export earning, direct subsidies to the jute sector, and reduced financial charges for exporters. Its link with the effective exchange rates has been established which can elicit response in exports growth. Constraints include lack of public sector response to financial incentives, structural problems among small private exporters, lack of know-how and poor knowledge of product alternatives as well as uncertain investment climate. [313]

Political circumstances too, play a major role in determining the achievements of this ideal trade and industrial strategy, since political instability, can greatly affect production and impact foreign trade relations (as we can see till date in Bangladesh even after over four decades). Major policy decisions pertaining to management, operation costs, maintenance, closure, disinvestment, market and pricing, all have major implications affecting programs of production, pricing, sales and investment targets which cannot be ignored.

These trends need to be mapped and analysed, and the present and potential expected returns on incremental investment etc. should be estimated. Coming up with alternative production patterns (which includes an operations-based value-chain framework we are working on) is the need of the hour along with a program attacking managerial problems and even establishing a task-force to ensure smooth functioning if required.

[309] 'Bangladesh Issues and Prospects for Industrial Development'. World Bank Report No 2191-BD, Vol I - Main Report. Dec. 5, 1978. Industrial Development and Finance Division, South Asia Projects.

[310] Ibid
[311] Ibid
[312] Ibid
[313] Ibid

Bank's possible assistance as suggested in the WB reports include providing efficiency of public enterprises in more complex areas such as integration with agro-business industries, technical assistance, development of export strategies, strengthening tariff Commission, etc.[314]

The following guidelines have been provided by the Strategic Plan (2011-2016) Ministry of textiles, GOI February 2011, under sector specific policy recommendations for jute which can be quite relevant to the Bangladeshi jute context too. These are as follows:

1. To ensure higher productivity of raw jute and establish sound supply chain to provider remunerative prices to jute growers through

(a) Distribution of certified jute seeds at subsidized prices lower than uncertified seeds to make use of quality seeds habit of the farmers and
(b) Establishment and running of jute farmers' information and training centers to disseminate information regarding improved organic practices, adoption of scientific retting practices, market prices and future trends of markets etc. and training farmers regarding measuring moisture content of jute and grading of raw jute.

2. To promote modernization of jute industry

(a) Development and commercialization of modern machinery and process,
(b) Supporting the modernization by providing subsidy on capital investment,
(c) Implementing workers' welfare schemes to secure better working conditions and improvement in amenities and incentives for workers engaged in jute industry, and
(d) Ensuring total quality management (TQM) and productivity improvement, economic energy consumption and elimination of wastage in jute production processes.

3. Product development, diversification and promotion of avenues for innovative uses of jute products:

(a) Sponsoring, assisting, coordinating scientific, technological and economic research related to materials, equipment, methods of production, product development including development of new materials, equipment and methods in use in the jute industry,
(b) Providing and creating necessary infrastructural facilities and conditions conducive to the development of diversified jute products by assisting entrepreneurs, artisans, craftsmen, designers, manufacturers, exporters and non governmental agencies etc,
(c) Increasing use of jute in technical textiles specifically for use of jute geo-textiles in civil engineering, irrigation tank lining, agro-textile applications and in retarding soil erosion problems. Use of jute in other technical textiles like medi-tech, auto-tech etc need to be enhanced and
(d) Promoting standardization of jute products.

4. Promotion of jute products in domestic and international markets:

a. Establishment of supply chain for promotion of marketing of jute products in domestic market by (i) opening of retail outlets (ii) establishment of bulk supply depots, (iii) arrangement of buyers-sellers meets, (iv) interactive workshops, (v) participation in and organization of exhibitions fairs etc,
b. Assisting WSHGs, NGOs, artisans, other entrepreneurs in the decentralized sectors by extending market support schemes for marketing the diversified jute products produced by them.

[314] Ibid

c. Maintaining and improving existing markets and developing new market within the country and outside for jute manufacturers,
d. Conducting international market survey and devising market strategies in consonance with the demand for such manufacturers in the domestic and international markets,
e. Supporting participation of the jute exporters and entrepreneurs in international exhibitions, fairs, buyer-seller meets etc and sponsoring of Government – Industry composite business delegations to exploring new markets and renewing lost market links, extending export market development assistance to the exporting for participating in international activities.
f. Establishing international standards for jute products particularly for technical textiles like jute geo-textiles and increasing the scope of utilization of these materials in diversified applications,
g. Establishment of eco-label of jute and its disposal protocol in international consuming countries, and
h. Promoting or undertaking the collection and formulation of statistics of jute industry.

5. Completion of the implementation of Jute Technology Mission and Way Forward:

(a) National Jute Board is responsible for the implementation of Jute Technology Mission which co-terminates with the 11th five year plan on 31st March 2012.It proposed to be extended by two more years ie up to 2012-2014 and
(b) If the JTM extension is not approved, NJB will continue to implement the schemes from its own fund as these are result oriented and their continuation till 2016 will help to promote and develop Jute industry in achieving the desired goals.

6. Setting up and Operationalization of Jute Parks: Under Mini Mission IV of the Jute Technology Mission (JTM) 10 Jute Parks are proposed to be set up. Construction activities of the parks are to be completed within the JTM period but operationalization will take some more time and they will be commercialized by 2016.[315]

Policy Recommendations in achieving targets as given in Occasional Paper 93 published by the Centre for Policy Dialogue (*Global Market Opportunities In Export of Jute*):

New initiatives to access the potential opportunities need to be in place by pursuing a number of strategies, both short and medium term specifically for Bangladesh, for her to regain the faded position and global market. This needs to be done by increasing the market share; increasing the consumption of jute goods, both locally and internationally with better marketing and linkages with greater product and market diversification playing a key role.

Short-term strategies shall include product promotional activities, consumer awareness programmes, supporting small and medium enterprises and increasing market for traditional items. **Medium-term strategies** include removal of trade barriers, resolving disputes through for a like WTO, RTAs (Regional Trading Agreements) and other bilateral negotiations along with support in R&D. Appropriate market development strategies should be in place without underplaying the role of local markets for jute products in drawing advantages of scale economies and product development and for accessing global market share. Informed considerations of comparative advantage situations, cost-return analysis, international price and demand situation need to be proliferated among the producers of diversified products. Moreover, improved technical properties and quality needs to be in place by improving seed and fibre quality, production of HYV seeds, certification and distribution through PPPs leading to efficiency and competition and hence upgradation of technology both at the processing and manufacturing ends; incentivizing market information and research by organizing training and workshops, disseminating information and awareness about potential markets needs to be in place and; standardization and certification requirements should be known. Finally, product diversification is to be popularized and widely encouraged, jute's uses in geo-textiles and agro-textiles for soil

[315] Strategic Plan (2011-2016) Ministry of textiles, GOI February 2011

conversation, road construction, and manufacture of paper pulp; as an insulating material, automobile composite material etc. should be exploited, developed and promoted.[316]

3.16.2 Innovation in the use of Jute: Possibilities in jute and jute goods manufacturing

Encouraging research and products diversification is the need of hour. Investment needs to be made in R&D to create new and diversified applications of jute fibres. Intervention is important regarding the product design to meet international requirements. Enormous potentialities for jute exist in manufacturing and exporting of technical textiles such as geo-textiles and agro-textiles. Geo-textiles are found useful for soil conservation and road construction, though this particular use is to receive recognition as a commercially viable option. Jute can also be used for erosion control of mountain slopes, road and railway slopes and canals and embankments. Jute plants can also be used to make pulp and paper which could provide 'tree-free papers.' Being an insulating material, automobile companies are also able to use jute in the automobiles as composite materials. Jute could be blended with synthetic materials, up to a certain percentage to make plastic without changing the character. It will minimise the use of petroleum products and will reduce the cost of plastics as well. These kinds of products with large potentials need to receive special focus both in terms of product development and market promotion. [317]

3.17 Genome

On 16 June 2010, Prime Minister Sheikh Hasina declared that Bangladesh successfully completed the draft genome of jute. A consortium of researchers from University of Dhaka, Bangladesh Jute Research Institute (BJRI) and private software firm DataSoft Systems Bangladesh Ltd. in collaboration with Centre for Chemical Biology, University of Science Malaysia and University of Hawaii were involved in this project. [318]

3.18 Bangladesh Jute at a Glance

1.	Average land area under jute cultivation	:	12.35 Lac acres
2.	Average production of jute carryover	:	58 Lac bales (1.04 Million Ton.) 3 " (0.05 Million Ton.) **61 Lac bales (1.09 Million Ton)**
3.	Average internal consumption of jute	:	38 Lac bales (0.68 Million Ton)
4.	Average Export of raw jute with value		Quantity | Value 21.00 Lac bales (0.37 Million Ton 1000 Cr. Tk.
5.	Number of jute Mills:	:	Under BJSA 81 Under BJMA 97 Under BJMC 27 **TOTAL : 205 UNITS**

[316] *Global Market Opportunities In Export Of Jute*, Occasional Paper: 93 by Mustafizur Rahman and Nafisa Khaled, **Centre for Policy Dialogue (CPD)**

[317] Ibid

[318] http://www.bjmc.gov.bd/industry-overview/jute-overview

6.	Number of workers employed in Jute Mills (Approx.)	:	BJSA Mills 55,868 BJMA Mills 39,000 BJMC Mills 61,681 **TOTAL: 1,56,549**
7.	Average production of Jute goods	:	BJSA Mills 3,60,500 M. Tons BJMA Mills 1,56,500 M. Tons BJMC Mills 1,46,000 M. Tons **TOTAL : 6,63,000 M. TONS**
8.	Average internal consumption of Jute goods	:	BJSA Mills 20,000 M. Tons (yarn/twine) BJMA Mills 48,000 M. Tons (sacking/hessain) BJMC Mills 21,000 M. Tons (sacking/hessain) **TOTAL : 89,000 M. TONS**
9.	Average Export of jute goods with quantity, value	:	Quantity / Value BJSA Mills 3,42,195 2014 BJMA Mills 97,160 58 BJMC Mills 96,523 537 **TOTAL : 5,35,878 3139**
10.	Spindles in Jute Spinning Mills	:	1,75,114 Installed 1,47,124 Operated
11.	Installed Looms in Jute Mills (As on 30th June 2010) BJMC: Installed Operated BJMA: Installed Operated	:	Hessian / Sacking / CBC / Others / Total 3790 / 2930 / 579 / 21 / 7320 2341 / 2930 / 513 / 21 / 5805 6532 / 5257 / 711 / 361 / 12861 1421 / 2530 / 183 / 200 / 4334

Source: BJMC Official Website

3.19 Bangladesh, South Asia, WTO, Regional Trading Mechanism and Trade Liberalization

3.19.1 Bangladesh, WTO and Trade Liberalization in Agriculture

World Trade Organization (WTO) was created in 1995. The pyramidal design of this international trading system placed multilateralism at the top of the pyramid, regionalism/bilateralism in the middle, and the domestic trade and economic policies of WTO Member States at the bottom of the pyramid[319]. Here when I talk about the regional trade agreements (RTAs), I generally refer to those agreements Concluded between countries not necessarily located in the same geographical region. More specifically it means that the parties to an RTA offer to each other, by definition, more favorable treatment in trade matters than to the rest of the world, including WTO Members[320].

RTAs can help countries integrate into the multilateral trading system, But at the same time they are a fundamental departure from the WTO principle of non-discrimination that obliges WTO Members to grant unconditionally to each other any benefit, favor, privilege, or immunity affecting customs duties, charges, rules, and procedures that they give to products originating in or destined for any other Member country. So RTAs are a fundamental departure from the WTO principle of non-discrimination because, by definition, they provide preferential treatment to the parties to the agreement[321].

3.19.2 Agricultural Trade Liberalization In South-Asia

South-Asian Region is characterized by smallholding farmer dominated agriculture system, with issues of livelihood and development staring before them on the trade track. The vulnerability of these countries is, therefore, immense.

The changes in economic policies in 1980s and early 1990s in South Asian Economies (SAEs), which include Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka, were not successful in completely reforming protectionist policies. Relatively higher tariff rates on agricultural commodities remained one of the features of trade regimes.[322] However, the institutional developments related to trade policy have paved the way to some liberalization of agricultural trade. All the SAEs, except Bhutan, are members of the WTO and their involvement in regional trading arrangements has rapidly expanded during the years following the establishment of the WTO.[323]

3.19.3 South Asia and Agriculture

Agriculture plays a unique role in South Asian economies. Though the share of agriculture in GDP has come down over the decades, it continues to employ majority of the population in all South Asian countries. In 2010, while only about 18 percent contribution to GDP came from agriculture, it provided employment to 51 percent of the population in South Asia.[324] Agriculture is thus extremely important for providing livelihood and food

[319]Rafael Leal-Arcas, "Proliferation of Regional Trade Agreements: Complementing or Supplanting Multilateralism?", 11 Chi. J. Int'l L. 597 2010-2011.

[320]Rafael Leal-Arcas, "Proliferation of Regional Trade Agreements: Complementing or Supplanting Multilateralism?", 11 Chi. J. Int'l L. 597 2010-2011. If one examines the share of international trade occurring under RTAs, one notes that already in 2005**,** around 50 percent of world trade came from RTAs, which demonstrates the quantitative relevance of RTAs in the international trading system. Moreover as of October 15, 2009, 457 regional trade agreements had been notified to the WTO; *See* also *Report of the Committee on Regional Trade Agreements to the General Council,* WTO Doc WT/Reg/20 at 1, *4* (2009).

[321] General Agreement on Tariffs and Trade (1947), Art I, 61 Stat A-11, TIAS 1700, 55 UN Treaty Ser 194.

[322] Merlinda D. Ingco, AGRICULTURE, TRADE AND WTO IN SOUTH ASIA, World Bank, Washington, 2003.

[323] Ibid, p. 23

security in these countries. Furthermore, agriculture sector also has a close economic link with other sectors of the economy mainly because South Asian countries in general have weak external economic linkages.[325]

Share of agriculture in employment is significant in most South Asian countries but the share of food exports in total merchandise exports is high for only some South Asian countries. Nonetheless, it can be argued that agricultural trade plays an important role in providing livelihood to a large number of people in South Asia. On the other hand, food imports as a share of total merchandise imports is high in all South Asian countries, except the Republic of India.[326]

Hence agricultural trade plays a significant role in ensuring food security in all these countries. Interestingly, in some countries the share of food imports in total imports and the share of food exports in total exports are both significant, indicating that agricultural trade in these countries not only provide livelihood and food security, but also determines their ability to import food.

The Islamic Republic of Afghanistan, the Republic of Maldives, the Federal Democratic Republic of Nepal, the Islamic Republic of Pakistan and the Democratic Socialist Republic of Sri Lanka fall under this category. In this context, it is important to realize that trade policy of a country can have conflicting impacts on livelihood and food security.[327]

3.19.4 Nature and Trends of Agricultural Trade in South Asia post WTO

The structural changes during 1980s and 1990s placed nonagricultural sectors of the SAEs in the driving seat of economic growth. Though the shares of agriculture in national outputs have been declining, agriculture and agricultural trade still play a very important role in the SAEs.[328] However, only India and Sri Lanka are net agricultural exporters.

The agricultural tradability indices measure the relative openness of SAEs to agricultural trade and may indicate how vulnerable a country is to liberalization of agricultural trade.[329] Maldives and Sri Lanka are more open to agricultural trade, while India is the least open among the SAEs.[330]

Historically, SAEs have been trading similar types of agricultural products and the concentration of exports into limited agricultural product groups is a common phenomenon in many SAEs. India is the most diversified economy in terms of agricultural exports and the least diversified in imports.[331] All the other SAEs show less diversity in agricultural exports while imports show a wide diversity. The export and import concentrations indicate the potential for trade increase following liberalization. In this respect, India could benefit more due to a higher diversity in exports (lesser diversity in imports) than other SAEs.[332]

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[324] Standards and Agricultural Trade in Asia – Report of the Food and Agricultural Organization (2008), Available at http://www.fao.org/uploads/media/ADBI%20standards%20agricultural%20trade%20asia.pdf

[325] Raghbendra Jha, ROUTLEDGE HANDBOOK OF SOUTH-ASIAN ECONOMICS, Routledge, Oxon, 2011.

[326] Saman Kelegama, SOUTH ASIA IN WTO, Sage Publications, New Delhi, 2009

[327] Merlinda D. Ingco, AGRICULTURE, TRADE AND WTO IN SOUTH ASIA, World Bank, Washington, 2003.

[328] Baysan, T., A. Panagariya and N. Pitigala (2006): Preferential Trading in South Asia, World Bank Policy Research Working Paper 3813, World Bank, Washington, D.C.

[329] Central Bank of Sri Lanka (2004): Central Bank Annual Report 2004, Colombo.

[330] Ibid.

[331] WTO (2004), Trade Policy Review-India, Geneva.

[332] World Bank (2004), Trade Policies in South Asia: An Overview (in three volumes) Report No. 299949, World Bank, Washington, D.C.

There is no major shift in intra-regional agricultural trade pattern but all SAEs, except Pakistan, show a remarkable growth in intra-regional agricultural trade during the past decade. With reference to the 2011 trade levels, Bangladesh has achieved the highest growth while India has established a prominent position in South Asia for its agricultural products (i.e., India is associated with 80 per cent of the regional agricultural trade – exports and imports combined).[333]

Agriculture plays an important role in providing livelihood and food security in South Asia. The sector's share in exports is reasonably high, though many of the countries are net food importers.[334] While factors like lack of complementarities, diversification of export baskets and trade facilities are important barriers to trade, supply-constraints appear to be the most important barrier despite a scope for progress in the elimination of tariff and non-tariff barriers.

In a climate change scenario, agricultural trade might improve the availability of food items. However, greater intra-regional trade will not necessarily improve the overall food security situation in South Asian countries.

3.19.5 South Asia in WTO

Historically, industrialized countries dominated trade negotiations from the establishment of the General Agreement on Tariffs and Trade (GATT) through the lengthy Uruguay Round (UR) negotiations in the 1980s and 1990s.

These negotiations established the World Trade Organization (WTO), the GATT's successor organization, and formulated the UR Agreement on Agriculture (AoA). Even though developing countries possibly have the most to gain from a substantial reduction of existing export subsidies and removal of other trade impediments, these countries have been the most powerless, and the most ineffective.[335]

This is why it is imperative that developing countries, particularly those in South Asia, seize the moment to actively participate in this process of shaping a more globally integrated economic environment and to convey, for instance, their experience from implementing the reduction commitments and the effect of those commitments under the URAoA, the consequence of Special and Differential (S&D) Treatment, and their concerns regarding food security and the environment and the possible negative effects of the execution of the reform program. The new round, it is hoped, will cover broader issues, with established deadlines and room for tradeoffs.[336]

3.19.6 Implementation of the Uruguay Round Agreement on Agriculture

The inclusion of agriculture in the UR marked a major turning point in trade negotiations. Even though this momentous development created a sense of euphoria among developing countries, challenges still lie ahead. There is a consensus that accomplishments of the URAoA were rather modest in removing some trade policy distortions by developed countries.[337] Policymakers argue that the attempt to liberalize the agricultural sector through the URAoA to secure market access has had mixed outcomes.

Developing countries did not gain as much as expected because of the ways in which rules have been implemented, and these countries have strongly argued that market access opportunities have been greatly

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[333] Dean A. DeRousa, Agriculture, Trade and Regionalism in South-Asia, Available at http://ageconsearch.umn.edu/bitstream/br46.pdf

[334] Balassa, B. 1965. "Trade Liberalization and Revealed Comparative Advantage." The Manchester School of Economic and Social Studies 33:99-123, Available at http://www.sawtee.org/Research_Reports/R2012-05.pdf

[335] J. George, Agricultural Trade Negotiations after "July Package", CUTS International (2005), Available at http://www.cuts-international.org/pdf/No.1-SouthAsianAgriculture.pdf

[336] Ibid.

[337] Merlinda D. Ingco, AGRICULTURE, TRADE AND WTO IN SOUTH ASIA, World Bank, Washington, 2003.

affected by increased protection and subsidies in developed countries. In addition, with export subsidies an integral part of the agriculture policies of several industrialized countries, most industrialized countries would rather commit to reducing these subsidies rather than seek an outright ban.[338]

South Asian trade has been dictated by inward-looking import substitution policies. Sri Lanka was the first to initiate liberalization policies in the late 1970s. Sri Lanka's efforts set an important precedent for the pace of trade reform, and provided lessons for the rest of South Asia, which sporadically adopted trade reforms in the early 1980s. Intense trade liberalization policies were initiated in the early 1990s. Even though general trade reforms have made headway, agriculture reforms were virtually untouched, especially in Bangladesh, India, and Pakistan.[339] In comparison, agricultural trade reforms in Southeast Asia and Latin America were comparable with the reforms in other sectors, such as manufacturing.

The key provisions or pillars of the URAoA are market access, domestic support, and export subsidies. The implementation of the URAoA brought some progress in market access, but this is still an issue. South Asian countries do not have aggregate measurement of support (AMS) commitments and made no notifications on "blue-box" support measures pertaining to production-limiting programs and their use of export subsidies were within the URAoA provisions. India, Pakistan, and Sri Lanka presented a standard list of exempted"greenbox" measures and S&D Treatment.[340]

3.19.6.1 Market Access

Tariffs (customs duties) are a component of market access and the URAoA addressed three key elements: (a) the "tariffication" of nontariff barriers, (b) reduction of tariffs to reasonable levels, and (c) maintenance of current access levels for each individual product.

Under tariffication, member countries are required to convert nontariff barriers during the base period (1986–88) into tariff equivalents and to establish a base rate of duty for individual commodities covered by the URAoA. The average reduction of tariffs after tariffication of nontariff barriers should be 24 percent for developing countries and 36 percent for industrialized countries. Industrialized countries had a time frame of six years within which to decrease their tariff levels while developing countries had 10 years. Minimum access should be established at not less than 3–5 percent of domestic consumption during the base period (1986–88).[341]

As a result, imports, previously subject to nontariff barriers, now have minimal access at a lower tariff rate. From the URAoA commitments made by South Asia it is clear that market access has made the most progress with applied tariffs below the bound rates. This indicates that the region has honored its URAoA commitments on bound rates.

Sri Lanka [342]

Sri Lanka made significant efforts in the liberalization process, instituting a progressive tariff regime. The tariff regime was reformed from a 13-band structure in 1990 to a 3-band structure in 1995. Import duty rates in 1995 were at 10 percent, 20 percent, and 35 percent, and were subsequently revised to 5 percent, 10 percent, and 30 percent across the board.

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[338] Raghbendra Jha, ROUTLEDGE HANDBOOK OF SOUTH-ASIAN ECONOMICS, Routledge, Oxon, 2011.

[339] Weerakoon, D. and J. Wijayasiri (2001), Regional Economic Cooperation in South Asia: A Sri Lankan Perspective, Research Studies: International Economic Series, No. 6, Institute of Policy Studies, Colombo.

[340] Available at http://www.wto.org/english/res_e/publications_e/2feb11_e.htm

[341] Dean A. DeRousa, Agriculture, Trade and Regionalism in South-Asia, Available at http://ageconsearch.umn.edu/bitstream/br46.pdf

[342] Nanda, Nitya. 2010. "International Trade and Climate Change: Issues for South Asia." Discussion Paper. SAWTEE, Kathmandu.

Import duties on agricultural commodities, however, are not part of the three-band tariff structure and justify the need for the agricultural sector to lower tariff rates. Products such as sugar, tobacco, cigarettes, and liquor are subject to ad valorem tariffs. These commodities are also outside the three-band rates. Furthermore, Sri Lanka offers preferential tariffs to a number of countries.

Sri Lanka also provides duty-free access on approximately 300 items under a bilateral trade arrangement with India. Ad hoc waivers and exemptions are still a part of the agricultural tariff regime with their negative impact on the commodity market and domestic production.

In the past many agricultural products were subject to import controls such as licensing, and imports of some commodities (for example, onions and potatoes) were not allowed into Sri Lanka. Since the URAoA most of the import controls have been relaxed. However, paddy rice and maize are still bound by import controls in order to protect domestic producers.

Pakistan [343]

Pakistan greatly enhanced its market access opportunities to other nations for their exports committing to bind more than 90 percent of its agricultural tariff lines. However, 6 percent of agricultural tariff lines remain unbound, in particular cotton, tobacco, alcoholic beverages, and pig meat. Pakistan set its bound tariff rates in the range of 100 percent to 150 percent.

3.19.6.2 Trade Agreements in Southeast Asia

In the first decade of the twenty-first century, dozens of bilateral and regional trade agreements have been signed by East Asian countries. This is striking because during earlier post-1947 waves of preferential trade agreements the only serious East Asian trade agreement was the Association of Southeast Asian Nations (ASEAN), and ASEAN's preferential tariffs have had little impact on trade. Around 2000, China, Japan, Korea, Mongolia and Taiwan stood out as practically the only countries showing complete respect for the MFN principle.[344]

Although regionalism may be viewed as an alternative to multilateralism, in the East Asian context there may be little conflict between the two, at least in their economic consequences. Duty payments on intra-Asian trade tend to be low as a result of trade liberalization and of the prevalence of duty-drawback systems in response to the production fragmentation and networks which emerged over the last two decades.[345] To the extent that the new trade agreements include discriminatory tariffs, as in the China-ASEAN FTA, they tend to be narrow in scope and coverage, with trivial economic impact. To the extent that bilateral or regional agreements include trade-facilitating measures, progress in reducing trade costs by improved customs operation and so forth tends to benefit all trades and in practice is non-discriminatory.[346]

For the original five ASEAN members there is a substantial decline in trade costs during the 1990s and convergence towards the lowest-cost country, Singapore. For the other five ASEAN members it is harder to identify a pattern; the values for Laos and to a lesser extent Brunei and Cambodia are volatile, reflecting the small number of trade items. For the other two newer members, Myanmar and Vietnam, trade costs fell significantly after they joined ASEAN in the late 1990s.[347]

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[343] Mamoon, Dawood, Sohail Paracha, Hammad Mughal and Annam Ayesha. 2011. "Pakistan's trade competitiveness & complementarities in South Asia." Munich Personal RePEc Archive (MPRA) Paper No. 31369.

[344] Available at http://www.wto.org/english/res_e/publications_e/wtr11_forum_e/wtr11_2feb11_e.htm

[345] Standards and Agricultural Trade in Asia – Report of the Food and Agricultural Organization (2008), Available at http://www.fao.org/uploads/media/ADBI%20standards%20agricultural%20trade%20asia.pdf

[346] Ibid.

For seven of the ASEAN countries average trade costs converged from above to a range of 4-5.5% in 2007, with Brunei, Cambodia and Laos below this level.

3.19.6.3 Analysis

The conclusion that one can draw is that, although ASEAN members had little stomach for preferential tariffs, they used their association as a vehicle for concerted trade facilitation. The driving force behind these policies in Southeast Asia was the emergence of regional value chains and the desire of governments to increase the efficiency of these arrangements.

Although measures such as common documentation or single windows may have been intended to facilitate first and foremost intra-regional trade, such measures are rarely discriminatory. The twenty-first century trade agreements in Asia show a similar pattern of limited attention to tariff cuts and greater attention to trade facilitation, reflecting the strengthening and extension of regional value chains to include, in particular, China.

In some quarters, notably in research funded by the Asian Development Bank, an emerging Asian regionalism is viewed in the traditional sense of a bloc with preferential trade among members. Others see a reincarnation of the APEC ideal of non-preferential regionalism, in which countries collaborate in coordinated reduction of trade barriers, which in the twenty-first century means focusing on trade facilitation. The interpretation is important, because the former implies a challenge to the non-discrimination principle underpinning the multilateral trading system, whereas the latter has a more benign implication of a multi-speed movement towards non-discriminatory trade liberalization.

3.20 Trade In Agriculture and WTO- Bangladesh

3.20.1 The Variegated Contours of Agricultural Trade Liberalization under WTO-Doha Agreement

The Doha Round is the latest round of trade negotiations among the WTO membership. Its aim is to achieve major reform of the international trading system through the introduction of lower trade barriers and revised trade rules. The work programme covers about 20 areas of trade.[348]

As regards the subject of Agriculture, the aim of Doha Negotiations can be briefly stated as: More market access, eliminating export subsidies, reducing distorting domestic support, sorting out a range of developing country issues, and dealing with non-trade concerns such as food security and rural development.[349]

3.20.2 Impact Assessment: General Perspective

Agricultural trade liberalization is likely to affect the current pattern of global production and trade of many agricultural commodities. Rise in prices following liberalization will be, on the whole, welfare-enhancing for a net exporting country, while for a net-importing country this will be translated into a terms of trade shock with adverse welfare consequences. Foreseeing the price rise as the ultimate outcome, concerns have been expressed about the food security and poverty situation in the food-import dependent countries.

Since tariff reduction and removal of subsidies are two inherent components of the global agricultural trade liberalization, they should be considered simultaneously in assessing the welfare consequences. While tariff

[347] World Bank (2004), Trade Policies in South Asia: An Overview (in three volumes) Report No. 299949, World Bank, Washington, D.C.

[348] Available at http://www.wto.org/english/tratop_e/dda_e/dda_e.htm

[349] Ibid.

reductions under the WTO rule will potentially depress prices, subsidy cuts will tend to exert an opposite effect with the net result depending on the relative strength of these two differing forces.[350]

In WTO terminology, subsidies in general are identified by "boxes" which are given the colors of traffic lights: green (permitted), amber (slow down - i.e. be reduced), red (forbidden). In agriculture, things are, as usual, more complicated. The Agriculture Agreement has no red box, although domestic support exceeding the reduction commitment levels in the amber box is prohibited; and there is a blue box for subsidies that are tied to programs that limit production. There are also exemptions for developing countries (sometimes called an "S&D box", including provisions in Article 6.2 of the agreement).[351]

The domestic support, given to agriculture in the developed countries, has not come down since the implementation of the commitments of the Uruguay Round began in 1995. Although in the Doha Ministerial Declaration member countries vowed to achieve substantial improvements in market access through phasing out of all forms of export subsidies and substantial reductions in trade-distorting domestic support, no major breakthrough has been made after the conclusion of the Hong Kong Ministerial conference, held in December 2005.[352]

While members are still negotiating modalities for further liberalization, consensus has been reached on abolishing all export subsidies only by 2013. Export subsidies in fact constitute very insignificant portion of the total domestic support measures given to agriculture in the developed countries.[353]

Despite the lack of progress related to agricultural liberalization in the post Uruguay Round period, there is no denying that, since most of the agricultural commodities have long been the most protected commodities in world trade, any significant liberalization measure in this sector will likely to have huge welfare implications. It has, therefore, become a big concern to what extent future liberalization in this sector will affect the livelihood and food security in the poor food-import dependent developing countries.

3.20.3 Bangladesh and WTO

It is important to note that, at the WTO, Bangladesh, as an LDC, is not bound to undertake any liberalization in its domestic agricultural sector in terms of tariff cut or subsidy withdrawal. However, there are concerns that actions taken by the developed and developing countries in terms of reduction in agricultural domestic support measures might have important negative implications for the net food importing countries like Bangladesh.[354] It can however be noted that agriculture has been at the center stage of multilateral trade negotiations during the past 25 years. Despite having a major progress in improving the rules for trade, the overall achievement, in terms of increasing market access for agricultural goods, was considered to be 'disappointing' at the end of the Uruguay Round.

Although under the WTO Agreement on Agriculture, members committed themselves to carrying on reforms, not much progress has so far been made in further opening-up of the markets. Nevertheless, agriculture continues to be an active area of negotiation. While the modalities for future liberalization in the sector are being negotiated, the potential implications arising from such liberalization have drawn a lot of attention. Several studies predict that, with the elimination of export and production subsidies, prices of agricultural commodities are likely to increase.

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[350] Eugenio Diaz-Bozilla, WTO NEGOTIATIONS AND AGRICULTURAL TRADE LIBERALIZATION, CAB International, UK (2006)

[351] Merlinda D. Ingco, AGRICULTURE, TRADE AND WTO IN SOUTH ASIA, World Bank, Washington, 2003.

[352] Stephen Healy, The Implications of Uruguay Round Agreement on Agriculture for Developing Countries, Food and Agricultural Organization of United Nations.

[353] Ibid.

[354] Ministry of Commerce, Bangladesh, Available at http://www.mincom.gov.bd/wto.php

This will be beneficial to a number of developing countries that have clear comparative advantage in the sector. Liberalization will also imply further market access opportunities for these countries as a result of reduced tariff barriers in the developed country markets. However, not all developing countries are net-exporters of agricultural products, and many of them actually depend on the world market for their supplies. Consequently, global agricultural trade liberalization under WTO could adversely affect these countries.[355]

3.20.4 WTO Trade Policy Review for Bangladesh

The recent WTO Trade Policy Review for Bangladesh[356] noted the pursuit of an outward oriented growth strategy and efforts to reduce the anti-export bias. A significant number of non-tariff barriers (such as quantitative controls) have been dismantled since the early 1990s and there has been a shift to greater use of ad valorem tariffs. Tariffs currently account for approximately 25 percent of tax revenue.[357]

Raising productivity in the labour-intensive agriculture sector continues to be a concern in Bangladesh, which is prone to natural disasters. Rice production is the most important economic activity in rural Bangladesh, with rice constituting 90% of total food grains produced annually. Tariff and non-tariff protection has been reduced. To cut production costs and face competition from neighbouring countries, support to domestic production has been strengthened through the subsidization of agricultural inputs (i.e. seeds, fertilizer, irrigation, capital, through concessional interest rates, and electricity) and public procurement practices.[358]

Trade policy with respect to importable food staples (rice and wheat) is characterized by interventions based on food security concerns and variable in terms of levels of protection and support. Bangladesh has maintained a direct cash subsidy of up to 20% for certain agricultural and fisheries exports (i.e. frozen shrimp and fish, fruits, vegetables, agro-processed products) during the review period.[359]

3.20.5 Compliance with WTO Agreements: Bangladesh's Response

Bangladesh had to undertake various obligations under the Uruguay Round Agreements, covering commitments on market access, subsidies, and the enactment of national rules and regulations, or the modification of existing national rules and regulations as per provisions of the various WTO Agreements.[360]

3.20.6 Agreement on Agriculture (AoA)

The Agreement on Agriculture (AoA) initiates a reform process aimed at establishing a "fair and market-oriented agricultural trading system" through negotiations (Article 20) on domestic support, market access, and export subsidies, known as the three central concepts or pillars of the AoA.[361] WTO Members agreed to

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[355] Uttam Kumar Deb, Agriculture in WTO July Package : Issues and Concerns for Bangladesh, Centre for Policy Dialogue

[356] WTO Trade Policy Review for Bangladesh (2012), Available at http://www.mincom.gov.bd/wto.php

[357] Ibid.

[358] WTO Trade Policy Review of Bangladesh (2012), WTO Document 12-6558, Available at https://docs.wto.org/dol2fe/Pages/FE_Search/FE_S_S006.aspx?Query=(%20@Symbol=%20wt/tpr*%20or%20press/tprb/*%20)%20and%20(%20@Title=%20bangladesh%20)&Language=ENGLISH&Context=FomerScriptedSearch&languageUIChanged=true#

[359] Ibid.

[360] Report of the United Nations Department of Economic and Social Affairs on Survey on International Support Measures specific to the Least Developed Countries (LDCs) related to WTO Provisions and Preferential Market Access - Bangladesh (2012) , Available at http://esango.un.org/ldcportal/documents/10179/38149/summary_results_bangladesh.pdf

[361] Uruguay Round Agreement, Available at http://www.wto.org/english/docs_e/legal_e/14-ag_01_e.htm

continue the reform process through negotiations taking into account special and differential treatment to developing countries, including concerns such as food security, and the possible negative effects of reform implementation on LDCs and Net Food- Importing Developing Countries (NFIDCs).[362]

Article 15.2 of the AoA provides LDCs with an overall exemption from undertaking reduction commitments, and a more specific exemption from bound agricultural tariff reduction as far as the market access pillar is concerned.[363] Since none of the LDCs scheduled commitments with respect to domestic support and export subsidies when they became WTO Members, this provision does not represent an additional flexibility for LDCs under both pillars. Although they have not scheduled commitments related to trade distorting domestic support, LDCs are allowed to maintain domestic support measures that fall under the categories exempt from reduction commitments, such as green box subsidies, developmental measures (Article 6.2) and *de minimis* levels of support (for developing countries, this is equal to 10% of the value of agricultural production during the relevant year).[364]

1. Domestic support

Bangladesh is not required to undertake any reduction commitment; when the country became a WTO Member, its "Aggregate Measurement of Support" (AMS) was at about 2-3% of agricultural GDP, way below the permissible threshold of 10% of agricultural production (*de minimis*). The country has not so far provided any agricultural export subsidies. Bangladesh offers domestic support in the form of subsidies (input and output subsidies, for example, subsidized fertilizer and seed procurement).

2. LDCs as Net food Importers[365]

Food aid

After 1995, Bangladesh continued to receive food aid and project aid in agriculture, but the country reported that inflows in food aids have gradually decreased in volume in recent years. All food aid received by Bangladesh has been in grant form since 1985. Major donors include Australia, Canada, Germany, Japan, the United States and Saudi Arabia.

Food aid and agricultural project loan inflow have been on the decline over the past years. Bangladesh indicated that one of the reasons for this could be that its agriculture has been performing remarkably well in recent times, with the country gradually moving towards food self-sufficiency.[366]

Technical assistance

Various bilateral and multilateral organizations have provided technical and financial assistance to enhance agricultural output, productivity, crop diversification and strengthening of Research and Development (R&D) capacity.

3. Market access

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[362] Report of the International Trade Centre on WTO Trade Policy Review : Bangladesh, Available at http://www.intracen.org/BB-2012-10-18-WTO-Trade-Policy-Review-Bangladesh/

[363] Supra, 1

[364] Supra 1, See also Report of the Committee of Agriculture on Domestic Support in Bangladesh, WTO Document 11-2308 (2011) , Available at https://docs.wto.org/dol2fe/Pages/FE_Search/FE_S_S006.aspx?Query=(%20@Symbol=%20g/ag/n/bgd/*)&Language=ENGLISH&Context=FomerScriptedSearch&languageUIChanged=true#

[365] Review of the External Resources Division of Bangladesh

[366] See also Implementation of the Decision on Measures Concerning the Possible Negative Effects of the Reform Programme on Least-Developed and Net Food-Importing Developing Countries, WTO document G/AG/W/42/Rev.13 (2010)

In the Uruguay Round, all countries, including LDCs, had to withdraw all quantitative restrictions and bind duties on all agricultural products. No SDT provision was available with this respect. While Bangladesh, as an LDC, was not required to make any reduction commitments, this flexibility was offset by the tariff liberalization process initiated by Bangladesh under structural adjustment programs, as part of World Bank aid conditionality in the early 1990s.[367]

4. Domestic support

Bangladesh provided amber box support[368] to agriculture at the WTO's establishment. However, the amount allocated for this support was below 10% of the total value of agriculture production; hence, Bangladesh was not required to make any reduction commitment through taking advantage of the relevant SDT provision.[369] Therefore, the SDT provision relating to exemption from reducing amber box subsidies has not been of any benefit to Bangladesh. As a matter of fact, 34 countries had to make reduction commitments, their trade-distorting domestic supports exceeding 5% (for developed countries) and 10% (in the case of developing countries) of the total value of their agricultural production.[370]

5. Export subsidies

At the WTO's creation, only 25 countries provided exports subsidies, and were required, as such, to undertake reduction commitment. No LDC was included in this list. Since Bangladesh did not provide any agricultural export subsidies, it could not use SDT in export subsidies.[371]

3.20.7 The Way Ahead: Some Proposals that may improve the Situation in Bangladesh

Bangladesh will need to engage more proactively in the ongoing WTO negotiations on agriculture and make alliance with countries having similar interests. It is often said, "In the WTO countries do not get what they deserve, they get what they negotiate." Therefore, Bangladesh should be actively involved in the negotiations and press for implementation of the commitments by developed countries, particularly on commitments related to S&D treatments for LDCs. In view of the concerns of the LDCs with regard to the negotiation on agriculture, Bangladesh shall demand for the following:[372]

Duty-free Market Access

LDCs must be given effective market access, bound in the WTO, for their all agricultural products through duty-free market access in the developed country markets. Such market access ought to be immediate and predictable.

Market Access in Advanced Developing Countries

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[367] "Economic Reforms and Agriculture in Bangladesh: Assessment of Impacts", Selim Raihan , South Asian Network on Economic Modeling (2011), Available at http://mpra.ub.uni-muenchen.de/37886/

[368] All domestic support measures considered to distort production and trade (with some exceptions) fall into the amber box, which is defined in Article 6 of the Agriculture Agreement as all domestic supports except those in the blue and green boxes. These include measures to support prices, or subsidies directly related to production quantities.

[369] The Uruguay Round, WTO Rules and the Bangladesh Agriculture, M. Asaduzzaman, Consultancy report prepared for FAO, BIDS, Dhaka.

[370] Supra, 1

[371] Economic Policy Paper on WTO Agreement on Agriculture: Potentials of Agro-processing Products of Bangladesh

[372] Supra, 8

Bangladesh must negotiate for zero-tariff market access to the advanced developing countries for all agricultural products originating from LDCs. This negotiation possibility has already been ushered through the July Framework.

Elimination of Export Subsidies

Bangladesh shall demand for a rapid phase out of all forms of export subsidies, including any subsidy component in export credits and any abuse of food aid.

Ensure Market Based Price

In order to ensure market based price for agricultural products in the developed countries, and putting an end to exports below their production costs, Bangladesh shall demand that adequate discipline be put on different types of domestic support provided under various boxes, including the Green Box.

Zero Reduction Commitment by LDCs

In view of the centrality of agriculture for food security and employment in the LDCs, Bangladesh shall support the agreement that LDCs shall not be required to undertake any commitments for reduction of tariffs and domestic support in the context of the ongoing negotiations in agriculture.

Special Products (SPs) and Special Safeguard Mechanisms (SSMs)

Bangladesh may support the introduction of the concept of SPs and SSMs in the Agreement on Agriculture. It may demand that the developing countries be exempted from any reduction commitments for products designated as SPs.

Non-tariff Barriers (NTBs)

LDCs are often constrained by various non-tariff barriers and undue implementation process of standards imposed on the SPS ground. Bangladesh may negotiate with members to ensure WTO compliance and transparent evaluation criteria for NTBs, and ensure that standards are not set beyond the required scientific limit.

Technical Assistance and Capacity Building

Bangladesh may also demand that the LDCs shall be provided adequate technical and financial assistance to improve agricultural productivity and infrastructure, and for development of facilities and systems for compliance with SPS and various certification requirements.

3.20.8 Trade In Agricultural Products And Its Implications: South-Asian Perpective

3.20.8.1 Trade in South Asia- Regional and Multilateral

Compared to the rest of the world, South-Asian region is not open enough in international trade, rather, it is very much inward oriented. Intra-region's trade flow in this region is also very insignificant. This is partly because the major economies such as India, Pakistan and Bangladesh are not outward-oriented. The indices of trade to GDP ratio for Bangladesh, India and Pakistan are 38.0, 27.4 and 37 respectively.[373] A higher index indicates a more open economy towards international trade. Though, Maldives and Sri Lanka have a higher percentage of trade to GDP ratios, their economies are very small. Therefore, they have insignificant contribution to the amount of region's trade.[374]

[373] Ershad Ali, Dayal K. Talukder, "Preferential Trade among the SAARC Countries: Prospects and Challenges of Regional Integration in South Asia", JOAAG, Vol. 4. No. 1, Available at http://joaag.com/uploads/5_-_4_1__AliFinal.pdf

Although Bangladesh, India and Pakistan have been continuing trade liberalization since the early 1990s, the progress is still very slow. Considering tariff levels, South Asia has still been considered one of the most highly protected regions in the world. Amongst the seven economies, Sri Lanka has got the lowest protection level with 11.2 percent of average tariffs for all goods and Bhutan has persistently the highest average tariffs level with 22.1 percent.[375] The tariff levels for three large economies- Bangladesh, India and Pakistan are also very high with 15.2, 19.2 and 14.3 percent respectively. This figure is 16.6 percent for South Asian region. Moreover, trade liberalization in South Asia is far from uniform.[376] Bangladesh, India and Pakistan are still adhering to several interventionist policies.

SAARC Economies and International Trade, 2005

	Bangladesh	Bhutan	India	Maldives	Nepal	Pakistan	Sri Lanka
GDP (current US $, billion)	**60.0**	**0.844**	**805.7**	**0.817**	**7.40**	**110.70**	23.5
Share of SAARC GDP (%)	5.95	0.083	79.85	0.080	0.733	10.97	2.33
Share of Agricultural Sector in GDP (%)							
Agriculture	21.1	24.7	19.3	----	39.2	21.6	16.8
International trade (US $, million)							
Total trade (exports+ imports)	23158	617	221491	1405	2690	41277	15250
Trade to GDP ratio (%)	38.0	73.2	27.4	171.9	36.3	37.2	64.9
Exports	9190	252	89843	473	830	15942	6275
Imports	13968	365	131648	932	1860	25335	8975
Tariff rates in the SAARC countries, 2006 (in percent) (simple average of ad-valorem duties)							
All goods	15.2	22.1	19.2	20.2	13.9	14.3	11.2
Agricultural goods	17.3	41.3	37.6	18.4	14.9	16.3	23.8
Non-agricultural goods	14.9	19.2	16.4	20.5	13.7	14.0	9.2

Source: WTO Trade Database, April 2007

3.20.8.2 The Advent of WTO in South-Asia

South Asian countries were following import-substituting industrialization strategies and were among the least globally integrated economies in the world. Since the mid-1980s, most of the countries of this region, with the possible exception of Nepal, moved away from inward looking economic policies and adopted a strategy of development based on export-orientation and liberalization.[377] To make their economies more globally

[374] Ibid.

[375] Pitigala, N. (2008)," What Does Regional Trade in South Asia Reveal about Future Trade Integration? Some Empirical Evidence", World Bank Policy Research Working Paper 3497, Washington DC, the World Bank.

[376] Ibid., See also World Bank (2007), World Development Report, Washington DC, The World Bank.

[377] Balassa, B. (1965), "Trade Liberalisation and 'Revealed' Comparative Advantage", The Manchester School, Vol.33, 99-123

integrated, these countries initiated trade liberalization, started moving away from a regime of quantitative restrictions to tariff-based regime and initiated reducing their average level of protection.[378]

South Asian countries are currently more globally integrated than they were in 1995; however, they are the least globally integrated region in the world. This period of increased openness among the South Asian countries coincided with the implementation of World Trade Organization (WTO) in 1995.[379] In fact, establishment of the WTO was one of the motivating factors behind the open economic policy pursued by the policymakers of these countries.

3.20.8.3 WTO more beneficial than GATT for Agricultural Export

It is widely believed by the policymakers that the WTO would be a vast improvement over its predecessor GATT (General Agreement on Tariff and Trade) and the imposition of the new multilateral trading system would help developing countries to pursue export led growth. There were three main reasons behind this optimism.[380]

First, in the WTO, agriculture was brought for the first time under the effective purview of a multilateral trading system. Though agriculture was included in the original 1947 GATT agreement, but too many exemptions were allowed for this sector to make the GATT rules operationally effective.[381] It was believed at that time that new WTO rules would bring about a structural change in the global agricultural trade and more efficient agricultural producers would stand to benefit from the WTO agreement. As most South Asian countries were low cost producers of agricultural goods, it was expected that these countries would significantly benefit from a more open and less distorted global agricultural trade regime.

Secondly, prior to the WTO, market access for textile products in developed countries were constrained by the extremely restrictive Multi Fiber Agreement (MFA), which allowed the developed countries to selectively impose quantitative restrictions on imports of textiles and clothing from developing countries. WTO Agreement on Textiles and Clothing (ATC) intended to phase out this agreement and integrate textiles and clothing within the general WTO rules that govern trade in manufacturing goods. It was projected that removal of quotas on exports of textiles and clothing would act as a big flip for developing countries as low labor cost of these countries make them efficient producers of these goods. Given the fact that labor cost in South Asia is among the lowest in the world, almost all the counties of this region expected to benefit from the phase out of MFA. [382]

The third aspect of the WTO which encouraged the developing countries was the attempt to liberalize trade in services. Traditionally trade in services was under very high level of protection and was kept out of any multilateral trading system. The General Agreement on Trade in Services (GATS) was considered to be a first step towards the eventual liberalization of trade in services. GATS were supposed to open up a huge market for developing countries. As GATS cover a huge range of services like tourism, education, consultancy services and manpower exports, the South Asian countries, which have abundant supply of skilled and unskilled labor, were expected to benefit from such an agreement.[383]

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[378] Ibid.

[379] Das, Dilip K. (2008), "The South Asian Free Trade Agreement: Evolution and Challenges", MIT International Review, Spring 2008.

[380] Ibid., See also Rajeev Jain, Trade Pattern in SAARC Countries, Reserve Bank of India Publication, Available at http://www.rbi.org.in/scripts/bs_viewcontent.aspx?Id=2255.

[381] Chaturvedi, Sachin (2007), "Trade Facilitation Measures in South Asian FTAs: An Overview of Initiatives and Policy Approaches", RIS Discussion Paper, No.118.

[382] Ibid.

[383] Ibid.

3.20.8.4 Benefits accrued to Developing Countries

It was projected that developing countries would be net gainers as the benefits accruing to them from the liberalization of the three key sectors like agriculture, textiles and services were likely to more than offset the expected losses from the other two areas.[384] As almost all the South Asian countries possess comparative advantage in the three key areas, policymakers of these countries expect that increased market access in agriculture, textiles and services would allow these countries to follow an open and export led development policy. As an overwhelming proportion of workers in South Asia are involved in agriculture, textiles and services, it was also expected that there would be a significant boost in employment in these economies.[385]

Most of the studies that looked at the impact of the Uruguay Round on developing countries noted that the implementation of the Uruguay Round may marginally increase agricultural commodity prices. However, analysis of agricultural commodity prices indicated that such increases did not occur. Studies on the Uruguay Round's impact also pointed out that the negative impacts of increased food prices on consumers could be more than offset by gains arising from reforms in domestic policy. All studies emphasized that the gains from multilateral trade agreements were particularly large in developing countries that open their trade regimes. For South Asia, the studies had estimated the impacts of the Uruguay Round to be positive.[386] For a major agricultural producing region such as South Asia, where yields (despite some improvements brought about by the Green Revolution) have remained well below the world average, increased commodity prices and reduction of trade barriers provide incentives for increased production and exports.[387] It was indicated that the Uruguay Round Agreement may result in a net trade surplus of over US$1.3 billion in South Asia, with food imports reduced by about $1 billion and additional exports of about $300 million.[388]

3.20.8.5 Trade volume of South Asian Nations

The trend of trade volume (as percentage of GDP) of four countries before and after the WTO has been shown in figure below. The trade volume of Bangladesh has continuously risen before and after the WTO. The trade volume in India has also continuously risen before and after the WTO.[389] The trade volume of Pakistan was increasing before the WTO implementation, though not at so good rate but after 1995 it has shown a declining trend. It was higher than Bangladesh and Sri-Lanka before the WTO implementation but after that it became lesser than those.[390] In 2000 it just becomes equal to Sri-Lanka and lower than Bangladesh. In the after years it increased but even up to 2006 it remained below Sri-Lanka and Bangladesh. The trade volume of Sri Lanka has risen rapidly after the WTO.[391]

Trade Volume (Percentage of GDP) of South Asian Countries before and After the WTO [392]

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[384] UNCTAD.(2013),United Nations Conference on Trade and Development, World Investment Report.

[385] Absar Hasan Siddiqui, Trade among SAARC Countries: Breaking the Barriers for Trade Facilitation, Available at http://www.shrdc.org/doc/sjhrd/2013/4.%20absar.pdf.

[386] Ibid.

[387] Rana Ejaz Ali Khan, Analysis of Trade Before and After the WTO: A Case Study of South Asia, Pakistan Journal of Commerce and Social Sciences, Vol.2 (2009), Available at http://www.jespk.net/publications/19.pdf.

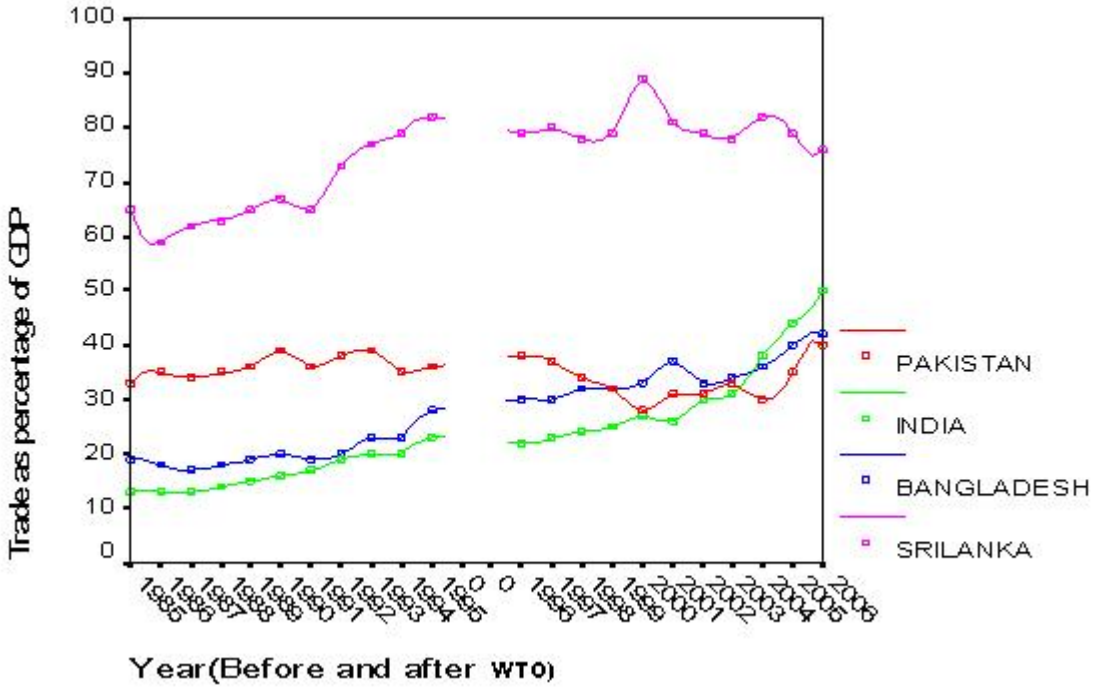
[388] Ibid.

[389] International Trade Statistics, World Trade Organization (2012), Available at http://www.wto.org/english/res_e/statis_e/its2012_e/its2012_e.pdf.

[390] Ershad Ali, Dayal K. Talukder, "Preferential Trade among the SAARC Countries: Prospects and Challenges of Regional Integration in South Asia", JOAAG, Vol. 4. No. 1, Available at http://joaag.com/uploads/5_-_4_1__AliFinal.pdf

[391] Rajeev Jain, Trade Pattern in SAARC Countries, Reserve Bank of India Publication, Available at http://www.rbi.org.in/scripts/bs_viewcontent.aspx?Id=2255.

[392] Supra, 18.



3.20.8.6 Multilateral Trade in Agricultural Products

Agriculture is the mainstay of most developing countries' economies, underpinning food security, export earnings and rural development. However, estimates of per capita agricultural production for domestic and export markets declined throughout the 1990s.[393] LDCs in particular continued to be marginalized from world agricultural markets, accounting for only one percent of global agricultural exports in the late 1990s. The poor performance of agriculture in many developing countries is mainly related to, on the one hand, the historical unfavourable terms of trade for agricultural commodities, while on the other hand to internal structural problems such as low productivity; rigid production and trade structures; short life expectancy, low educational qualifications; and inadequate infrastructure, institutional and policy frameworks.[394]

Many developing countries find themselves challenged to find ways of participating in an increasingly competitive external trade environment whilst simultaneously adjusting to the impact of small farm commercialization or rationalization, particularly as their increased food import bills demonstrate how often these food products simply out-compete domestic foods in many markets. FAO anticipates that "liberalization of agricultural trade could drive up prices for most agricultural commodities, potentially having a negative impact on food security in developing countries, as most are net importers of food. Prices are expected to rise more steeply for the food products that developing countries import than for the commodities they export."[395]

The Uruguay Round essentially subjected domestic agricultural supports and subsidies to international review, although the scrutiny did not necessarily result in reduced support, especially for the most sensitive agricultural products such as sugar, cotton, rice or dairy.[396] The UR also, for the first time, negotiated an

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[393] Multilateral trade agreements on agriculture and commodities, Food and Agricultural Organization Corporate Document Repository, Available at http://www.fao.org/docrep/009/a0493e/a0493e05.htm.

[394] Ibid.

[395] International Trade Statistics, World Trade Organization (2012), Available at http://www.wto.org/english/res_e/statis_e/its2012_e/its2012_e.pdf.

[396] Pitigala, N. (2008)," What Does Regional Trade in South Asia Reveal about Future Trade Integration? Some Empirical Evidence", World Bank Policy Research Working Paper 3497, Washington DC, the World Bank.

agreement to establish specific disciplines for the application of sanitary and phytosanitary (SPS) measures for multilateral trade in agricultural products.[397]

Of particular interest to developing countries were the changes made to the scope and significance of agricultural preferences and market access for African, Caribbean and Pacific (ACP) countries and generalized system of preferences (GSP) beneficiaries into the European Union.[398] Tariff liberalization for major tropical products resulted in a gradual phasing-out of remaining preferences (ending in mid-2000) for raw coffee and cocoa, papaya, mango and several other tropical fruits. Tariffs were not reduced for processed forms of coffee and cocoa, though, and tariff escalation remains a barrier to increase in-country value-adding for producer countries.

3.20.9 Econometric Measures of Impact of WTO

This section calculates the aggregate chain indices of trade of South Asia before and after the WTO. It covers the eleven years each before and after WTO. It was 139 before the WTO and it is 137 after the WTO. It reveals that South Asia faced disadvantages of the WTO. It contradicts the estimation by statisticians who argued that the WTO has enhanced the trade bulk of developing countries. This section also calculates the chain indices of trade bulk of South Asian countries before and after the WTO. The chain index of trade (percentage of GDP) of Bangladesh before the WTO was 147 and after the WTO it is 140, which shows that trade has been reduced after the WTO. The same type of results is for Sri Lanka, i.e. before WTO it was 126 and after the WTO it is 96. Sri-Lanka has lost more than Bangladesh.[399]

The chain index of trade of India before the WTO was 178 and after the WTO it is 227, which indicates that India's trade has risen after the WTO. The explanation may be that India has availed the opportunities maximally, i.e. improved resource allocation in line with social and marginal costs benefits, access to better technologies, use of inputs and intermediate goods efficiently, economies of scale and scope, promoting greater domestic competition, availing the favorable growth externalities, like the transfer of know-how. Furthermore, India has improved the software technology and infrastructure for trade. That is why it has obtained the advantages of trade liberalization.[400]

The chain index of Pakistan was 109 for eleven years (1985 to 1995) before the WTO and it is 105 for eleven years (1996 to 2006) after the WTO. It shows that the rate of increase in trade volume becomes slower after the WTO. It may be concluded that the WTO has affected the Pakistan's economy slightly negatively. Perhaps the country has availed less opportunities of openness. It may be explained that the country has not prepared itself to face the challenges of the WTO.[401]

3.20.10 Imports and Exports of Bangladesh

We have seen the trend of trade of South Asian countries, which are composed of imports and exports. Now we will see the trend of imports and exports separately. For Bangladesh, the chart below shows that ratio of imports and exports to GDP have risen before and after implementation of the WTO. But percentage of exports remained less than the imports, which shows that the country's balance of trade has remained in deficit before and after the WTO.[402]

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[397] Ibid.

[398] Available at http://unctad.org/en/docs/edmmisc232add32_en.pdf.

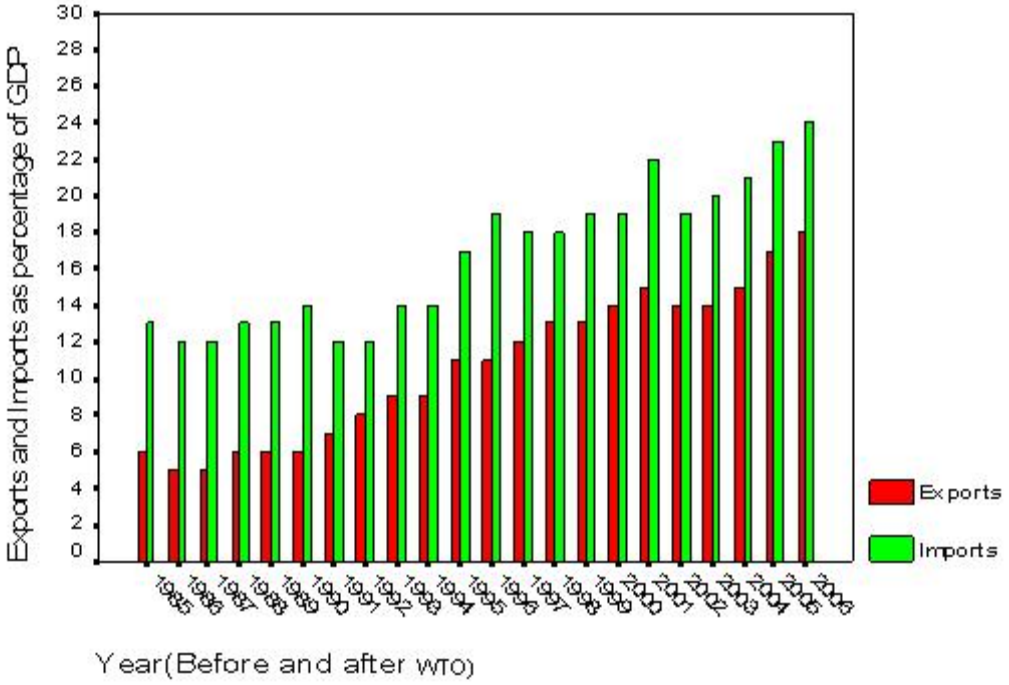
[399] Rajeev Jain, Trade Pattern in SAARC Countries, Reserve Bank of India Publication, Available at http://www.rbi.org.in/scripts/bs_viewcontent.aspx?Id=2255.

[400] Ibid.

[401] Ibid.

[402] Professor Mustafizur Rahman, Trade Benefits for Least Developed Countries: The Bangladesh Case (2011), Available at http://esango.un.org/ldcportal/documents/10179/13459/Bangladesh%20case-study.pdf.

Import and Export Volume of Bangladesh Before and After the WTO



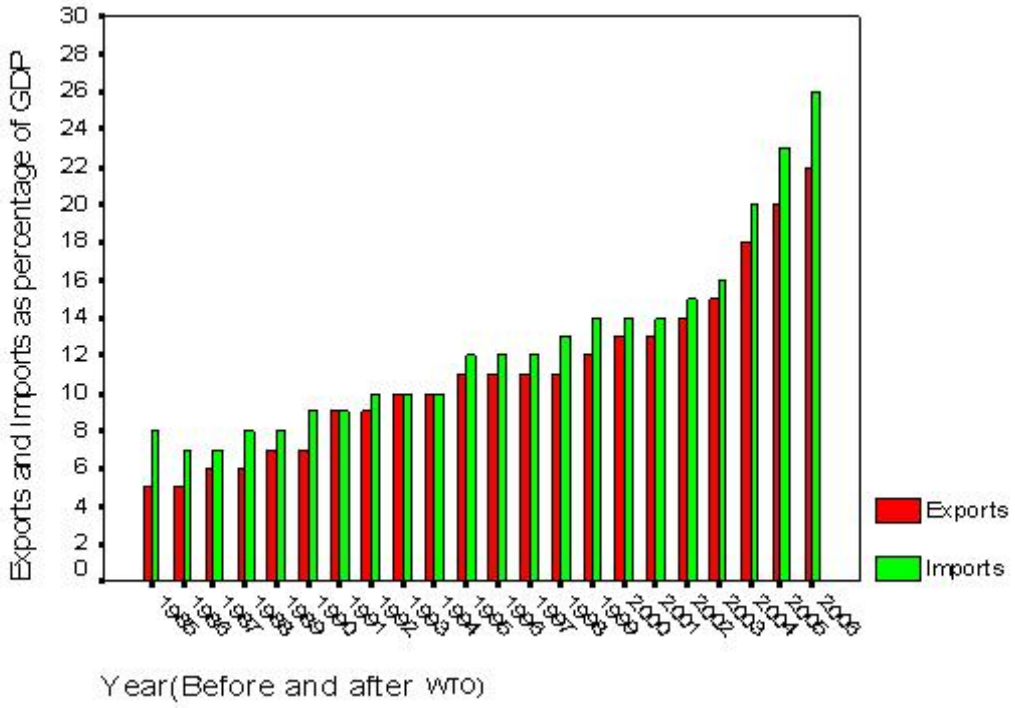
The chain index of exports for the years 1985 to 1995 was 183 while the chain index for the years 1995-2006 is 164 showing relatively less increase in exports after implementation of the WTO. While the chain index of imports for the same years before the implementation of WTO was 131 and after the WTO it is 126 showing again relatively lesser increase in imports after the WTO. It may be concluded that after the WTO the growth rate of exports as well as of imports has been decreased. It resulted into slower growth rate of volume of trade . We can say that trade liberalization has not affected the Bangladesh's trade positively.[403]

3.20.10.1 Imports and Exports of India

For India, the imports and exports have been increased for all the years before and after the WTO. The exports remained more than imports for whole of the years before and after the WTO, except 1993 and 1994. [404]

[403] Bhattacharya, D and M. Rahman. 2000. Experience with Implementation of WTOATC and Implications for Bangladesh. CPD Occasional Paper-7. Dhaka: Centre for Policy Dialogue (CPD).

[404] Rahman, M. 2001. "EU-EBA: Perspectives from India" in Duty and Quota Free Market Access for LDCs: An Analysis of QUAD Initiatives. Report prepared for the UNCTAD and Commonwealth Secretariat, London-Geneva.



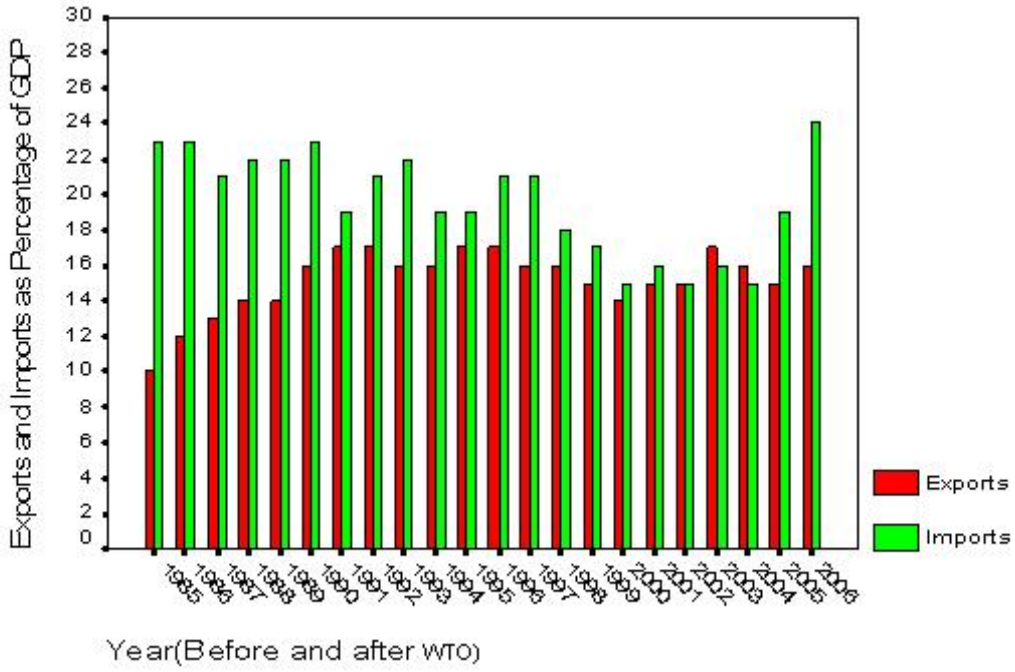
The chain indices of exports (as percentage of GDP) was 220 before the WTO and it is 200 after the WTO which reveals that rate of increase in exports in eleven years have been slided down after the WTO. While the chain index of imports (as percentage of GDP) before the WTO was 115 and after the WTO it is 217 (see Annexure 1), which shows that imports have been increased rapidly after the WTO. It is concluded that after the WTO the trade has been increased but that is totally contributed by increase in imports not exports.[405]

3.20.10.2 Imports and Exports of Pakistan

For Pakistan, exports exceed the imports for all the years, before and after the WTO except 2002 to 2004, which are the years after the WTO.

Import and Exports Volume of Pakistan Before and After the WTO

[405] Sheffield, Sharon. Agriculture, GATT, and Regional Trade Agreements. US Department of Agriculture, Economic Research Service, 1998



The chain index of exports (as percentage of GDP) for Pakistan before the WTO was 170 and after the WTO it is 94. It revealed that rate of increase of exports have been slided down within eleven years after the WTO. On the other hand, the chain index of imports (as percentage of GDP) before the WTO was 82 and after the WTO it is 114. It means that the rate of increase in imports has been enhanced after the WTO. It is evident that within eleven years after the WTO, there remained higher growth rate of imports as compared to exports. However, trade bulk has declined, that may be due to decrease in exports.[406]

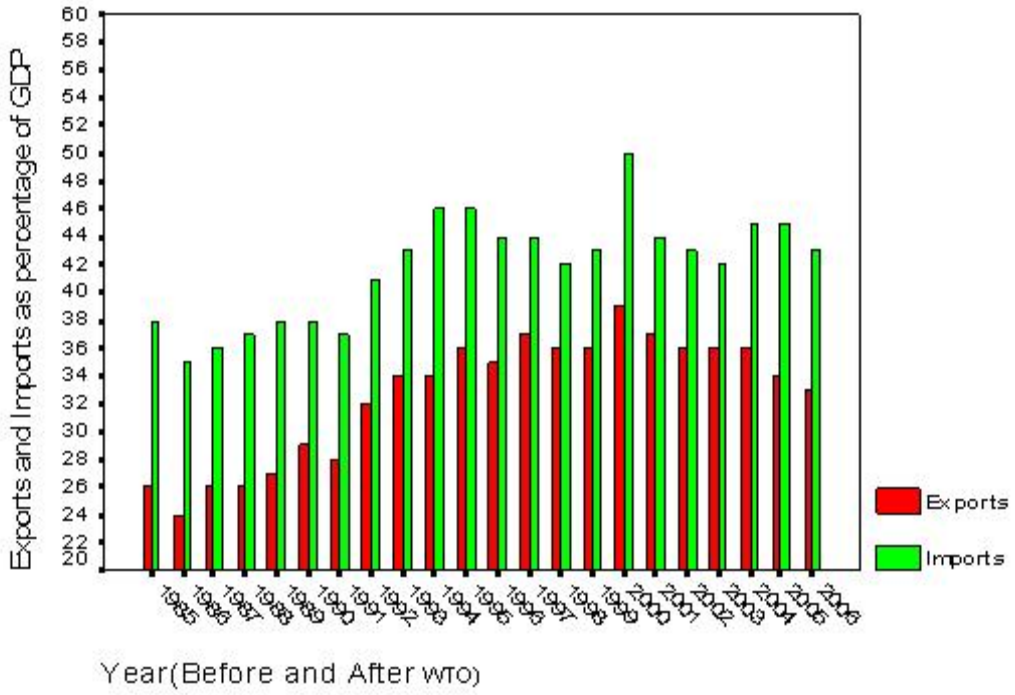
3.20.10.3 Imports and Exports of Sri-Lanka

Sri-Lanka's balance of trade remained in deficit for both periods, i.e. before and after the WTO. Before the WTO imports as well as exports were rising but after the WTO both the imports and exports first rise then fall.[407]

Import and Export Volume of Sri Lanka Before and After the WTO

[406] UNCTAD 1999, The world commodity economy: recent evolution, financial crises, and changing market structures. Geneva, UNCTAD. (TD/B/COM.1/27)

[407] International Trade Statistics, World Trade Organization (2012), Available at http://www.wto.org/english/res_e/statis_e/its2012_e/its2012_e.pdf.



The chain index of imports remained 138 before the WTO and it is 94 after the WTO showing that growth rate of exports has fallen within 11 years after the implementation of WTO. While the chain index of imports before the WTO was 120 and after the WTO it is 98. It revealed that import's growth rate has also fallen after 1995.[408] It resulted into decrease in trade volume of Sri Lanka. The relatively slower growth rate of exports as compared to imports has contributed more towards the slower growth rate of trade. It may be concluded that the WTO has affected the trade of Sri-Lanka negatively.[409]

3.20.11 Commodities in Agricultural Trade Basket

3.20.11.1 Sugar

Sugar production and exports are crucial for many developing countries but trade and prices have been falling. Domestic supports and tariff levels are high in developed countries, creating huge trade distortions which the Uruguay Round has done little to reduce. Significant progress in the Doha Round is important for many countries, particularly as market growth is occurring primarily in developing countries.[410]

Sugar cane or beet is produced in over 130 countries, with sugar cane accounting for 65-70 percent of global production. SAARC countries will account for majority of future production growth to the end of 2020, raising their share from 67 percent in the period 1998-2000 to 72 percent by 2020. There has been considerable consolidation in the industry, with the top ten producers accounting for 70 percent of world output in 2001, up from 56 percent in 1980.[411]

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[408] Ibid.

[409] Chaturvedi, Sachin (2007), "Trade Facilitation Measures in South Asian FTAs: An Overview of Initiatives and Policy Approaches", RIS Discussion Paper, No.118.

[410] Available at http://www.jespk.net/publications/19.pdf

[411] Mohanty, S.K and Chaturvedi, Sachin (2006), "Impact of SAFTA on Trade in Environmentally Sensitive Goods in South Asia: Emerging Challenges and Policy Options", Asia-Pacific Trade and Investment Review, Vol. 2, No. 2, December

World sugar consumption is expanding, reflecting rising incomes and shifts in food consumption patterns. Developing countries account for more than 60 percent of current global sugar consumption and are expected to be the primary source of future demand growth, particularly those in South Asia.

International trade in sugar and sugar products has contracted because of increased sugar production by countries that heavily subsidize their domestic sector. This has been narrowing markets for traditional exporters, including those under preferential trade agreements.[412] The proportion of production exported has declined. Sugar exports are fundamentally important to many developing countries, primarily because preferential access agreements entitle developing country exporters to receive the higher domestic prices of the European Union or the United States for their sugar, instead of facing the very low 'dumped' world sugar price.

There is significant government intervention, both domestically and internationally, in the world sugar economy. The United States and European Union create the greatest degree of distortion in world markets by maintaining high domestic prices in the face of depressed world prices. OECD expenditure on producer support amounts to well over half the total value of world sugar trade.[413]

Uruguay Round negotiations resulted in minimal reductions in sugar trade distortions. Market access has not improved and production subsidies weight global markets against South Asian exporters.

3.20.11.2 Cotton

Many SAARC countries are increasing their production of and trade in cotton, with the help of new technologies, and the industry is an important rural employer. Major exporters such as the United States and European Union support cotton production and exports, driving down international prices and thereby limiting production growth in these countries. Import tariff reductions, and import quota removal will bring major changes to the cotton and textile/apparel markets, intensifying competition among suppliers.[414]

Cotton is an internationally traded commodity as well as a major employment generator. The International Cotton Advisory Committee (ICAC) estimates than more than 100 million farming units worldwide are directly engaged in cotton production, with many more in ancillary activities. Major players in cotton production and trade include China, India, the United States, the European Union and central Asian and African states.[415] With biotech cotton and new, low-cost producers, and with the implementation of the Agreement of Textiles and Clothing (ATC), world cotton production is expected to grow by 1.5 percent annually. This will increase trade in cotton to 6.5 million tonnes by 2020, about nine percent higher than the current level.[416]

Most of the growth in end-use cotton has been in developed countries, which increasingly import clothing and textiles from developing countries. Mill consumption and imports of raw cotton are increasing in developing countries, particularly in industrializing Asian countries. While the trade in raw cotton is predominantly from developed countries to developing countries, trade among developing countries is growing. Developing countries in Asia absorb 55 percent of global imports, with Europe accounting for much of the remainder and Mexico also a significant importer.[417]

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[412] International Monetary Fund (2008), Direction of Trade Statistics, June 2008.

[413] Ibid.

[414] Mohanty, S.K and Chaturvedi, Sachin (2006), "Impact of SAFTA on Trade in Environmentally Sensitive Goods in South Asia: Emerging Challenges and Policy Options", Asia-Pacific Trade and Investment Review, Vol. 2, No. 2, December

[415] International Monetary Fund (2008), Direction of Trade Statistics, June 2008.

[416] World Bank (2004), Trade Policies in South Asia: An overview, Report No. 29949, Volume I: Operational Summary

[417] United Nations Conference on Trade and Agriculture, Dispute Settlement : Agriculture, Available at http://unctad.org/en/docs/edmmisc232add32_en.pdf

Restrictions on trade in textiles and apparel have severely impacted on global trade of these goods. Tariff reductions for all manufactured goods including textiles and clothing have been proposed under the Doha Development Agenda (DDA). If this happens, the world cotton market could face some dramatic changes. Since most South-Asian countries have higher tariffs on textiles (around 20 percent compared with around 10 percent in most developed countries) and consume, on a per capita basis, only 25 percent of world textiles, these reductions would increase demand for natural and manufactured fibre in such countries.[418] Given their population, developing country markets could be the major driving force in fibre demand.

3.20.11.3 Banana, and other fruit and vegetables

Exports of banana and other fruit and vegetables are increasingly important for many South-Asian economies. There are few subsidies for producers in developed countries and tariffs are low. However, tariff escalation does take place with processed produce such as fruit juice, and there are extra phyto-sanitary controls in many countries that affect imports of fruit and vegetables. There is a demand for harmonization of technical standards and treatments of exports, which have an impact on production processes and agrochemical practices.

Fruit and vegetables are important commodities for SAARC countries seeking to diversify exports. World trade in all categories has significantly increased, while the value of exports from such countries increased by US$ 4.5 billion from 1992 to 2011, up 55 percent, from 31 to 37 percent of total world exports. The value of world fruit and vegetable exports was US$ 34.6 billion in 2011. Fruit accounted for almost 60 percent of this and vegetables for a little over 40 percent. The main fruits were citrus (21 percent), bananas (19 percent), grapes and apples. The value of trade in tropical fruits (mango, papaya, pineapple and others) is slightly under US$ 1 billion (5 percent). The most traded items are tomatoes and onions.[419]

The main trade interventions are government tariffs, tariff quotas and minimum entry prices, and market access issues are complex, particularly in the case of banana. Tariff escalation is apparent in the fruit and vegetable sector, with tariffs on imported processed produce generally higher than on fresh produce. Fruit juice and fruit preparations are subject to higher tariffs than fresh produce in the European Union, Eastern Europe, North America and Southern Africa.[420] Very recently, a number of South-Asian countries began to protect their domestic industries. South- Asian countries have raised tariffs, introduced tariff quotas and occasionally banned imports of selected fruit and vegetables.

3.20.11.4 Coffee

In terms of value, coffee is one of the most important globally traded commodities and is critically important to millions of rural households throughout the world. It is the primary source of income for an estimated 25 million small coffee farmers in more than 50 countries. Coffee is emblematic of the problems faced by commodity exports from developing countries.

Price falls for coffee have been particularly dramatic: after a brief recovery in the mid-1990s when buffer stocks were cleared, by 2010 real coffee prices had fallen to levels lower than ever recorded. In real terms, coffee prices today are less than one-third of their 1960 levels and, for many producers, less than the cost of production.[421] Some have attributed this phenomenon to the market fundamentals of supply and demand, although there seem to be many differing conclusions as to the causes of the current coffee crisis.

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[418] Ibid.

[419] UNCTAD 1999, The world commodity economy: recent evolution, financial crises, and changing market structures. Geneva, UNCTAD. (TD/B/COM.1/27)

[420] OCDE, Market access for the least developed countries: where are the obstacles? Paris, OECD (OECD/GD/(97)174).

[421] United Nations Conference on Trade and Agriculture, Dispute Settlement : Agriculture, Available at http://unctad.org/en/docs/edmmisc232add32_en.pdf

South-Asian countries primarily export unprocessed coffee. The largest proportion of coffee is imported in its raw state, in the form of unroasted green coffee beans. In general, coffee-exporting countries have liberalized their coffee industries by dismantling national marketing boards and commodity agreements, leaving them vulnerable to fluctuations in the world market price and fundamental factors such as weather. Most state trading enterprises have made room for private exporting entities. The state has taken on the role of a regulatory power, setting rules and regulations.[422]

Food safety concerns are quite significant in the coffee sector as well as issues related to toxic residue levels (pesticides), export quality of coffee beans, use of molecular biology to improve coffee production, regulatory procedures at the processing level in developing countries, shipping, and storage of coffee beans. Coffee is of critical strategic importance in terms of rural development and employment in South-Asia. Most rural producers are smallholders and the income derived from coffee production and export earnings is fundamental to their livelihood. Coffee also illustrates how changes in global market structures, with industry consolidation and shifts in purchasing patterns, affect the whole supply chain, and how the gains from liberalized agricultural trade are distributed.

[422] Rajeev Jain, Trade Pattern in SAARC Countries, Reserve Bank of India Publication, Available at http://www.rbi.org.in/scripts/bs_viewcontent.aspx?Id=2255.

4.0 FINDINGS AND ANALYSIS

The Research Model suggests that there is a *need* for (a) the Government, (b) the Business Houses – both established and upcoming, and (c) the Trade Bodies (i.e., Federations/Chambers/Associations) of Bangladesh to immediately institute an operations-based approach leading towards a Value Chain Framework in Foreign Trade Oriented Marketing of Bangladesh Agricultural Commodities and Services, with production and marketing functions of a certain produce, i.e., jute, being taken for formulating a generic model under Conditions of Multilateral and Regional Trade Negotiations to - (a) widen existing trade patterns, i.e., products, services, and compositions, and (b) explore new markets.

Since – (a) it is obvious that jute is one such produce which combines and spans through all sectors of the economy, including labor, land, capital (both short term working capital and long term investment grade), manufacturing (and value addition) and marketing, and since – (b) jute sector in Bangladesh has been subject to policy interventions which have been rather erratic in nature, taking jute as the core product to formulate the integrated business model could be a good approximation for instituting an operations approach in the field.

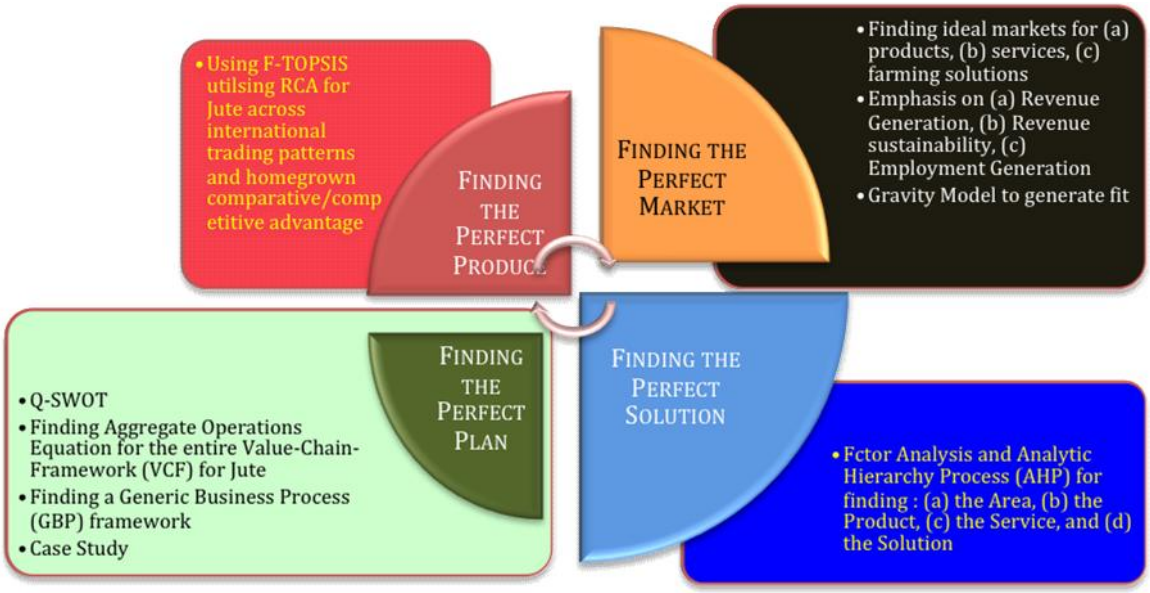

Figure 24: Research Model: Workflow

What follows next is a summary of the findings under each broad objective.

4.1 Defining a prioritized Agricultural Business Policy Framework for Bangladesh with respect to International Trading and Homegrown competitive/comparative advantages using Fuzzy TOPSIS (Technique for Order Preference by Similarity to Ideal Solution) with specific reference to Jute - with RCA (Revealed Comparative Advantage).

4.1.1 Secondary Findings

For the baselines – which have been built on the MPhil level research, it has already been stipulated that under differentiated and negatively distorted subsidies regimes prevalent in the World Trade

Organization – which affect the patterns in flow of tradable goods and services world over, it could be implied that Bangladesh would lose out 'financially' if agricultural subsidies provided by the industrially developed countries are not adequately addressed through the WTO for - (a) decisions of production and pricing of agricultural commodities in Bangladesh (export-oriented) ; (b) analysis of the impact of de-subsidized trade patterns in agricultural commodities (phase-wise; in the international market) on the domestic industrial output; (c) analysis of opportunities for Bangladeshi agricultural commodities in the international markets under different situational conditions.

The baseline research area in the backdrop of such a wide-ranging agricultural negotiation framework was divided into two major divisions:

iii. Production and pricing of agricultural commodities in Bangladesh (for exports), with respect to:
   a. Situational analysis under different de-subsidized trade patterns/conditions in agricultural commodities (phase-wise; in separate but logical combinations/configurations; in the international market; under WTO regime)
   b. Impact assessment of such production and pricing decisions on the domestic industrial output; and
   c. Opportunities for Bangladesh agricultural commodities in the international markets under different situational conditions (i.e., WTO trade negotiations on agricultural commodities and withdrawal of tariff/non-tariff barriers).

iv. Preparation of a WTO agenda for Bangladesh with respect to agricultural commodities.

The control conditions included:

v. In respect of negotiations in trades, sovereign and other administrative pre-conditions would remain static, if not unchanged, during the entire course of the specific study; as well as for the projected time frame.
vi. WTO negotiations would follow a logical and sequential pattern with respect to formulation and execution of resolutions.
vii. Necessary domestic pre-conditions (governance, legal framework, multilateral negotiation systems, regional participation, etc) would prevail for the execution of a coherent WTO policy.
viii. Production sensitivity to inputs would remain valid for the time period projected.

For reference, the objectives of the MPhil research were to find comparatively competitive agricultural produces and their marketing strategies under different stages of de-subsidization selecting suitable block/countries to strengthen bargaining power and to link agricultural subsidies negotiation pattern for Bangladesh especially with reference to negotiations on GATS Mode-IV (especially for movement of service providers). Specific objectives of the previous project at the MPhil included:

v. Analyzing the trading and protection scenario for finding the agricultural products where Bangladesh holds comparative advantages.
vi. Testing the commercial viability of selected products for exports at different stages of de-subsidization in the WTO.
vii. Finding the avenues for advanced agricultural marketing / financing options.
viii. Finding specific WTO negotiation strategy that Bangladesh would follow for linking agricultural production and service provision patterns with GATS Mode–IV.

Primary research for the MPhil project analyzed the scenario for the different stages of de-subsidization and based on the analysis suggested a comprehensive policy for WTO negotiation on agricultural products and recommended product-selection and production patterns with the

opportunities for exporting which are economically beneficial for Bangladesh. The scope of the research area included:

vi. Existing composition of the agricultural produces for export
vii. Spatiotemporal projection for world prices of agricultural commodities with WTO de-subsidization in agricultural subsidies
viii. Situation analysis for advanced marketing in agricultural commodities where Bangladesh has comparative advantage basing on above findings.
ix. Specific negotiation strategy for WTO on agricultural subsidies
x. Specific tactics for implementation of the WTO strategy (devised thus)

Technically, 4 (four) simulation exercises depicting the current flow of negotiations in the World Trade Organization, and 2 (two) decision points, which rendered concrete and consolidated understanding about:

iii. The production strategy in agriculture as it should look like under the changed subsidization schedule, and
iv. The national stance in WTO as it should look like with regard to the impact of de-coupling and other subsidies withdrawal measures.

The research at this level had aimed to ascertain a direction for the following end results:

iv. Impact on the world agricultural commodity prices on the basis of different levels of (spatiotemporal) withdrawal of subsidies in the world market
v. Appropriate Bangladesh agricultural products (for export) at different levels of withdrawal of agricultural subsidies
vi. Appropriate marketing niche and strategy for the development of international trade in agricultural commodities under differentiated subsidies regime in the WTO.

The research findings supported the "notion" that <u>Bangladesh can claim its position as an agro-commodities exporter under a stable WTO regime</u>. However, the recommendations put forward in the individual product/commodity analysis would assist in the resolution of the minor glitches that the agricultural sector is facing at this moment – arising out of primarily three reasons:

iv. Technological inferiority
v. Management inefficiency and absence of advanced marketing focus/plan/control mechanisms
vi. Input unavailability.

As primary research found out, in the face of a trade regime, which threatens to wipe out the inefficient from the broader range of competition in the world market, priority areas for intervention and support include:

iv. Increasing agricultural productivity, diversification, and value addition
v. Improving factor markets, access to assets and natural resource management (including, but not limited to:
    a) Agricultural land
    b) Agricultural inputs
    c) Rural finance
    d) Water resources management, and
    e) Natural resource management
vi. Strengthening Rural Institutions and Livelihood Support

In view of the above findings, the previous paper proposed that:

iv. Bangladesh pursue an agricultural subsidies pattern in line with the World Trade Organization (WTO) negotiation pattern but independent in its focus on:
    a) Providing a safety-net for the farming community
    b) Providing food-security to the community and the society
    c) Providing a stable production base for the agricultural products
v. Bangladesh raise the socio-economic issues of its one hundred and sixty million people in the WTO to form a consensus bloc on issues related to subsidies rationalization and tariff-binds for the LDCs and Developing Countries. This is a major concern for especially the countries in the west, which hover almost on the verge of paranoia as far as the security regime is concerned.
vi. Quantify its temporal orientation in agricultural production and growth patterns for presenting the findings in a meaningful pattern to the World Community.

Obviously, the papers presented during the MPhil program covered a lot of area with regards to policy imperatives for the Government as far as WTO negotiations were concerned. However, even the patterns in WTO negotiations have changed. It is no longer the monolith of diplomatic prerogatives. The stalled DDR (Doha Development Round) has suddenly been revitalized after a prolonged backchannel negotiations for more than eight years and with BRIC (Brazil, Russia, India, China, *and now, Indonesia*) taking a lead role in the patterns which are slowly emerging, the focus is very much on accentuating rather predatory marketing systems and value networks for materializing solid business advantages.

In other words, the focus is on solidifying business propositions and networks, which apply to the feasibility of a functioning (complete) marketing system (with 4Ps: Product, Price, Place, and Promotion, plus the added P: Public Relations). Basic proposition is that agriculture is not limited to farm products from within the traditional households inside the country now. Rather, the range spreads to include, but not limited to:

iv. Composite farms
v. Contract farming, and
vi. Setting up Wholesale farms abroad in regions where factors of production suit the needs of the entrepreneurs.

It may be mentioned that a ten product preferred agricultural spectrum was drawn in the previous sets of paper. Therefore, to make the study at this level more specific, a particular product line, i.e., Jute, has been chosen. This is to ensure that the learning from studies on the international trade in agricultural commodities and services from Bangladesh under conditions of multilateral and regional trade negotiations could be modulated into a generic business model and an operations approach (read, equation) could be formulated for eventually replicating across different other product and service categories. It is believed that if the paper concentrates on a specific product, i.e., 'jute', on which we already have trend data and secondary research done (especially at the MPhil level papers) and focus on finding out an 'optimal' operations-based solution for the production-marketing-distribution of the product (i.e., the entire range of products which may emanate out of the generic terms) using various mathematical models, primarily based on, but not limited to an adapted (or a muted form of) 'Gravity Models' and the 'Karmakar Algorithm' might just result in a wonderful dissertation of how actually the business model should look like in the case of Bangladesh - with boundary conditions set under various subsidy regimes and multilateral/bilateral trade pacts (read, trade diversion measures).

It is not only international trade and an effort to introduce an operations approach into the agricultural (i.e., jute, for the purpose of this study) marketing paradigm of Bangladesh that prompted this writer to undertake this study. While it is true that Jute was found to be a niche product in which Bangladesh held competitive advantage, it was also found to be an agricultural produce which consolidates the widest variety of production inputs and industrial manufacturing avenues (read, value addition). To begin with, there is a firm personal conviction that the way Bangladesh Government divested from the Jute-centric industrial sector in the nineties was not entirely appropriate. This paper, would therefore, add a chapter to prove that the decision to 'divest' from the large jute mills in the nineties was a wrong decision, both financially in the short run and strategically in the long run. While the glory days of Jute essentially started with private sector organizations and trading arrangements, post-liberation of Bangladesh, the sector was led into public undertakings with consequent introduction of highly political content in management and financial overheads. This paper would also prove, with modified RCA (Revealed Comparative Advantage) models that Bangladesh still holds RCA in Jute and advanced category derivatives (both products and services) – thereby complementing the argument that the divestiture from the jute-based industrial architecture at the behest of the Bretton Woods Institutions was a faulty decision on the part of the Government.

With boundary conditions in subsidies and trade diversion (read, trade pacts; both multilateral and bilateral), this paper could also aim for a modified Gravity Model in international trade in jute and jute derivatives. After the first round of primary qualitative research, the author plans to use Cobweb programming and Karmakar Algorithm, to derive the equations to describe how exactly the decision to trade is arrived at (i.e., for Jute). Production, usage (various) and pricing data are already being collected. This paper is planned to be a trove of archivally important data from authenticated sources so that the outcome document becomes a reference material in itself.

It is also planned that at this part of the paper, both conjoint analysis and factor analysis would be used to derive the marketing functions (read, equations) which could determine the ''future'' of advanced jute goods and derivatives. This paper looks into the possibility (read, probability) of farming solutions which can be adopted to 'optimize' the return from both: (a) the natural endowments, and (b) the acquired skill sets (with components in: (i) value addition processes, (ii) scale efficiencies, and (iii) learning curve positions). This may take us into composite, or leased, or contract farming (abroad) farming solutions - depending on what the outcome of the hypotheses testing indicates.

Ultimately, based on the above, a generic business model for jute is proposed - for its revival and for its diversified growth.

While a lot has been said about the past glory of Jute and also its revival, there has been no operations-based research on the subject so far. The author of this paper believes that this paper could actually raise a debate in the policy-field and bring out a substantive contribution to the operations research area in Bangladesh.

This is project is conceived to be focused both on the academic rigor and practical applicability of the concepts under scanner. It essentially attempts to encapsulate the ideas and ideations that this author has had the privilege of studying and experiencing as an individual. While the paper is woven essentially around certain objective parameters and solid and quantitative research models in vogue for research of such magnitude in operations, economic and marketing areas.

The objects under scanner are varied in nature. They include, and not limited to, production factors and functions, produce and value-added derivatives, input markets and output markets, comprehensive value chains and cross-cutting networks – concentric on primarily two loci, i.e., international trading configurations (at bilateral, multilateral, regional and global) and jute (at levels

of production, processing, manufacturing and value addition, marketing and advanced derivatives). By its very nature, the paper is conceived at a multi-dimensional space where all variables are categorized as per their trend data and also projected at multi-axes spatiotemporal dimensions.

But to this author, the project is conceived as an intellectual endeavor to address a very basic question – what happened to an once prosperous Bengal and its agro-based industrialization patterns before the partition of the sub-continent. While the erstwhile Bengal enjoyed one of the highest per capita GDP across the entire breadth of the Indian sub-continent and a significant portion of the primary wealth generation was contributed by the jute sector even till the 1971 War of Liberation, the situation started changing rapidly in the seventies and afterwards. Once profitable jute sector suffered an essentially unplanned nationalization spree. Fixed labor content was charged as management overhead – leading to pseudo employment and a drag on the individual firm's profitability score. Jute Mills in general suffered a part of the deep scars that the bloodstained war of liberation had put on the green face of Bangladesh. Then came the nineties. With the return of democracy came the stings and strings attached to the flow of funds from the Bretton Woods institutions. Large-scale sales of jute-centric heavy industry – including the largest jute mills of Asia, Adamjee, took place. All in the name of reducing burden on the national exchequer. Apparently, wealth generation capabilities were compromised for short-term but chronic income and fund flow imbalances. While there was nothing inherently wrong with the jute sector within itself, basically Bangladesh jute collapsed.

While Bangladesh jute sector was going down, at that very same time, jute mills around the world started growing up! And then came the new millennium and its consequent emphasis on eco-friendly jute and an acute shift of focus from bio-un-degradable cheaper synthetic substitutes. Value added products on a jute frame started taking center stage once again!

Couple all these to the different stages of finding global platform for trade negotiations, regulations and deregulations, with later emphasis on regional and sub-regional trade blocks.

All these when seen from the perspective of a professional who has worked across private, public and regulatory sector organizations both inside and outside the country whether optimal decisions were made in the first place, if ever, at all, with regards to the main cash crop of Bangladesh.

This author believes that the decision – highly influenced by the structural adjustment plans suggested by essentially biased Bretton Woods' consultants was flawed, if not entirely wrong. While Bangladesh divested from her heavy industrial architecture, dismantling the jute mainframe, smaller and agile firms were growing up all over West Bengal and even as far as in Thailand. This paper analyzes the 5Ws and 1H of the entire decision making process related to the primary cash crop of Bangladesh and how in stages a comprehensive value-chain was cut off into pieces and growth centers of the region were put out of sync with their natural vein-artery-capillary networks and how artificially created conundrums were prioritized – first during and after the division of the Sub-Continent and then after the 1971 War of Liberation, and then the eventual divestiture from Public Enterprises in the nineties.

What we now see and experience, and especially with regards to this author's personal experience travelling to the jute producing countries of the world, this could be a unique opportunity to learn what went wrong and how and may be use that for composing a generic operations based business model for agricultural produce and even services!

4.1.2 Climate Change and Crop Production[423]

Impact of climate change on crop production raises questions about ability to adaptation to achieve food security in Bangladesh because of the uneven allocation or distribution of resources and damages of crops due to recurrent climatic incidents of floods, drought and salinity. The children and women among the marginal people and poor are the major victims to it who are trying to adapt naturally to such impacts but vulnerability to natural disasters and limited resources hindering them to solve their problem and food security. The marginal people and poor are expected to suffer most mainly by salinity and flood in Bangladesh.

Significant alterations in climatic variables will affect food security and agricultural production through their adverse impacts on all components of local, national and global food systems. More intense and more frequent extreme weather events such as flood and droughts, increasing abnormalities in rainy season patterns and rising sea levels are already having instant impacts on food production, incidence of food emergencies, food distribution infrastructure, human health and livelihood assets and opportunities, in both urban and rural areas of Bangladesh. Impacts of gradual changes in average rainfall and temperatures are likely to be disruptive in Bangladesh, whether negative and positive, and may include:

Degradation of ecosystem functioning and loss of biodiversity of natural habitats,
Changes in land suitability for different varieties of crops and pasture,
Loss of cultivable land due to associated salinity and increased aridity, rise in sea level and groundwater depletion,
Changes in the productivity, community composition and distribution of marine resources,
Changes in the productivity and health of forests,
Changes in the good quality water sources for inland fish, livestock and crop production,
Changes in the vectors and incidence of different types of diseases and pests,
International and internal migration and
Changes in health risks among people.

Every crop has a minimum and maximum temperature limit for their reproductive and vegetative growth. When temperature exceeded the upper limit or falls below the range, crop production changes drastically. A study found that 1 0C increase in pick temperature at reproductive, vegetative and ripening stages decrease Aman-1 rice production by 17.28 and 53.06 tons respectively in Bangladesh. The prospect of growing potato and wheat would be severely impaired with the temperature change (by 20C and 40C). Production loss may exceed 50% of the achievable yields.

Impact of rainfall

Rainfall is one of the most important climatic variables for crop production. Every crop has critical stages when it requires water for their development and growth. Moreover, excessive rainfall may create water logging condition and flooding that also destroys the crop production. It was found by a

[423] Section draws reference from the following sources at different phases:
1. FAO, 2007. Climate Variability and Change: Adaptation to Drought in Bangladesh. Pp 66
2. Karim, Z., Hussain, S.G. and Ahmed, M., 1996. Assessing impacts of climate variations on food grain production in Bangladesh: Water, Air, and Soil Pollution, 92:53-62.
3. Masum, S. J. H. and Hasan M M M., 2009. Climate Change Impact on Food Sovereignty in Bangladesh. Retrieved 07/10/2013 from http://www.climatefrontlines.org/sites/default/files/Climate%20Change%20impact%20on%20Food%20Sovereignty%20in%20Bangladesh.pdf
4. MoEF, 2011. Climate Change and Agriculture in Bangladesh: Information Brief. Ministry of Environment and Forests, Government of the People's Republic of Bangladesh.

study that rainfall increase in 1mm decreased the production Aman rice by 0.292, 0.230 and 0.036 ton respectively.

Impact of Sea Level Rise

Sea level rise affects crop production in three ways, i.e., by flooding, by increasing cyclone frequency and by salinity intrusion. Combined effects of these factors decrease crop production in the coastal zone at a large extent. Salinity intrusion caused by sea level rise will reduce agricultural production by soil degradation and unavailability of fresh water (MoEF, 2011). Salinity also reduces the germination rate and terminative energy of some plants.

In addition, sea level rise submerged many areas which are already reported by scientist. As a result, damage of yields production will be more severe in future. About 1/3 of Bangladesh is influenced by tides of the Bay of Bengal.

Impact of Flood

Flood has most harmful effect on agricultural production of Bangladesh. The flood of 1988 caused reduction of crop production by 45% (Karim et al., 1996). Prolonged floods delay Aman plantation, which cause significant loss of Aman production, as monitored during the 1998 flood. Loss of Boro2 rice crop production from flash floods has turned into a regular event in the Haor areas of Bangladesh over the recent years.

Impact of Cyclone

According to the Department of Agricultural Extension of Bangladesh, loss in rice production is found 1.23 million tons during the cyclone of SIDR in 2007, with 535,707 tons in four severely affected districts, 555,997 tons in 9 badly affected districts and 203,600 tons in 17 moderately affected districts in Bangladesh.

Impact of Drought

Drought mostly affects in the post-monsoon and pre-monsoon periods in Bangladesh. Bangladesh has suffered approximately 20 drought conditions during the last 50 years. The drought condition in the recent decades in North-Western Bangladesh had led to a loss of rice production of about 3.5 million tons in the 1990s. In every five years, Bangladesh is affected by big country-wide droughts. However, local droughts occur most often and affect the life cycles of crop. The agricultural drought, which related to soil moisture deficiency happens at different stages of the crop growth and development. Monsoon failure often brings reduction of yield and creates famine to the affected regions. Northwestern regions of Bangladesh are particularly vulnerable to the droughts. A severe drought can create more than 40% damage to the broadcast Aus (FAO, 2007).

It is clear that many pathways by which climate change will affect food availability, utilization and accessibility. Climate induced changes both manmade and natural in crop production will likely affect the income levels of the poor and marginal people as well as increase food prices and negatively affect food security in Bangladesh.

4.1.3 Policy Developments Affecting Jute and their Impact on its Production and Trade[424]

[424] Drawn from article, titled, "Policy developments affecting jute and hard fibres markets and their implications for production and trade", by Kaison Chang, Senior Economist, FAO, Trade and Markets Division, Food and Agriculture Organization of the United Nations, Rome, 2013

4.1.3.1 Trends in the Availability of Agricultural Land in Bangladesh

Agriculture has a strategic function, because it is a main food supplier for people in Bangladesh[425]. Different estimation methods of agricultural production provide various data and information, so their reliability is questionable. One source of error lies in information on acreage of agriculture fields, which results in calculations of planting area and yields.

According to official data from Soil Resources Development Institute (SRDI) in 2010 crop agriculture land covers 9.5 million hectares in Bangladesh. On the other hand, Bangladesh Bureau of Statistics (BBS) estimated 8.52 million hectares is under crop land in 2010-11 and the Department of Agriculture Extension (DAE) stated in the Krishi (agriculture) Diary (2011), it is about 9.098 million hectares. Differences are due to the methodology employed by different organizations and time required for one cycle of survey.

The information regarding the shifting rate of agricultural land to non-agricultural use has been reported to be about 1% per year (UNDP 2003). This rate of shifting however does not seem to have a sound scientific basis. In fact, if this number were correct, at least one quarter of the country's agricultural land would have been lost since independence.

SRDI estimated land transfer from agriculture to non-agriculture sector using aerial photographs and found approximately 0.13% change per year during the period 1963 to 1983 (Rahman and Hasan, 2003). It is likely that the shifting rate may be much faster during the 2000s till date, because of faster economic growth and the infrastructure development implied. From the data available in BBS the decline of agricultural land (crop agriculture) is about 0.27 percent annually from 1976-77 to 2010-11 and 0.42 percent annually from 1976-77 to 2000-01 There is slight increase of agricultural land from 2000-01 to 2010-11 with annual average of 0.14% percent.

Using various sources including BBS, Rahman (2010) estimated the overall land area increase by 4% from 1948 to 2006, due to reclamation of char lands and the cultivable land recorded an overall decline of 0.10% annually, assuming transfer to housing, road and industrial infrastructures. Center for Environmental and Geographic Information Service (CEGIS) reported that during 1973 to 2008, total land eroded along Jamuna, Ganges and Padma rivers is about 156,780 hectares and on the other hand accreted about 45,520 hectares (CEGIS, 2008).

As the world population increases and the global food supply-demand balance may become less stable, food production systems are now an important policy issue as a subject of intense research. It is not assured that Bangladesh can keep an adequate and continuous supply of food at an affordable price under the influence of global climate change, local food production situation and changing global food supply-demand balance. Careful assessment of the changing agricultural system and environment is an essential first step to understanding current and future food security issues of Bangladesh. Bangladesh needs to collect its own intelligence about agricultural systems to develop a comprehensive strategy in order to ensure secured food supplies and maintain peace and stability.

The land and resource inventory, monitoring and updating of land use in the conventional way through a field survey is very expensive and the existing methods used to perform this work requires comparatively longer time. Remote sensing technology that records data periodically of the earth

[425] Materials quoted and reproduced from paper titled, "Trends in the Availability of Agricultural Land in Bangladesh", organized by Soil Resource Development Institute (SRDI) Ministry of Agriculture, Krishi Khamar Sarak, Dhaka, September 2013

surface can be used as an alternative to support of field research mainly to measure the changes in land use, including the planting period in the paddy field. Hence, coverage of satellite data provides information of agricultural land condition even in remote areas. For a sustainable crop production to ensure food security, land use planning (LUP) approach requires more and more data integration, multi-disciplinary and complex analysis, and need faster or more precise information. Data on the trends in the availability of agricultural land is most important requirement for any land use planning related to agriculture and food security. Geographic information system (GIS), which has strong capacity in data integration and analysis and visualization, become the main tool to support LUP approaches. Issues which confound researchers while making educated approximations regarding anything agricultural are related to how to a) quantify how the availability of agricultural land has evolved since independence; b) quantify how the availability and allocation of the total land to the various uses has evolved at national and sub-national levels since independence; and c) quantify land lost and gained due to various factors. The following text gives a clear indication of what we are dealing with so long as jute production is concerned.

Agricultural land:

Table 15: Availability of Agricultural Land 1976 - 2011[426]

(Area in million hectares)

Year	Total land area of Bangladesh	Net cultivable land	% Net cultivable land	Year	Total land area of Bangladesh	Net cultivable land	% Net cultivable land
1976-77	14.28	9.39	65.75	1994-95	14.84	8.77	59.10
1977-78	14.28	9.38	65.68	1995-96	14.84	8.72	58.76
1978-79	14.28	9.38	65.68	1996-97	14.85	8.24	55.49
1979-80	14.29	9.39	65.71	1997-98	14.85	8.36	56.30
1980-81	14.29	9.38	65.64	1998-99	14.85	8.43	56.77
1981-82	14.29	9.38	65.64	1999-00	14.85	8.45	56.90
1982-83	14.29	9.36	65.50	2000-01	14.85	8.40	56.57
1983-84	14.45	9.46	65.47	2001-02	14.84	8.48	57.14
1984-85	14.48	9.43	65.12	2002-03	14.84	8.42	56.74
1985-86	14.48	9.44	65.19	2003-04	14.84	8.40	56.60
1986-87	14.70	9.51	64.69	2004-05	14.84	8.44	56.87
1987-88	14.84	9.82	66.17	2005-06	14.84	8.42	56.74
1988-89	14.84	9.84	66.31	2006-07	14.84	8.41	56.67
1989-90	14.84	9.78	65.90	2007-08	14.84	8.65	58.29
1990-91	14.84	9.72	65.50	2008-09	14.84	8.64	58.22
1991-92	14.84	9.09	61.25	2009-10	14.84	8.63	58.15
1992-93	14.84	8.75	58.96	2010-11	14.84	8.52	57.41
1993-94	14.84	8.75	58.96	-	-	-	-

Source: BBS. *Note: Agricultural land is the summation of cropped land, current fallow and culturable waste.*

Agricultural land included cropland, forest, mangrove forest, river, lake (Kaptai), beel and haor, tea estate and salt pan. The area under agricultural land was 13303654 ha which 91.83 percent of the country was in 1976. This agricultural land has been decreased to 12742274 ha with the annual loss of 23391 ha in 2000 and again with annual loss of 56537 ha it reaches to 12176904 ha in 2010. The annual loss of agricultural land during the study period (1976-2010) was 46948 ha. This indicates that the availability of agricultural land was in decreasing trend with much faster during the period from 2000 to 2010. Considering percentage of the total land mass the area lost annually from agricultural land is 0.172, 0.416 and 0.244 percent during 1976-2000, 2000-2010 and 1976-2010 respectively. Again considering acreage of agricultural land in 1976 is the base then annual land lost from agriculture is 0.176, 0.444 and 0.249 percent during 1976-2000, 2000-2010 and 1976-2010 respectively.

[426] Ibid

Crop land: Crop land included land under cultivated, cultivable waste and current fallow. Crop land covering maps of Bangladesh produced by using Landsat MSS 1976 and Landsat TM 2000 and Landsat TM 2010 showed that the total area under crop land was estimated at 9,761,450 ha in 1976, in 2000 it was 9,439,541 ha and 8,751,937 ha in 2010 corresponding to 67.38, 64.96 and 60.04% of the total land area in Bangladesh. This indicates that crop land decreased over time and this was estimated more than five times during 2000 to 2010 compared to 1976 to 2000. The annual land loss from crop land was estimated at 13413 ha (0.137%) during 1976-2000 and 68760 ha (0.728%) during 2000-2010, considering the area (ha) under crop land in 1976 and 2000 as the base. Though the shifting rate is far below the estimation done by Planning Commission (2009), i.e., 82000 hectare/year, still it is very alarming, as because food security is the main economic and political concern of Bangladesh. However, the overall rate of decrease in crop land was 0.304% during 1976-2010.

Table 16: Utilisation of Land for the Production of Different Crops

Crops	Area (ha)	Percent of total cropped area
Rice	10263192	72.85
Wheat	804543	5.71
Other cereals	89438	0.63
Pulses	683943	4.85
Oil seeds	458120	3.25
Fibre crops	614334	4.36
Sugar crops	190613	1.35
Fruits	184543	1.30
Vegetables	200731	1.42
Potato	136383	0.96
Sweet potato	41684	0.29
Spices and condiments	143668	0.22
Coconut	31971	0.25
Betel leaf	14974	0.34
Tea	48564	0.23
Tobacco	32780	0.79
Others	112108	0.01
Total	14087607	100

BBS: Statistical yearbook 2007

Forest: The area occupied by forest was 1754917 ha in 1976 which was 12.11% of the total land mass of the country. However, forest area decreased to 1311121 ha which was 9.02% in 2000 and then increased to 1434136 ha or 9.84% of Bangladesh in 2010. The annual trend of decreasing forest area was 18492 ha (1.054%) from 1976 to 2000 and that of increasing trend was 12302 ha (0.0938%) from 2000 to 2010.

Mangrove: The area under mangrove was 452444 ha i.e. 3.12% of the total area of Bangladesh in 1976. This study revealed that the area slightly increased (1431 ha annually) and become 3.35% in 2000 and thereafter decreased significantly to 3.03% in 2010 and annual decrease rate is 4534 ha. It was estimated that the annual rate of increasing mangrove area was 0.10% during the period 1976 to 2000. This increase of mangrove forest may be due to mangrove plantation of 132000 ha of land along the shore land of coastal districts up to 2000 as reported by BFD (2011). During 2000-2010, mangrove area decreased at the rate of 0.032%, although the overall rate of such decrease was 0.003% from 1976 to 2010.

River: The area under river remained almost static during the period from 1976 to 2010 with very slight decrease from 1976 to 2000 and slight increase from 2000 to 2010. The total river area was

911819 ha in 1976 that very slightly decreased to 888441 ha in 2000 and then slightly increased to 939073 ha in 2010 indicating 6.29 percent, 6.11percent and 6.44 percent of the total area of Bangladesh in the year 1976, 2000 and 2010, respectively. The annual decrease and increase of river area were 974 ha and 5063 ha during 1976-2000 and 2000-2010, respectively. From this it is estimated that the rate of annual decrease in river area was 0.007 percent from 1976 to 2000 and that of increase 0.033 percent from 2000 to 2010 with overall increase 0.004 percent from 1976 to 2010.

Lake: Area under lake was estimated 50829 ha (0.35 % of the total area) in 1976 and remained almost same area having 51739 ha in 2010 and estimated about 0.35% of the total area of the country. However, lake area had been somewhat over estimated i.e. 58261 ha (0.40%) in 2000 probably due to higher seasonal flooding.

Beel and haor: Area under beel and haor was estimated 239977 ha in 1976 which covered 1.66 percent of the total area of the country. With the addition of 11797 ha, the area under beel and haor rose to 1.73 percent in 2000. Thereafter, there was a slight decrease (1047 ha) of land under beel and haor in 2010. It was also estimated that the annual rate of increase was 0.003 percent from 1976 to 2000 and that of decrease was 0.001percent from 2000 to 2010 with the overall increase of 0.002 percent from 1976 to 2010. Increase of area under beel and haor during 1976 to 2000 may be because of some area like beel Dakatia got under permanent water logging due to faulty flood management. Decrease of area under beel and haor during 2000 to 2010 may be because of some initiatives taken by the government to reduce the water logging in some area and also because of time of satellite image taken.

Aquaculture: Area under aquaculture was estimated only 582 ha in 1976 which noticeably increased to 143506 ha in 2000 and that was 0.99 percent of the total area of the country. However, the areas under aquaculture are increasing even after 2000 and stood 175663 ha which was 1.21 percent of the total area of the country. The annual rate of increasing aquaculture area was 0.041 percent and 0.022 percent for the period 1976 to 2000 and 2000 to 2010, respectively. However, the overall annual rate of increasing aquaculture area was 0.035 percent in respect of total area of Bangladesh. It may be mentioned here that the ponds within the homestead were excluded from the estimation of aquaculture.

Tea garden: Land cover including tea estate area was 119847 ha in 1976 and increased to 138533 ha in 2000 with the annual rate of increase by 0.005 percent. Thereafter, area under tea estate declined annually at the rate of 0.029 percent and reduced at 96152 ha in 2010. However, the overall decrease in tea estate has been estimated at 0.005 percent annually.

Salt pan: Area under salt production has been consistently increasing in the coastal region in Bangladesh. It was only 11789 ha, which was estimated 0.08 percent of the total area of Bangladesh in 1976. However, this area has increased to 24306 ha and 36022 ha with the estimated rate of 0.17 percent and 0.25 percent of the total in 2000 and 2010, respectively. The rate of increase in salt pan area was 0.004 percent during the years 1976 to 2000 and that of 0.01 percent during the years 2000 to 2010. The average rate of increasing salt pan area was 0.005 percent of the total area during the study period. Annual land gained in salt pan was 522, 1172 and 1010 ha during 1976-2000, 2000-2010 and 1976-2010 respectively.

Non-agricultural land:
Non-agricultural land included rural settlement, urban and industrial area and accreted land. The area under non-agricultural land as estimated in this study was 1183605 ha, which was 8.17 percent in 1976, which increases to 1788307 ha or 12.31 percent in 2000 and which further increases to

2400867 ha or 16.47 percent in 2010. Considering percentage of total land mass land gained under non-agricultural land gained at annual rate of 0.172, 0.416 and 0.244 percent during 1976-2000, 2000-2010 and 1976-2010 respectively. Considering area (ha) under non-agricultural land in 1976 and 2000 is the base, land gained during 1976-2000, 2000-2010 and 1976-2010 at annual rate of 2.129 percent (25169 ha), 3.425 percent (61256 ha) and 3.025 percent (50719 ha) respectively.

Rural settlement: Area under rural settlement was estimated 885637 ha in 1976 occupying 6.11 percent of the total area of the country. Rural settlement area consistently increased over time at a greater rate and become 10.03 percent (1458031ha) in 2000 and 12.12 percent (1766123 ha) in 2010. The annual rates of increasing rural settlement area were 0.163 percent and 0.208 percent during 1976-2000 and 2000-2010, respectively. The overall annual rate of increase in rural settlement was 0.177 percent during 1976-2010. From this study it is revealed that rapid growth of rural settlement is the main driver of the declining agricultural land specially crop land. It is estimated that annually 23850 ha of land went to rural settlement during 1976 to 2000 and 30809 ha of land during 2000 to 2010.

Urban and industrial area: There is significant increase in urban and industrial areas of the country during the period from 1976 to 2010. The total urban and industrial area was 26799 ha in 1976 that expanded to 47495 ha in 2000 and dramatically increased to 87616 ha in 2010. This indicates that the percent increase was almost double from 1976 to 2000 and more than three times from 1976 to 2010. The annual rate of increase was also higher (0.027%) during 2000-2010, although the increase was only 0.006 percent during 1976 to 2000. However, overall annual rate of swelling urban and industrial area was 0.012 percent in respect of total area of Bangladesh. During 2000 to 2010 annually 4012 ha of land went to urbanization and industrialization. Highest growth of urban and industrialization occurs in Dhaka Division (1995 ha/year), next to Dhaka is Chittagong (756 ha/year), Sylhet secure third position (533 ha/year) and the lowest in Rangpur (115 ha/year).

Accretion: Accretion of land area in the river system of Bangladesh was much faster during the period from 2000 to 2010 compared to the period from 1976 to 2000. The accreted land area was estimated at 271169 ha in 1976 and only 11612 ha land was added by the year 2000, while it was 264347 ha during 2000-2010. The rate of land accretion was 1.8, 1.95 and 3.75 percent in 1976, 2000 and 2010, respectively. From this, it was estimated that the annual rate of accretion was 0.003 percent during 1976-2000 and 0.180 percent during 2000-2010 with an average of 0.055 percent during 1976-2010. Subarna char, Nijhum Dwip under Noakhali District is the best example of accretion.

4.1.3.2 Policy Framework for Natural Resources Usage

Increasingly, the world is realizing that better use must be made of precious natural resources[427]. Changes in the regulations are playing an increasingly important role in encouraging industry to

[427] Singapore Journal of Tropical Geography 31 (2010) 254–269; Six decades of agricultural land use change inBangladesh: Effects on crop diversity, productivity, food availability and the environment, 1948–2006; by Sanzidur Rahman;

Land use change is increasingly scrutinized because of its close relationship with global climate change and global food security (Tong et al., 2003). In general, agricultural land use change is strongly affected by factors such as population growth, urbanization, agricultural product prices and world trade, and land use policies. Also, contrary to assertions that the global food supply was sufficient to meet food needs of the world's population for some time into this century (Islam, 1995: 1), unprecedented cereal shortages and hikes in food prices worldwide have made food security a top priority in development agenda (Allen, 2008). Estimates of the world's hungry have risen from 848 million in 2003–05 to 1.02 billion in 2009 (FAO, 2009: 11). Furthermore, 65 per cent of the chronically hungry (832 million) are concentrated in only seven countries: India, China, the Democratic Republic of the Congo, Bangladesh, Indonesia, Pakistan and Ethiopia (FAO, 2008a:

follow more environmentally sound practices[428]. Of direct relevance to the natural fibres economy are a number of legislative provisions ranging from the banning of non-biodegradable plastic bags to the establishment of end-of-life recycling requirements for the automobile industry. These regulatory provisions are indicative of the pronounced trend in many high-income countries towards enacting legislation aimed at reducing environmental damage and the associated costs to society.

The existing policy framework impacting production and trade of jute, and also four other hard fibres, i.e., abaca, coir, kenaf and sisal (called JACKS[429]), has been examined. Producing countries of these fibres are mostly Least Developed Countries (LDC) and the importance of these fibres to the economy of the producing countries and the attempt by these countries to articulate effective policies to accelerate the development of the respective fibre sub-sectors in a coherent manner are critical areas for study. For importing consuming countries, there is virtually no specific policy for JACKS per se, rather they are covered under many areas including tariffs and regulations, sanitary and phytosanitary measures and consumer and environment protection.

Although research into the use of JACKS in producing composites has gathered momentum and available scientific evidence validates the use of JACKS in geo-textiles and building material composites, their financial and economic viability are still questionable as no country is yet producing these composites on a commercial scale. Commercial trials are still on-going and governments are beginning to consider enabling policies, including establishment of economic exclusion zones, and tax holidays for companies that are willing to invest in the production of composite building materials, to facilitate development of this sub-sector. This should not be confused with the commercialization of composites in developed countries, mainly those made from wood chips (in Scandinavian countries and the United States) and flax and hemp (in Europe).

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12). Of these, Bangladesh is one of the countries most affected by high food prices (FAO, 2009) indicating its vulnerability in achieving food security.

[428] Agricultural development policy is the crux of land use change in Bangladesh, which has one of the lowest land-person ratios (0.12 ha) in the world (FAO, 2001). Agriculture continues to be the major source of livelihood accounting for 23.5 per cent of national income and 62.91 per cent (or 32.6 million) of the labour force (MOA, 2008:Table 7.02). Field crop agriculture, the dominant sector, accounts for more than 60 percent of agricultural value added and rice is the major staple field crop, occupying 70 percent of the gross cropped area (BBS, 2002). Overall, the agricultural sector likely contributes over 60 per cent of total GDP – if supporting activities, such as, transport, storage and marketing of agricultural products are taken into account (Alauddin & Tisdell, 1991). Historically a food deficit country, Bangladesh has, since becoming an independent state in 1971, pursued policies directed towards transforming agriculture through rapid technological progress to keep up with the increasing population. Consequently, national development programmes have set out to diffuse high yielding varieties (HYV) of rice and wheat, together with corresponding supports and provisions of modern inputs such as chemical fertilizers, pesticides, irrigation equipments and infrastructures, institutional credit, product procurement, and storage and marketing facilities. As a result farmers concentrated on producing HYV rice all year round covering the three seasons – namely pre-monsoon or aus rice, monsoon or aman rice and dry winter or boro rice – particularly in areas endowed with supplemental irrigation facilities. This came to be seen as problematic because the intensive monoculture of rice led to displacement of land under low productive non-rice crops such as pulses, oilseeds, spices and vegetables, leading to erosion of crop diversity, thereby, endangering sustainability of crop-based agricultural production system (Husain et al., 2001). It was further noted that 'the area under non-cereal crops has continuously fallen since late 1970s, mainly due to the expansion of irrigation facilities, which led to fierce competition for land between modern boro season rice and the non-cereals' (Mahmud et al., 1994: 2).

Since the early 1990s there have been no systematic analyses of longer-term agricultural land use change in Bangladesh (such as in Boyce, 1985; 1987; and Alauddin & Tisdell, 1991) against which to evaluate agricultural productivity or food self-sufficiency. Existing trend analyses of production growth (with implicit agricultural land use change) mainly cover the period 1973–91 (see BASR, 1989; Khalil, 1991; Mahmud et al., 1994). Crucially, too, there has been only one attempt to link the diffusion of Green Revolution (GR) technology to cereal availability (see Alauddin & Tisdell, 1991).

[429] JACKS: jute, abaca, coir, kenaf and sisal.

There is considerable scope for further developing commercial opportunities for JACKS which are exclusively supplied from developing countries. These natural fibre crops are of vital importance to the livelihood and food security of farmers in some of the poorest regions of the world. They provide employment for low-income populations in rural areas while contributing to food security in times of drought. For example, sisal plants tend to accumulate moisture around them which nourishes the food crops that are intercropped with them.

Although the traditional markets for JACKS have shrunk, mainly owing to the deep inroads made by synthetics, these fibres possess the technical and economic characteristics suitable for use in higher value innovative applications, such as composites, building materials, furniture and packaging material. Moreover, the potential for using biomass and waste to generate biogas, animal feed and fertilizer continues to grow. However, as mentioned in the introduction, the financial and economic viability of the production and trade of these products on a commercial scale are still being evaluated, particularly in terms of their competitiveness against existing products. So the use of JACKS in innovative industrial applications should take place alongside the traditional uses of these fibres.

In terms of world trade, jute and its manufactured products are the largest items traded, accounting for 60 percent of the total value of JACKS exported in 2011[430]. The value of world exports of jute and manufactured products increased from USD 0.74 billion in 2000 to USD 1.71 billion at its peak in 2007. After falling to a low of USD 1.05 billion in 2009, values eventually recovered to USD 1.44 billion in 2011 (figure follows)[431].

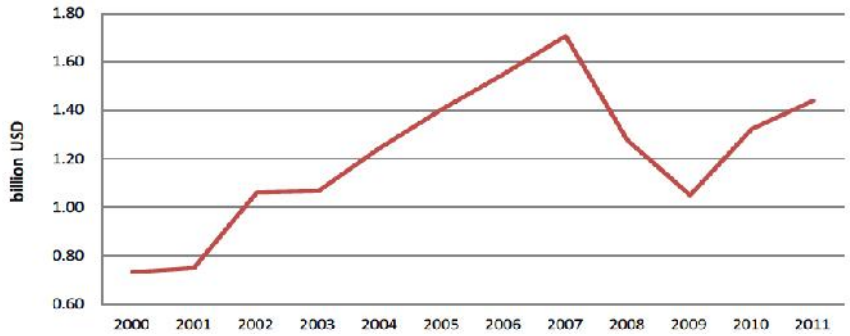


Figure 25: Trends in Jute Fibre and Manufactures Export Value (2001-2011)

For hard fibres, the value of exports peaked at USD 0.63 billion in 2006, dipped to USD 0.46 billion in 2007 before recovering in 2008 and reaching USD 0.98 billion in 2011 (figure follows)[432].

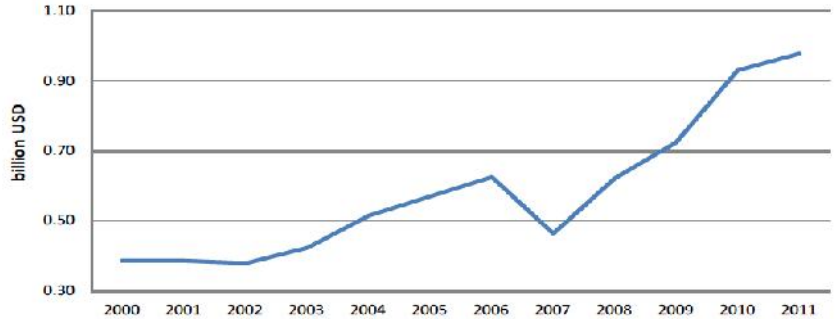


Figure 26: Trend in Hard Fibres Raw and Manufactures Export Value (2000-2011)

[430] Trade flow by source and destination are given in the policy supplement of the Statistical Bulletin CCP: HF/JU/ST 2013

[431] ibid

[432] ibid

The export growth experienced from 2000 to 2007 can be attributed in part to increased global demand for processed JACKS, driven by rising demand for natural fibre due to environmental concerns over the cost and impact of increasing use of petroleum derivatives and unsustainable deforestation practices, exacerbated by rising public perception of the negative effects of climate change.

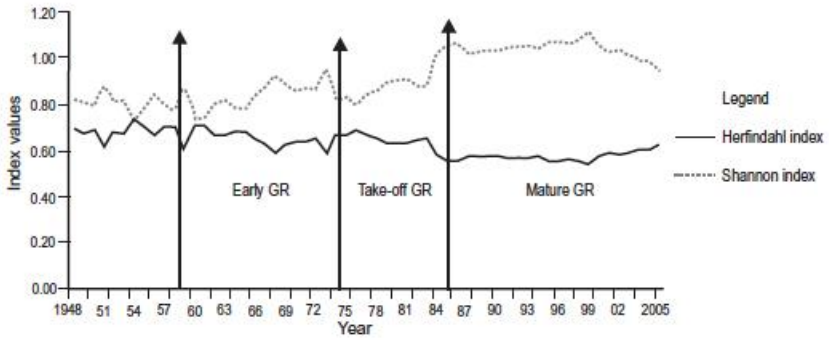
A recent analytical work (Sanjid; ibid[433]) suggests that about 76 per cent of the 251 estimated growth rate coefficients are significantly different from zero at 10 per cent level at least, implying that Bangladesh has experienced significant changes in agricultural land use and its associated effects over time[434].

The overall land area has increased by 4 per cent, from 14.28 million ha in 1948 to 14.84 million ha in 2006, owing to reclamation of char lands (new land rising from river beds). The net sown area available for agriculture recorded an overall decline of -0.1 per cent possibly from diversions into other uses such as housing, road and industrial infrastructures[435]. However, with improvements in irrigation the gross cropped area (GCA) – taking into account land area sown twice or three times in a year – increased steadily during the early and take-off stages of GR diffusion (1960–85) but stagnated during the mature stage (1986–2006), finally reaching 14.10 million ha in 2006. In other words, land use became very intensive in Bangladesh as reflected by the rise in cropping intensity from 127.9 per cent in 1949 to 176.9 per cent in 2005, with an overall estimated annual growth rate

[433] The analyses of changes in area planted and production involve eight major crop groups (aggregated from a total of 47 individual crops) at the national level over the study period 1948–2006, namely (i) cereals including local varieties of rice and HYV rice grown in each of the three seasons, wheat, maize and barley; (ii) cash crops including jute, cotton, sugarcane, tobacco, tea and betel leaves; (iii) pulses including gram, mungbean, lentil, khesari and black gram; (iv) oilseeds including mustard, sesame, linseed, groundnut and coconut; (v) spice crops including onion, chilli, garlic and ginger; (vi) potatoes including sweet potatoes; (vii) vegetables (summer and winter) including eggplant, tomatoes, cauliflower, cabbage and radish; and (viii) fruits including mango, banana, pineapple, papaya, jackfruit, litchi, guava and melon.

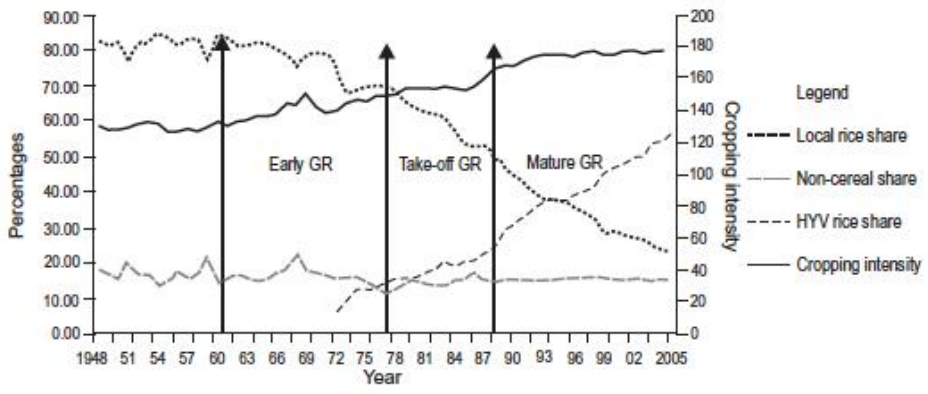
Index	Concept	Construction	Explanation	Interpretation
Shannon	Evenness or equitability (both richness and relative abundance)	$D_S = -\sum \alpha_j * \ln \alpha_j,\ D_S \geq 0$	α_j = area share occupied by the *jth* crop in *A* *A*=total area planted to all crops	Higher values of the index denotes higher diversity
Herfindahl	Concentration	$D_H = \sum \alpha_j^2,\ 0 \leq D_H \leq 1$	α_j = area share occupied by the *jth* crop in *A* *A*=total area planted to all crops	A zero value denotes perfect diversification and a value of 1 denotes perfect specialization. Thus, a negative sign of the index indicates a positive relationship with diversity.

[434] *Sources*: Benin *et al.* (2004), Bradshaw (2004) and Rahman (2009a).



[435] 1. *Trends in agricultural land use change in Bangladesh, 1948–2006.*

of 0.7 per cent[436]. The main factor enabling this increase has been the development of irrigation, which allows farmers to grow three crops of rice in a year[437].



436 2. *Trends in crop diversity in Bangladesh, 1948–2006.*

[437] Growth rate estimates from 1948 and by stages of Green Revolution (GR) diffusion, 1960–2006.

Panel	Variables†	Average annual compound growth rates				
		Pre-GR 1948–59	Early GR 1960–75	Take-off GR 1976–85	Mature GR 1986–2006	All stages 1948–2006
A	**Land use change**					
	Net sown area (NSA)	0.002	0.000	***0.004	**–0.003	***–0.001
	Gross cropped area (GCA)	0.004	***0.012	***0.014	0.000	***0.007
	Cropping intensity	–0.002	***0.007	**0.003	***0.005	***0.007
	Share of HYV rice area in GCA	–	*0.280	***0.069	***0.046	***0.058
	Share of local rice area in GCA	0.000	***–0.013	***–0.028	***–0.044	***–0.023
	Share of total rice area in GCA	0.000	**–0.003	***–0.009	**0.001	***–0.002
	Share of other cereals in GCA	0.000	***0.056	***0.131	0.006	***0.047
	Share of non-cereals in GCA	0.001	0.003	–0.000	–0.001	***–0.002
B	**Crop diversity**					
	Herfindahl index of crop concentration	–0.001	0.021	***–0.017	**0.002	***–0.004
	Shannon index of crop evenness	0.000	–0.028	***0.024	*–0.002	***0.006
C	**Trends in cropped area**					
	Local rice	0.003	**–0.012	***–0.015	***–0.044	***–0.015
	HYV rice	–	*0.289	***0.082	***0.045	***0.062
	Total rice	0.003	***0.009	*0.005	*0.002	***0.005
	Wheat and other cereals	0.004	***0.068	***0.144	***0.005	***0.054
	Jute	*–0.042	0.012	0.002	***–0.030	***–0.009
	Pulses	***–0.029	**0.045	**0.080	***–0.037	***0.018
	Oilseeds	0.008	0.004	*0.036	***–0.022	***0.014
	Spices	***0.027	***0.036	*–0.005	***0.041	***0.021
	Potatoes	***0.102	***0.058	**0.012	***0.041	***0.033
	Vegetables	*–0.011	*–0.005	***0.024	***0.025	***0.003
	Fruits	0.002	***0.029	***0.013	0.002	***0.004
D	**Trends in modern inputs**					
	Fertilizer nutrients	–	*0.372	***0.093	***0.051	***0.067
	Pesticides (active ingredients)	–	–	0.017	***0.085	***0.089
	HYV seeds for cereals	–	–	***0.222	***0.037	***0.059
	Irrigation area	–	***0.089	***0.042	***0.043	***0.044
E	**Trends in crop productivity**					
	Local rice yield	–	0.001	*0.010	***0.014	***0.014
	HYV rice yield	–	0.005	–0.003	***0.014	***0.005
	Total rice yield	–0.001	0.006	***0.018	***0.028	***0.017
	Wheat and other cereals yield	0.017	**0.020	***0.055	***0.020	***0.029
	Jute yield	**0.043	**–0.024	0.006	***0.013	***0.005
	Pulses yield	0.004	–0.008	0.003	***0.008	**0.003
	Oilseeds yield	*0.008	***0.045	***0.030	***0.008	***0.015
	Spices yield	**0.082	0.017	0.002	***0.006	***0.019
	Potatoes yield	–	***0.035	**0.009	***0.022	***0.014
	Vegetables yield	0.002	***0.020	0.002	***0.010	***0.008
	Fruits yield	**0.050	*–0.010	***–0.008	*0.023	***0.006
F	**Trends in input use rates**					
	Fertilizer use rates	–	–	***0.070	***0.054	***0.068
	Pesticide use rates	–	–	0.001	***0.085	***0.085
G	**Productivity of key inputs**					
	Land productivity	0.006	0.003	***0.017	***0.038	***0.020
	Fertilizer productivity	–	–	***–0.071	***–0.023	***–0.054
	Pesticide productivity	–	–	0.005	***–0.064	***–0.065
H	**Trends in food availability**					
	Population	***0.026	***0.023	***0.023	***0.012	***0.021
	Cereal availability per capita per year	***–0.026	*–0.008	***0.009	***0.017	***0.004
	GVA (at constant 1984–85 prices) in crop production per capita per year	***–0.022	*–0.009	–0.003	***0.020	**–0.002
I	**Trends in DES**					
	Energy from cereals	**–0.026	*–0.008	**0.010	***0.017	***0.004
	Energy from non-cereals	–0.008	0.012	0.007	***–0.007	***–0.002
	Cash crops	–0.006	0.007	–0.007	***–0.019	***–0.009
	Pulses	***–0.060	0.014	0.059	***–0.042	0.001
	Oilseeds	–0.018	***0.026	*0.043	***–0.026	***0.008
	Spices	***0.036	0.014	**–0.026	***0.039	–0.002
	Potatoes	0.000	***0.071	–0.002	***0.050	***0.027
	Vegetables	***–0.044	**–0.024	–0.001	***0.023	***–0.001
	Fruits	0.012	**–0.020	***–0.016	0.009	***–0.017
	Energy from all crops	**–0.022	–0.003	**0.009	***0.012	***0.003

Note: all growth rates computed using semi-logarithmic trend function $lnY = \alpha + \beta T$ – where Y is the target variable, T is time, ln is natural logarithm, and β is the growth rate.

†Using available data: HYV rice, 1972–2006; local rice, 1972–2006; potatoes, 1956–2006; fruits, 1950–2006; fertilizers, 1970–2006; pesticides, 1977–2003; HYV seeds for cereals, 1974–2006; and gross value added (GVA), 1950–2002.

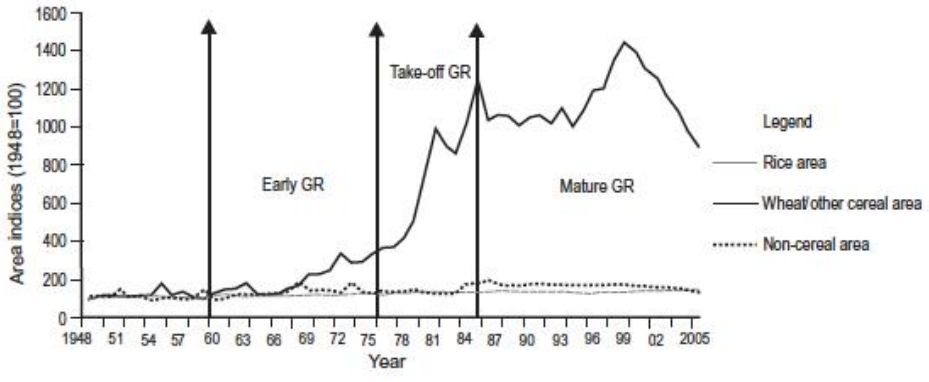
***significant at 1% level (p<0.01); **significant at 5% level (p<0.05); *significant at 10% level (p<0.15)

Sources: Hamid (1991; 1993); *Statistical Yearbook of Bangladesh* (BBS, various); *Economic Trends* (BB, various); MOA (2008).

An interesting fact to note is that the increased share of HYV rice area could not compensate for the consistent decline in local rice area, thereby leading to an overall decline in the share of total rice area in GCA at an annual rate of -0.2 per cent. The area under non-cereals fluctuated but also declined overtime. The share of other cereals, predominantly HYV wheat, recorded a consistent rise in GCA, which clearly contradictsthe assertion that a monoculture of HYV rice has seriously hampered crop diversity (see Husain et al., 2001; Mahmud et al., 1994; Alauddin & Tisdell, 1991)[438]. The trend in the computed indices of crop diversity provide proof that overall crop diversity has been increasing (with some fluctuation) in Bangladesh. The Shannon index shows that crop evenness grew at an annual rate of 0.6 per cent, increasing from 0.81 in 1948 to 1.07 in 1998 and 0.94 in 2006, while the Herfindahl index confirms that crop concentration declined annually by -0.4 per cent, from 0.69 in 1948 to 0.54 in 1999 and 0.62 in 2006. Another analysis of the level of crop diversification between the two agricultural censuses of 1960 and 1996 (Rahman, 2009b) also found that the level of crop diversity (measured by Herfindahl index) actually increased by 4.5 per cent over a 36-year period, from 0.59 in 1960 to 0.54 in 1996.

Additional information on agricultural land use change, with estimated annual growth rates of major crop groups clarify that except for jute, the areal extent for all other non-cereals experienced positive growth rates overall. Among the cereals, wheat experienced a varied rate of increased area (0.03 million ha in 1948, a peak of 0.88 million ha in 1999, then a sharp fall to 0.48 million ha in 2006) which mirrored the global wheat crisis in mid-2000. As a result, the average annual growth rate has been estimated at only 5.4 per cent. Among the non-cereals, only jute areas declined at an annual rate of -0.9 per cent – attributable to the availability of cheap synthetic alternatives worldwide – particularly pronounced during the mature stage of GR diffusion (1986–2006). Pulses and oilseeds also faced the decline during this mature stage, but not vegetables and potatoes, which recorded impressive areal growth (estimated at 2.5 per cent and 4.1 per cent respectively) although they constitute less land area in absolute terms: in 2006 the area under vegetables and potatoes covered only 0.19 million ha and 0.34 million ha respectively.

Potatoes gained importance as a cheaper substitute for rice and in northern Bangladesh sweet potato is considered food for the poor. The rise in vegetable production can partly be attributed to the drive of many nongovernmental organizations promoting home gardening among rural women. Vegetable exports have been on the rise since early 2000; according to the Export Promotion Bureau of Bangladesh, vegetable exports contributed earnings of BDT 4232.9 million (USD 61.8 million) in the year 2007–08 – surpassing the target of BDT 2800 million (USD 40.86 million) – up from BDT 2498.1 million (USD 36.31 million) in the year 2006–07 (New Nation, 2008).

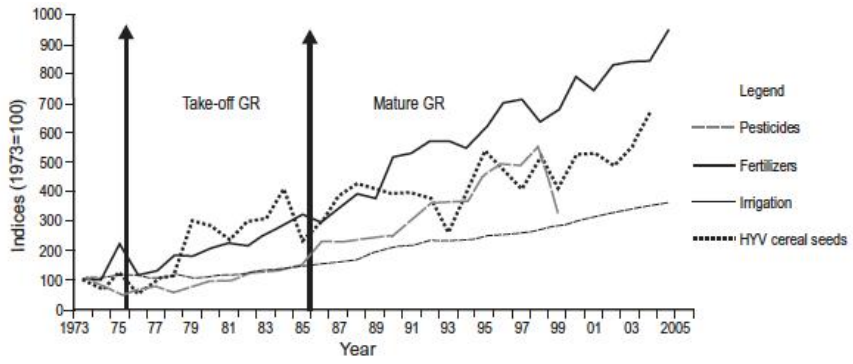


438 re 3. *Trends in cropped area in Bangladesh, 1948–2006.*

4.1.3.3 Trends in productivity and input use

Trends in productivity are reflected by the yield levels of major crops. The growth in input use has been explosive, particularly fertilizers and pesticides, which became an integral part of the modern day and GR agriculture. Fertilizer consumption increased elevenfold – from only 0.18 million tons of nutrients in 1973 to 1.70 million tons of nutrients in 2006 – favouring mostly nitrogen (N) fertilizers (70 per cent of total use), although the use of zinc (Zn) and sulphur (S) started in 1981 and has been increasing gradually. Similarly, pesticide use stood at 3.13 thousand tons of active ingredients in 1977 and increased by 5.5 times to 17.39 thousand tons of active ingredients in 2002[439]. The dramatic expansion of irrigation facilities, initially boosted by governmental support then by market forces following agricultural reform since the 1990s, is reflected in the steadily increasing proportion of irrigated GCA from only 11.0 per cent in 1973 to 37.5 per cent in 2006, an expansion of 4.4 per cent annually. The annual growth rate of 5.9 per cent in the government distribution of HYV seeds for rice and wheat, from 5.48 thousand tons in 1974 to 45.62 thousand tons in 2006, is also notable – albeit still far lower than the amount needed to sustain continued expansions of HYV technology.

Trends in yield rates of major crops as well as the use rates of two major inputs, fertilizers and pesticides suggests that the yield of HYV rice actually fell at an annual rate of -1.0 per cent during the early and take-off stages of GR diffusion (1960–85) but then started growing at an annual rate of 1.4 per cent during the mature stage (1986–2006). The reasons for the initial decline include lower than recommended doses of fertilizers (by up to 40–70 per cent), expansion to less suitable lands and depletion of soil fertility (Rahman, 2007). The overall increased level of rice yield (HYV and local varieties) at 1.7 per cent annually is explained by the yield rate of HYV rice being twice the yield rate of local rice. For example, in 1973 the yield of HYV rice was 2.31 ton/ha, which was 2.7 times the local rice yield of 0.87 ton/ha. However, although the HYV rice yield increased to 2.92 ton/ha in 2006, it was only 1.9 times higher than the local rice variety yield of 1.42 ton/ha because farmers carefully screen local varieties and also use modern inputs. Yield rates of wheat also grew by 3.0 per cent annually, increasing from 0.58 ton/ha in 1948 to 1.53 ton/ha in 2006. The growth in yield of most non-cereals is lower, ranging from only 0.3 per cent for pulses to 1.9 per cent for spice crops, because modern technology is only well established in potato cultivation (Mahmud et al., 1994) and,

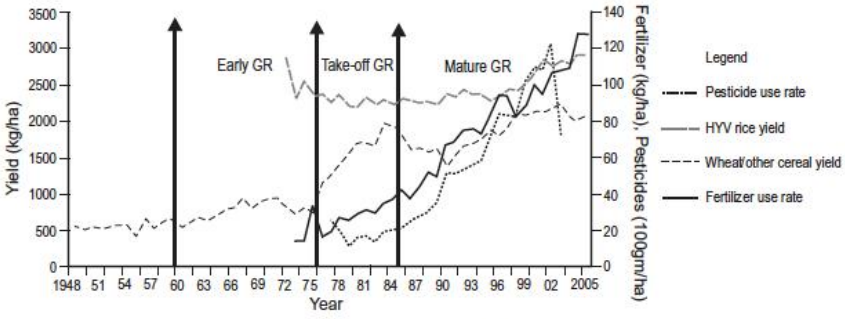


439 I. *Growth in agricultural input use in Bangladesh, 1973–2005.*

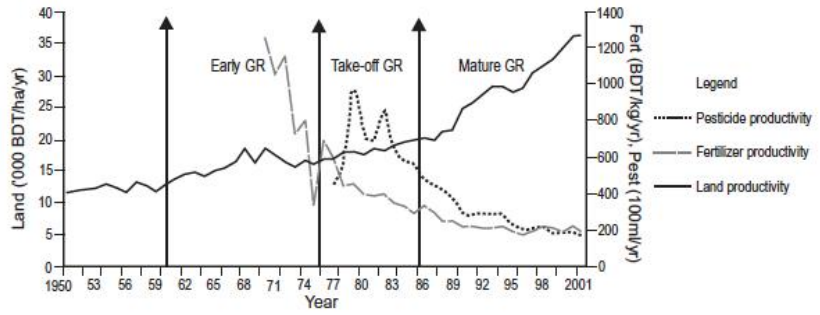
furthermore, only one-third of the 131 improved varieties of various non-cereal crops developed by BARI were released before 2006 (Rahman, 2009b)[440].

The growth rates of fertilizer and pesticide use has been staggering. Fertilizer use increased from 14.25 kg to 127.18 kg of nutrients per ha respectively in 1973 and 2006, recording an annual growth rate of 6.3 per cent. And pesticide use was only 0.26 kg of active ingredients per ha in 1977 but increased to 1.23 kg in 2002, recording an annual growth rate of 8.5 per cent. The implication is that proportionately higher doses of these modern inputs have been necessary to maintain modest growth in crop productivity, a pattern which may soon become unsustainable[441].

Finally, on the three partial productivity measures of land, fertilizers and pesticides, indicates overall land productivity consistently rising at an annual rate of 2 per cent, with twice the rate during the mature stage of GR diffusion as expected. However, the productivity of the other two key inputs of fertilizers and pesticides was consistently declining over the years. For pesticides the annual rate of decline has been at the very high at -6.5 per cent while the decline for fertilizer productivity has been lower during the mature stage of GR diffusion, estimated at -3.8 per cent annually. There may be multiple reasons for such declines in input productivity, which include loss of soil fertility, expansion to poor quality land and/or genetic impurity of the crops (particularly HYV seeds used), all



440 ę 5. *Trends in crop yield and input use rates in Bangladesh, 1948–2006.*



441 ŀ 6. *Trends in partial measures of agricultural land, fertilizer and pesticide productivity in Bangladesh,*

of which cast doubt on the continued sustainability of modern agricultural technology in a food-deficit economy (Rahman, 2007)[442].

4.1.4 Agricultural Input Policies and their Impact on the Jute Sector

After the Independence, most of the organized activities in Bangladesh economy were owned and operated by the public sector through various public agencies[443]. Such a state of ownership was partly rooted in the past policy regimes and was partly a de facto outcome due to absence of the previous entrepreneurs and institutions. Since the late 1970's, reforms in the food and agriculture sector were initiated to gradually limit the space of the public sector. These reforms remained at sectoral level, until being packaged under the Structural Adjustment Policies (SAP) during the second half of the 1980's. While policy reforms continued into the 1990's, some of the major reforms in the agricultural input markets came about in the 1980's. Two important elements of these reforms were perceived to include, reduction of subsidy, and increasing the participation of private sector in the procurement and distribution of inputs. From such perspective, effects of reforms on the crop sector profitability in general, and farm-level profitability in particular, were expected to be mixed. Reduction of subsidy was expected to reduce farmers' profit (net income) and adversely affect crop sector growth. On the contrary, increased competition in the input market due to private sector participation was expected to lower input prices and raise farm-level profitability.

Tracing policy changes with a view to assess their impacts on a sub-sector of an economy is always difficult. One obvious difficulty is in defining the scope, that is, in identifying the relevant policy

[442] Estimation of nutrient depletion in major cropping patterns

Major cropping pattern	Total yield (ton/ha/yr)	Input* (kg/ha)			Output** (kg/ha)			Balance (kg/ha)			Approx. total depletion (kg/ha/yr)
		N	P	K	N	P	K	N	P	K	
Boro rice–transpl. *aus* rice–transpl. *aman* rice	11.5	350	60	151	469	57	368	−119	13	−217	333
Mustard–jute–transpl. *aman* rice	7.5	340	75	205	430	79	429	−90	−4	−224	318
Potato–jute–transpl. *aman* rice	36	380	70	240	385	55	496	−5	+15	−256	246
Potato–transpl. *aus* rice–transpl. *aman* rice	38	386	67	220	430	53	435	−44	+14	−215	245
Wheat–transpl. *aus* rice–transpl. *aman* rice	10	335	65	166	420	64	292	−85	+1	−126	210
Sugarcane and potato intercropping	100	190	55	150	210	60	320	−20	−5	−170	195
Mustard–*boro* rice–transpl. *aman* rice	9.5	378	73	183	404	95	326	−26	−22	−143	191
Boro rice–fallow–transpl. *aman* rice	8	248	49	118	324	32	234	−76	+17	−116	175
Boro rice–green manure–transpl. *aman* rice	8	285	0	135	324	32	240	−39	+28	−105	121
Wheat–mung bean–transpl. *aman* rice	8	275	64	190	305	52	284	30	+12	94	112

*Includes fertilizer, manure, biological nitrogen (N) fixation, deposition (rain), sedimentation (flood) and irrigation.
**Includes harvested product, residues removed, leaching, denitrification, volatilization and erosion.
Source: MOA (2008: Table 4.04a).

[443] Section drawn on information and ideas presented in the article titled, "Impact of Reforms in Agricultural Input Markets on Crop Sector Profitability in Bangladesh" by Sajjad Zohir, Senior Research Fellow, Bangladesh Institute of Development Studies, January 2001, accessed from the net at http://saprin.org/bangladesh/research/ban_agri_input.pdf

areas. Additional difficulty arises in identifying the policy instruments, whose changes need to be traced. In assessing changes in profitability of the crop sector, we conveniently group policies in terms of the area they are expected to impact upon. The latter may be broadly categorized into three: domestic output market, input market and trade & exchange rate policies. Conventional policy types, such as, pricing, fiscal, monetary and institutional reforms may each have bearings on both output and input markets.

While policy changes is a continual process, and it is often difficult to draw a time-line for pre-post comparison, the 1982 World Bank document (Bangladesh: Foodgrain Self-Sufficiency and Crop Diversification) has been chosen to represent the set of ideas prior to the onset of numerous policy changes during the 1980's, in both input and output markets[444] [445]. The WB document notes that "Bangladesh's agricultural strategy clearly must continue to place strong emphasis on raising foodgrain production" (p. 2). It also notes that the central thrust of the medium term food production plan (MTFPP) should be on "the provision of additional irrigation, drainage and flood control facilities" (p. 4) and "the complementary use of other modern inputs, such as fertilizers and HYV seeds, must continue to be increased simultaneously if the full potential of improved water management is to be realized" (p. 4).

As far back in 1982, there is recognition that GOB had "initiated a policy shift towards greater reliance on private financial and managerial resources" (p. 5)[446]. The WB document recommends

[444] Ibid; another document consulted in later part of the report cited ante is the "Bangladesh Minor Irrigation: A Joint Review by Government and the World Bank", published in December 1992 (GoB 1992).

[445] **Some Facts on Government Intervention in Input and Output Market till 1982**

Input subsidies on fertilizer and irrigation amounted to about 15 percent of GOB's tax revenue in FY1981. Subsidy on fertilizer amounted to Tk. 1.2 billion in FY1981, even though subsidy in unit terms was reduced from 50 percent of BADC's cost in FY1979, to 42 percent in FY1980, 32 percent in FY1981, and an estimated 21 percent in FY1982 (WB:1982; 47).2 A rough estimate suggested that subsidy on minor irrigation (accounting for amortization of equipments) amounted to Tk. 600 million in FY1982. The major portion of this subsidy was due to rental of LLP and DTW by the BADC and BWDB at concessional terms. As of 1982, substantial subsidies continued to be provided for the use of major irrigation – i.e., of large-scale gravity and canal irrigation schemes. Water charges assessed for the large-scale irrigation schemes were fairly modest; and yet, one estimate suggests that only 5.7 percent of these were actually realized during 1984-91 period (Rates of budgetary subsidy on fertilizer, as reported in Osmani and Quasem (1990), were 48 percent in FY1979, 40 percent in FY1980, 15 percent in FY1981 and 23 percent in FY1982).

Distribution of benefits (arising from subsidy on fertilizer and irrigation) to various groups of farming households may be indirectly captured from the following table, reproduced from Osmani and Quasem (1990). Even though the intensity of fertilizer use and percentage of land irrigated were consistently higher for the small farmers, due to difference in landownership, the large farmers appropriated a larger share of subsidies on all major ingredients of modern technology – fertilizer, irrigation and credit.

Share of Different Farm Size Groups in Consumption of Modern Inputs: 1981-82

Size of Farm (acre)	Percentage of farms	Percentage of land operated	Share of fertilizer	Share of irrigated land	Share of institutional credit
Upto 1.00	31.5	12.6	15.6	16.7	3.2
1.01-2.50	32.8	22.0	23.2	25.1	21.9
2.51-5.00	21.9	27.5	28.8	27.9	35.7
Above 5.00	13.8	37.9	32.4	30.2	39.2

Source: Table II. 11, p. 25, Osmani and Quasem (1990).

[446] Periodizing policy reforms in the agricultural sector is quite difficult. In the context of chemical fertilizer, the policy of heavy subsidy had been gradually reversed since the 1970's; and reduction in subsidy had brought about a 15-fold increase in the nominal price of fertilizer in the period between 1971-72 and 1983-84. Since the growers' price of paddy did not rise as much, fertilizer/paddy price ratio shot up from 0.74 in 1971-72 to 2.03 in 1983-84 (Osmani and Quasem 1990). It is however important to note that major shift in the policy on fertilizer distribution came about during the early 1980's, which had subsequent influence on availability and actual use of fertilizer for crop production. Similarly, the policies to

vigorous pursuit of such policy, "particularly in the areas if minor irrigation and of recurrent input supply and distribution" (p. 5). More specifically, it mentions of "handing over responsibility for the procurement, marketing, servicing and management of minor irrigation equipment to the private sector, direct sale of pumps and tubewells to farmers and cooperatives, phasing out of seasonal equipment rentals, movement towards full-cost pricing for agricultural production assets and inputs, and vigorous extension training to improve farmer ability to extract the full potential from modern inputs" (p. 5). As a matter of fact, by 1982, the GOB had already taken measures to switch from the rental programs for minor irrigation equipment to a sales program, and had decided to subsequently move towards full-cost sales pricing (for STWs and LLPs).

While continued effort towards reduction of subsidy on fertilizer is noted, the document had a narrow focus on its distribution. The reason lies in the fact that by the end of 1982, fertilizer marketing was predominantly in the private sector at the retail level, and was being "reorganized from a BADC monopoly to extensive private involvement in wholesale distribution at the thana level" (pp. 28-29). The report was critical of the practice of officially fixing both wholesale and retail prices for private dealers, and recommended an interim strategy "to fix the wholesale price, to ensure adequate supply at the wholesale level, and to allow market forces and dealer competition to take care of the rest" (p. 29).

Two other important inputs in the crop sector production are seeds and pesticides. Subsidies on pesticides were eliminated in 1980 with the transfer of responsibility for the import and distribution of this input from the Ministry of Agriculture to the private sector. Subsidy on seeds continued, and the WB document of 1982 mentions of a GOB decision to eliminate this subsidy over a period of three years (from 1982). Government interventions in the output market, in the forms of procurement and off-takes at given prices, were generally considered to be in line with what the WB thought to be appropriate during that period. This is partly reflected in the following statement made in the report: "In recent years, grain procurement prices have been set primarily in accordance with considerations of maintaining producer incentives in the face of rising input costs. The available evidence suggests that this has been successfully accomplished … . In the medium run, the present procurement prices should be roughly maintained in real terms through periodic adjustments necessitated by both domestic inflation and exchange rate movements." (pp. 9-10) The WB document is however more emphatic in the area of public food distribution. It reiterates previous recommendations to reduce subsidy element in the ration system, direct a greater proportion of the ration distribution to the poor, and to make use of open market sales (of government stock) to reduce seasonal and annual market price fluctuations.

A chronology of policy reforms towards liberalizing the agricultural input markets in Bangladesh is presented in the following table[447]. It is quite evident that some of the major policy reforms came about during the 1980s. More important among these are: (i) deregulation of fertilizer prices with private dealers procuring directly from the factories; (ii) transfer of ownership of tubewells from BADC to private hands[448], and most importantly, (iii) withdrawal of restriction on import of engines and pumps along with withdrawal of standardization restriction that previously limited the choice of makes and models. It is commonly perceived that the last set of policies liberalizing the restrictions on irrigation equipment and allowing private sector import, had the most impact on the crop sector production in Bangladesh. The 1990's experienced further liberalization, especially in the trade sector, having important implications for the crop production. The Rural Rationing was withdrawn in

liberalize markets for irrigation equipments and irrigation water came about gradually, even though 1980 may be considered to be the beginning of such policy initiatives.

[447] Ibid

[448] This included cooperatives, informal groups and individuals

1991, largely restricting public offtakes of foodgrains through non-monetised channels and open market sales. Import of fertilizer by the private sector was allowed in 1992, with special credit support provided to the importers[449]. During the same time, private sector participation in import of foodgrains was also opened up. The latter is believed to have reduced budgetary burden of the GOB and helped in stabilizing prices during shortfalls in domestic production. The 1990's is also marked by significant increase in mechanization of crop production, largely facilitated by the liberal policy towards importation of farm machinery and farm credit to support it.

Table 17: Liberalisation of Agricultural Input Markets[450]

Liberalization of Agricultural Input Markets: a chronology

Actions	Time Span	Remarks
Fertilizer Market		
1. BADC withdrew from retail and wholesale markets at thana levels, the primary distribution points	1978-83	Done first at Chittagong division, with vigorous response from traders
2. Licensing requirement was abolished and restriction on movement removed (except for eight-kilometer border zones with India)	1982-83	
3. Deregulation of fertilizer price took place	1982-84	Beginning of real competition
4. Private traders directly purchased from factory gates and port points	1987	Vigorous response from traders
5. Free import from world market began	1992	Good response but persistent fear of oligopoly
6. Fertilizer crisis took place, with partial reversal of reform	1994-95	
Irrigation devices		
1. BADC sale of low-lift pumps and tubewells to private parties (individuals, informal groups and KSS) backed by special credit arrangement for purchasers	1980-85	Good response from farmers
2. Restriction on import of engines and pumps was withdrawn; private sector was allowed to import	1987	Drastic fall in prices of engines
3. Standardization restrictions limiting makes and models were removed	1988	Drastic fall n prices of engines
Power tillers, Pesticides and Seeds		
1. Restriction on power tiller import and the standardization requirement were removed	1989	Modest response
2. Import of power tiller/tractor was made duty-free, along with credit support for purchase of these machineries	1995	Vigorous response
3. Restriction on import by brand names was liberalized for pesticides	±1989	Modest response
4. New seed policy proposed, even though restrictions remain on import of rice, wheat, potato, jute and onion seeds	1990	Further revisions made in 1998 & 1999. Upon certification, private sector may import hybrid seeds

Source: Table 3.1 in Ahmed (2000), with some important revisions.

Under the circumstance, one may consider the whole of 1980's as the decade of policy changes; and compare performance of the economy (discounting for the autonomous changes) during the beginning and the end of the decade. This is what we have done in the following section, being fully aware about the limitation that such comparisons do not allow us to associate changes with any individual policy reform.

[449] Private sector was also allowed to import urea during 1994, which was discontinued after the crisis in fertilizer market during 1995

[450] Ibid; reproduced

On an a priori basis, it is however possible to identify a number of policies along with expected effects of these policies. Following Ahmed (2000), these are summarized in the table below[451]:

Table 18: Policy- Outcome Linkages[452]

Policy-Outcome Linkages

Policy	Meso-level effects	Effects on input use and crop choice	Direction of profit
Reduction of subsidy on fertilizer	Increase in fertilizer prices	Reduced fertilizer consumption	Decrease
Privatization of fertilizer distribution	Lowering of retail prices due to increased competition	Increase in fertilizer consumption	Increase
	Increase in price instability due to alleged oligopoly at dealers' level	Sub-optimal choice of crops	Decrease
Reduction of subsidy on irrigation	Increase in the price of irrigation water	Shift away from irrigated crop	Decrease
Withdrawal of restriction on private sector import, and on brands/makes	Wider choice and increased competition, leading to increased investment in irrigation and decrease in price of irrigation water	Wider choice of crops, especially HYV rice Expansion in irrigated area, leading to wider choice of cropping pattern	Increase Increase

Note: If one accounts for the complementarities in use of inputs, increase in irrigated area is expected to facilitate crop production, which subsequently leads to increased consumption of chemical fertilizer.

Since subsidy on BADC-imported TSP and MoP continued till the end of 1991, and there was allegedly implicit subsidy on urea through administered factory-gate urea prices, real price of fertilizer had effectively declined in real terms over the decade of policy reforms under consideration. While administered factory-gate urea prices continued into the 1990's, subsidies on TSP and MoP were eliminated; and the latter prices kept par with international prices. Thus, fertilizer-paddy price ratios with respect to these two chemical fertilizers increased dramatically during the 1990's.

There are three other sets of price summaries, all based on data collected by the IFDC at different stages of their involvement in Bangladesh. Analysis on spatial price integration of the fertilizer market was only feasible for 1995-99 period due to data limitation, The analysis suggests that the market is competitive and the retail prices in different regions of the country are well integrated. A second set of analysis compares price deviations in a number of districts (from Dhaka prices) during the early 1980's and during the 1990's suggests that spatial price differences have increased in the case of urea for a number of districts, particularly in the north-west region. In contrast, price differences in MoP have declined for most districts during the 1990's, when compared with early 1980's. The third and final set of price statistics, reveal that price deviations during the peak period are found to have declined after the initial introduction of private dealership at the retail level; and the deviations remained quite low until the introduction of private import of fertilizer. Since then price volatility had increased, allegedly due to presence of oligopoly. However, strict monitoring to regulate the operations of the dealers appear to have ensured lower price deviations for urea since FY1997. Since such monitoring is not in place for imported fertilizer, and due to variations in world prices, price volatility has increased for TSP and MoP.

[451] Ibid; The above description in the Table suggests that impacts of policy reforms need to be traced through changes in meso-level variables (i.e., prices), with subsequent impacts on crop and inputs choice, which subsequently influenced crop-sector profitability. While the major part of chapter 4 deals with these issues, we also critically examine the findings presented in Ahmed (2000), based on SUR (Seemingly Unrelated Regression) estimates of a system of equations.

[452] Ibid; Reproduced

Table 19: Per-Hectare Input-Output Coefficients of Crops before SAP[453]

Crops	L.Aus	M.Aus	B.Aman	LT.Aman	M.Aman	L.Boro	M.Boro	L.Wheat	M.Wheat	Jute_Cap	Jute-Olit
Outputs											
Main Product(kg)	1240.38	2535.50	1591.89	1745.91	2655.30	2437.99	3568.89	1262.94	1619.38	1497.25	1419.67
By-product (kg)	1545.29	2035.78	2259.64	1907.51	2124.09	2083.48	2727.94	276.69	1022.37	1812.36	1822.65
Inputs											
Seed (kg)	70.33	40.35	79.93	34.36	29.36	50.00	53.95	120.00	125.18	11.49	10.04
Seedling Costs (Tk.)	0.00	886.15	0.00	727.66	623.92	1097.88	1139.11	0.00	0.00	0.00	0.00
Chemical Fertilizers (kg)	46.54	198.62	26.19	57.06	167.23	70.55	268.59	94.75	216.81	67.41	70.00
Urea (kg)	31.24	112.97	20.27	35.28	90.07	55.98	171.66	48.65	101.88	31.75	40.58
TSP (kg)	12.25	64.31	5.15	16.02	54.26	20.25	101.38	32.98	83.74	23.25	17.65
MoP (kg)	3.48	21.35	1.15	5.76	22.91	8.30	24.58	13.12	31.22	12.41	11.77
Manure (kg)	231.88	263.34	36.84	111.82	124.62	65.01	228.89	53.13	93.77	120.83	41.60
Labor (person/day)	135.22	198.03	153.15	167.55	213.24	189.29	213.56	101.53	136.74	257.73	276.26
Family (person/day)	90.07	114.57	94.79	95.12	101.94	62.50	100.60	62.89	79.43	138.51	139.96
Hired (person/day)	45.15	83.45	58.36	72.43	111.29	126.79	112.96	38.68	57.30	119.22	136.31
Animal Power (pair/day)	46.52	45.53	50.19	21.78	45.43	40.39	48.47	33.35	47.60	48.66	42.75
Family (pair/day)	40.56	39.70	38.89	18.99	39.61	38.87	43.47	32.44	42.77	42.43	38.27
Hired (pair/day)	5.96	5.83	11.30	2.79	5.82	1.52	5.00	0.91	4.83	6.22	4.48
Other Costs											
Irrigation Costs (Tk.)	51.40	1028.05			400.94	709.36	2640.00		840.87		
Pesticides Costs (Tk.)	15.42	51.40		20.56	107.95		277.34		27.47	5.14	8.76

Note: Normally data ranging from 1978/79 to 1983/84 have been selected for the purpose. However, data in all of the years were not available for some crops.
Source: Author's Calculation from AER and IFDC.

Table 20: Per-Hectare Input-Output Coefficients of Crops after SAP[454]

Crops	L.Aus	M.Aus	B.Aman	LT.Aman	M.Aman	L.Boro	M.Boro	Wheat	Jute_Cap	Jute-Olit
Outputs										
Main Product(kg)	1554.00	3090.00	1648.00	2096.00	3499.00	2189.00	4316.00	2199.00	1530.00	1765.00
By-product (kg)	1936.00	2481.00	2629.00	2290.00	2799.00	2395.00	3299.00	2060.00	1852.00	2266.00
Inputs										
Seed (kg)	98.00	61.00	58.00	66.00	66.00	63.00	67.00	124.00	10.00	7.00
Seedling Costs (Tk.)	0.00	644.00	0.00	672.00	698.00	665.00	680.00	0.00	0.00	0.00
Chemical Fertilizers (kg)	85.00	242.00	26.00	79.00	259.00	69.00	357.00	272.00	111.00	136.00
Urea (kg)	48.00	113.00	19.00	39.00	125.00	42.00	169.00	124.00	55.00	58.00
TSP (kg)	26.00	87.00	7.00	28.00	92.00	22.00	127.00	102.00	38.00	57.00
MoP (kg)	11.00	42.00	0.00	12.00	41.00	5.00	61.00	46.00	19.00	20.00
Manure (kg)	1113.00	2409.00	455.00	834.00	1870.00	285.00	1499.00	1475.00	1974.00	2195.00
Labor (person/day)	161.00	178.00	132.00	160.00	189.00	135.00	199.00	156.00	247.00	245.00
Family (person/day)	80.00	78.00	46.00	63.00	74.00	43.00	75.00	68.00	74.00	72.00
Hired (person/day)	81.00	100.00	86.00	97.00	115.00	92.00	124.00	88.00	173.00	173.00
Animal Power (pair/day)	32.00	35.00	32.00	39.00	39.00	23.00	37.00	41.00	40.00	37.00
Family (pair/day)	27.00	26.00	24.00	33.00	30.00	21.00	28.00	34.00	25.00	30.00
Hired (pair/day)	5.00	9.00	8.00	6.00	9.00	2.00	9.00	7.00	15.00	7.00
Other Costs										
Pesticides Costs (Tk.)	95.00	451.00	31.00	236.00	522.00	174.00	690.00	121.00	53.00	224.00
Irrigation Costs (Tk.)	9.00	576.00	48.00	28.00	208.00	397.00	3678.00	843.00	0.00	298.00
Tractor/Power Tiller Costs (Tk.)	10.00	170.00	124.00	26.00	143.00	0.00	188.00	0.00	100.00	32.00
Sprayer Costs (Tk.)	2.00	40.00	6.00	19.00	26.00	19.00	42.00	2.00	4.00	40.00
Transport Costs (Tk.)	9.00	17.00			40.00		10.00	26.00		36.00
Post-harvest Processing Costs (Tk.)	6.00	62.00		4.00	36.00		55.00			

Source: Author's calculation from Zohir (1993).

[453] Ibid

[454] Ibid

Table 21: Percentage Change in the Input use of Crops after SAP[455]

Inputs/Crops	L.Aus	M.Aus	B.Aman	LT.Aman	M.Aman	L.Boro	M.Boro	Wheat	Jute_Cap	Jute-Olit
Seed (kg)	39.35	51.17	-27.44	92.11	132.72	26.00	24.18	3.33	-92.01	-39.07
Seedling Costs (Tk.)	0.00	-27.33	0.00	-7.65	11.07	-39.43	-40.30	0.00	0.00	0.00
Fertilizers (kg)	82.65	21.84	-0.73	38.45	54.87	-2.19	32.92	187.06	-48.80	101.74
Urea (kg)	53.66	0.03	-6.27	10.56	38.79	-24.97	-1.55	154.87	-46.00	82.66
TSP (kg)	112.25	35.29	35.80	74.77	69.55	8.65	25.27	209.28	-54.62	145.18
MoP (kg)	215.66	96.75	-100.00	108.23	78.98	-39.75	148.15	250.53	-39.14	61.13
Manure (kg)	379.99	814.78	1134.96	645.87	1400.52	338.39	554.90	2676.33	2005.17	1716.53
Labor (person/day)	19.06	-10.11	-13.81	-4.51	-11.37	-28.68	-6.82	53.58	80.64	-4.94
Family (person/day)	-11.10	-31.92	-51.47	-33.77	-27.41	-31.20	-25.44	0.12	-6.04	-46.02
Hired (person/day)	79.40	19.93	47.36	33.93	3.33	-27.44	9.77	127.50	201.90	45.11
Animal Power (pair/day)	31.21	23.13	36.25	79.09	14.15	13.06	23.66	22.93	15.96	23.95
Family (pair/day)	-33.43	-34.51	-38.29	73.81	-24.25	-45.98	-35.59	4.81	-41.55	-29.30
Hired (pair/day)	-16.11	54.27	-29.21	115.05	54.63	31.75	80.13	669.13	210.70	12.52
Pesticides Costs (Tk.)	84.82	-56.13			30.19	-75.47	-73.87		-93.70	
Irrigation Costs (Tk.)	-41.64	1020.57		36.18	148.27		1226.16		-100.00	5697.37

Table 22: Farm-level Financial Prices of Crops and Inputs before SAP[456]

Crops	L.Aus	M.Aus	B.Aman	LT.Aman	M.Aman	L.Boro	M.Boro	L.Wheat	M.Wheat	Jute_Cap	Jute-Olit
Outputs											
Main Product(kg) [a]	2.63	2.63	3.24	3.24	3.24	3.17	3.17	3.18	3.18	3.70	3.70
By-product (kg) [b]	0.20	0.24	0.15	0.24	0.25	0.11	0.24	0.16	0.16	0.62	0.51
Inputs											
Seed (kg) [b]	4.91	5.13	5.65	4.99	5.10	5.40	5.40	5.50	5.50	18.18	25.32
Urea (kg) [a]	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52
TSP (kg) [a]	2.14	2.14	2.14	2.14	2.14	2.14	2.14	2.14	2.14	2.14	2.14
MoP (kg) [a]	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69
Manure (kg) [b]	0.05	0.10	0.07	0.07	0.10	0.05	0.10	0.07	0.07	0.08	0.07
Wage Rate(person/day) [a]	13.97	13.97	13.97	13.97	13.97	13.97	13.97	13.97	13.97	13.97	13.97
Animal Power (pair/day) [b]	19.99	20.48	23.32	17.48	20.46	18.63	20.02	17.93	17.93	21.32	19.35

Sources: a. BBS, Yearbook of Statistics, various issues and b. adapted from Zohir (1993).

Table 23: Farm-level financial prices of crops and inputs at 1991[457]

Crops	L.Aus	M.Aus	B.Aman	LT.Aman	M.Aman	L.Boro	M.Boro	Wheat	Jute_Cap	Jute-Olit
Outputs										
Main Product(kg)	5.85	6.06	6.00	6.01	5.97	5.80	5.90	5.67	5.80	7.23
By-product (kg)	0.41	0.50	0.32	0.50	0.53	0.22	0.50	0.33	1.28	1.06
Inputs										
Seed (kg)	10.22	10.68	11.76	10.39	10.60	11.04	10.24	11.44	37.81	52.68
Urea (kg)	5.39	5.26	5.58	5.31	5.28	5.50	5.36	5.44	5.43	5.38
TSP (kg)	5.83	5.68	6.04	5.75	5.71	5.95	5.72	5.98	5.59	5.77
MoP (kg)	4.85	4.88	4.81	4.89	4.81	5.25	4.77	4.93	4.77	4.83
Manure (kg)	0.11	0.20	0.15	0.14	0.20	0.11	0.20	0.14	0.16	0.14
Wage Rate(person/day)	36.08	46.45	35.18	42.02	45.62	49.73	44.27	37.83	37.56	33.39
Animal Power (pair/day)	41.59	42.60	48.51	36.37	42.56	38.75	41.64	37.30	44.34	40.26

Source: Excerpted from Zohir (1993).

[455] Ibid

[456] Ibid

[457] Ibid

Table 24: Cost of Crop Cultivation at 1990 prices[458]

Crops	L.Aus	M.Aus	B.Aman	LT.Aman	M.Aman	L.Boro	M.Boro	L.Wheat	M.Wheat	Jute_Cap	Jute-Olit
Seed	718.73	430.94	940.01	356.96	300.62	552.00	552.49	1372.80	1432.01	434.41	529.80
Seedling Costs		886.15		727.66	623.92	1097.88	1139.11				
Fertilizers	282.20	1116.33	155.30	323.27	920.48	479.07	1663.02	534.02	1221.89	380.92	382.82
Urea	168.38	581.23	113.11	187.31	476.54	307.87	920.09	264.66	554.11	172.42	218.33
TSP	71.42	365.26	31.13	92.12	309.83	120.48	579.90	197.22	500.74	129.96	101.83
MoP	16.90	104.17	5.53	28.18	110.18	43.57	117.26	64.70	153.91	59.21	56.85
Manure	25.51	52.67	5.53	15.65	24.92	7.15	45.78	7.44	13.13	19.33	5.82
Labor	4878.82	9198.39	5387.81	7040.44	9727.80	9413.34	9454.32	3842.65	5172.81	9680.37	9224.45
Family	3249.79	5321.93	3334.74	3997.06	4650.71	3108.22	4453.41	2379.32	3005.00	5202.35	4073.22
Hired	1629.02	3876.46	2053.06	3043.38	5077.09	6305.12	5000.91	1463.33	2167.81	4478.03	4551.23
Animal Power	1934.80	1939.75	2434.88	792.00	1933.34	1505.16	2018.19	1243.98	1775.38	2157.37	1721.08
Family	1686.90	1691.22	1896.63	690.52	1685.63	1506.33	1810.15	1210.04	1595.31	1881.52	1540.73
Hired	247.90	248.53	548.25	101.48	247.71	58.82	208.04	33.95	180.08	275.85	180.35
Irrigation Costs	51.40	1028.05			400.94	709.36	2640.60		840.87		
Pesticides Costs	15.42	51.40		20.56	107.95		277.34		27.47	5.14	8.76
Total Cash Costs	2919.16	7585.21	3691.10	4557.64	7653.79	9195.09	11435.75	3396.66	5857.00	5555.01	5646.24
Total Full Costs	7881.36	14651.02	8917.99	9260.89	14015.05	13816.79	17745.09	6993.46	10470.44	12658.21	11866.01

Table 25: Cost of Crop Cultivation after 1990 prices[459]

Crops	L.Aus	M.Aus	B.Aman	LT.Aman	M.Aman	L.Boro	M.Boro	Wheat	Jute_Cap	Jute-Olit
Seed	1001.56	651.48	682.08	685.74	699.60	695.52	686.08	1418.56	378.10	368.76
Seedling Costs		644.00		672.00	698.00	685.00	680.00			
Fertilizers	586.00	1775.30	216.55	543.53	1756.53	419.50	2223.05	1717.00	917.54	1044.03
Urea	258.72	594.38	106.02	207.09	660.00	231.00	905.84	674.56	298.65	312.04
TSP	151.58	494.16	42.28	161.00	525.32	130.90	726.44	609.96	212.42	328.89
MoP	53.35	204.96		58.68	197.21	26.25	290.97	226.78	90.63	96.60
Manure	122.43	481.80	68.25	116.76	374.00	31.35	299.80	206.50	315.84	307.30
Labor	5808.88	8268.10	4643.76	6723.20	8622.18	6713.55	8809.73	5901.48	9277.32	8180.55
Family	2886.40	3623.10	1618.28	2647.26	3375.88	2138.39	3320.25	2572.44	2779.44	2404.08
Hired	2922.48	4645.00	3025.48	4075.94	5246.30	4575.16	5489.48	3329.04	6497.88	5776.47
Animal Power	1330.88	1491.00	1552.32	1418.43	1659.84	891.25	1540.68	1529.30	1773.60	1489.62
Family	1122.93	1107.60	1164.24	1200.21	1276.80	813.75	1165.92	1268.20	1108.50	1207.80
Hired	207.95	383.40	388.08	218.22	383.04	77.50	374.76	261.10	665.10	281.82
Pesticide Costs	95.00	451.00	31.00	236.00	522.00	174.00	690.00	121.00	53.00	224.00
Irrigation Costs	9.00	576.00	48.00	28.00	268.00	397.00	3678.00	843.00		298.00
Tractor/Power Tiller Costs	10.00	170.00	124.00	26.00	143.00		188.00	8.00	108.00	32.00
Sprayer Costs	2.00	40.00	6.00	19.00	28.00	19.00	42.00	2.00	4.00	40.00
Transport Costs	9.00	17.00			40.00		10.00	26.00		36.00
Post-harvest Processing Cost	6.00	82.00		4.00	36.00		55.00			
Total Cash Costs	4726.64	8953.38	4452.94	6391.67	9446.47	6991.33	13816.57	7520.00	8307.78	7794.58
Total Full Costs	8858.40	14165.88	7303.71	10355.90	14473.15	9974.82	18602.54	11567.14	12511.56	11713.76

Table 26: Distribution of Costs of Crop cultivation before SAP at 1990 prices[460]

Crops	L.Aus	M.Aus	B.Aman	LT.Aman	M.Aman	L.Boro	M.Boro	L.Wheat	M.Wheat	Jute_Cap	Jute-Olit
Seed	9.12	2.94	10.54	3.85	2.15	4.00	3.11	19.63	13.68	3.43	4.46
Seedling Costs		6.05		7.86	4.45	7.95	6.42				
Fertilizers	3.58	7.62	1.74	3.49	6.57	3.47	9.37	7.64	11.67	3.01	3.23
Urea	2.14	4.06	1.27	2.02	3.39	2.23	5.19	3.78	5.29	1.36	1.84
TSP	0.91	2.49	0.35	0.99	2.21	0.87	3.27	2.82	4.78	1.03	0.86
MoP	0.21	0.71	0.06	0.30	0.79	0.32	0.66	0.93	1.47	0.47	0.48
Manure	0.32	0.36	0.06	0.17	0.18	0.05	0.26	0.11	0.13	0.15	0.05
Labor	61.90	62.78	60.42	76.02	69.41	68.13	53.28	54.95	49.40	76.48	77.74
Family	41.23	36.32	37.39	43.16	33.18	22.50	25.10	34.02	28.70	41.10	39.38
Hired	20.67	26.46	23.02	32.86	36.23	45.63	28.18	20.92	20.70	35.38	38.36
Animal Power	24.55	13.24	27.30	8.55	13.79	11.33	11.37	17.79	16.96	17.04	14.50
Family	21.40	11.54	21.16	7.46	12.03	10.90	10.20	17.30	15.24	14.86	12.98
Hired	3.15	1.70	6.15	1.10	1.77	0.43	1.17	0.49	1.72	2.18	1.52
Irrigation Costs	0.65	7.02			2.86	5.13	14.88		8.03		
Pesticide Costs	0.20	0.35		0.22	0.77		1.56		0.26	0.04	0.07
Total Cash Costs	37.04	51.77	41.39	49.21	54.61	66.55	64.44	48.57	55.94	43.88	47.58
Total Full Costs	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

[458] Ibid

[459] Ibid

[460] ibid

Table 27: Distribution of Crop Cultivation Costs after SAP at 1990 prices[461]

Crops	L.Aus	M.Aus	B.Aman	LT.Aman	M.Aman	L.Boro	M.Boro	Wheat	Jute_Cap	Jute-Olit
Seed	11.31	4.60	9.34	6.62	4.83	6.97	3.69	12.26	3.02	3.15
Seedling Costs		4.55		6.49	4.82	6.67	3.66			
Fertilizers	8.62	12.53	2.96	5.25	12.14	4.21	11.95	14.85	7.33	8.92
Urea	2.92	4.20	1.45	2.00	4.56	2.32	4.87	5.83	2.39	2.66
TSP	1.71	3.49	0.58	1.55	3.63	1.31	3.91	5.27	1.70	2.81
MoP	0.60	1.45		0.57	1.36	0.26	1.56	1.96	0.72	0.82
Manure	1.38	3.40	0.93	1.13	2.58	0.31	1.61	1.79	2.52	2.62
Labor	65.57	58.37	63.58	64.92	59.57	67.30	47.36	51.02	74.15	69.84
Family	32.58	25.58	22.16	25.56	23.33	21.44	17.85	22.24	22.21	20.52
Hired	32.99	32.79	41.42	39.36	36.25	45.87	29.51	28.78	51.94	49.31
Animal Power	15.02	10.53	21.25	13.70	11.47	8.93	8.28	13.22	14.18	12.72
Family	12.68	7.82	15.94	11.59	8.82	8.16	6.27	10.96	8.86	10.31
Hired	2.35	2.71	5.31	2.11	2.65	0.78	2.01	2.26	5.32	2.41
Pesticide Costs	1.07	3.18	0.42	2.28	3.61	1.74	3.71	1.05	0.42	1.91
Irrigation Costs	0.10	4.07	0.66	0.27	1.85	3.98	19.77	7.29		2.54
Tractor/Power Tiller Costs	0.11	1.20	1.70	0.25	0.99		1.01	0.07	0.06	0.27
Sprayer Costs	0.02	0.28	0.08	0.18	0.19	0.19	0.23	0.02	0.03	0.34
Transport Costs	0.10	0.12			0.28		0.05	0.22		0.31
Post-harvest Processing Costs	0.07	0.58		0.04	0.25		0.30			
Total Cash Costs	53.36	63.20	60.97	61.72	65.27	70.09	74.27	65.01	66.40	66.54
Total Full Costs	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Systematic data on prices of irrigation water and prices of irrigation equipments is not available. However, by 1980, three modern minor irrigation technologies – Low Lift Pumps (LLP), Deep Tubewells (DTW) and Shallow Tubewells (STW) – were available through BADC. During the early 1980's, these were either purchased or rented from BADC; and were managed either by KSS groups, informal pump groups related directly to BADC, private owners who may be individuals or groups, or landless groups (Palmer-Jones and Mandal 1987)[462].

Prior to transfer of ownership, LLPs were mostly owned by the BADC, and these were rented out to farmer groups during the Boro season. The charges levied by BADC included Tk. 900 rent and a fixed Tk. 300 for spares and repair services, which covered only 10-15% of the cost of program (p. 3, GoB 1982). A subsidy well over 90 percent was in place for DTWs, which were rented out at only Tk. 1200 per year, plus spares at cost upto a maximum of Tk. 1000, while the service was to be free. A typical DTW, with nominal capacity of 2 cusec, had a total depth of 160-180 ft. and a turbine pump set at about 60 ft., driven by a surface-mounted 20 hp diesel engine. In terms of 1981 prices, costs, excluding import duties and taxes, were Tk. 36,450 and Tk. 223,000 for respectively, LLP and DTW units (GOB 1982). In contrast, a STW with a capacity of 0.5-0.75 cusec cost Tk. 24,100 and a HTW (which could irrigate 0.3 - 0.5 acre of land) cost only Tk. 1,380. While reforms to move from rental

[461] Ibid

[462] A study on IDA-STW project in the north-west (Hamid 1984) provides some interesting insights into irrigation market during the early 1980's. Some of the salient features of the market are mentioned below.

1. STWs were to be sold through 3 different channels; (i) cash sales to individuals, (ii) sales to BRDB groups on credit from commercial banks, and (iii) sales to individuals or group of individuals on credit from commercial banks. For obtaining a STW, an applicant was required to fulfill a number of conditions, which included 70 percent down payment for non-BRDB upazilas and 20 percent for BRDB upazilas, security in the form of land (initially 3 acres, which was later reduced to half an acre) and submission of various land documents and other certificates. Sales to individuals essentially went to rich; while in the case of BRDB groups, the persons, designated as managers, bearing the land security, became the owners of the STWs.

2. There were several restrictions in place with regards to siting and sinking of STWs. It was necessary on the part of the users to identify a location and show it in the STW scheme. For assessing hydrological feasibility, BADC was supposed to hire consultant to compile Upazila Irrigation Maps. It was also instructed to ensure that (i) no DTW exists within 2,500 ft. of the site, and (ii) no STW exists within 500 ft. of the site. The study observed that most of the IDA-STWs were sunk well before the Upazila maps were prepared, and that half of these were not sited according to the original scheme. The study also observes that the service of BADC had shortcomings; and private mechanics emerged to play important roles in the market. Non-availability of spare parts was however identified as the main problem of STW operation in the north-west. Finally, for various reasons, BADC supply was cumbersome, and the users had to depend on the black market for more than 68 percent of their diesel and mobil consumption.

system to full or part-cost sale of the irrigation equipment were being recommended, both the GoB and the World Bank had consensus on promoting the diesel engine manufacturing (GoB 1982). There were five companies, namely, Bangladesh Diesel Plant (BDP) – Deutz, Bangladesh Machine Tool Factory (BMTF) – Mitsubishi, Bangladesh Diesel Engine Co. (BDEC) – Yanmar, Bangladesh Diesel Ltd (BDL) – Lister, and Bangladesh Milnars Engineering Complex (MEC) – Kiloskar; had already government approval to manufacture diesel engines. Protection was given to this industry with the hope that there would be positive linkage effects and external economies (p. 23, GoB 1982).

Given virtual monopoly of BADC over procurement of irrigation equipments, coupled with inefficient domestic manufacture of diesel engines, move from rental to sale of equipment had only marginal effect on the expansion of irrigation in the country. While transfer of ownership may have facilitated more efficient management of the pumps (and thereby, expansion of the command area per pump), the transfer also led to increase in prices.

For obvious reason, the price of irrigation paid at farm level had increased during the 1980's. While per acre irrigation costs was only Tk. 210 and Tk. 400 respectively for rented DTW and STW, the cost increased to more than Tk. 800 and Tk. 1800 for the two modes respectively by 1984 (Osmani and Quasem 1990 and Palmer-Jones and Mandal 1987). There were wide variations in pricing across managements and modes of payments. Normally, farmers had to pay higher prices under individually owned equipment, and if the payment had to be made in kind (paddy)[463]. Moreover, the water prices were substantially lower under electricity-run engines compared to those under diesel-run engines. Other than the introduction of electricity-run engines, the most significant change occurred in the irrigation market when restriction on brands was withdrawn and private sector was allowed to import during 1987. This provided a wider choice of irrigation equipment at cheaper prices, and thereby, promoted investment in the minor irrigation sector.

Traditional economic analysis is often bogged down with changes in relative prices of inputs leading to changes in choice variables. Following such a perspective, one may hypothesize that policy reforms in the agricultural input markets led to lowering of prices of fertilizer and irrigation, which subsequently led to increase in their use, and thereby to increase in output and profitability. It is true that the price of urea as a ratio of rice price had declined over the years due to continuation of implicit subsidy on urea produced by public sector industry. In case of the other two major varieties of chemical fertilizer, their prices had evidently increased relative to rice prices, though only after 1992. It is generally agreed that timely availability of fertilizer has been more important in influencing its use than variation in its prices at the margin. It is also commonly understood that of the two inputs under study, irrigation had acted as the lead input in promoting crop sector growth in Bangladesh[464]. Here also, availability of irrigation facility rather than changes in its relative prices had been instrumental in promoting growth. It is true that increase in the irrigation price paid by the farmers (who had already adopted the technology) adversely affected profitability. However, decline in price of irrigation equipment, coupled with a wider choice set through unrestricted private import, promoted investment on minor irrigation. Such investment enabled farmers in new areas to choose crops that would raise profit. Thus, one may conjecture that early adopters of modern technology had reaped higher benefits during the initial years, which declined with policy reforms during the 1980's; and the policy reforms helped expansion of modern technology to new areas (due to reduced investment cost) where the farmers derived positive benefits. Such a conjecture is supported by evidence provided in Mahmud et al (1994), where it is shown that rice production in Tangail, Noakhali and Chittagong had recorded high growth rates during 1967-68 to 1977-78 period

[463] Ibid; In the case of payment in kind, one would expect the price to be higher than under cash payment since there was risk sharing involved and payment is made after harvest under the former arrangement

[464] See Ahmed (2000).

(respectively, 10.56, 5.12 and 4.12 percents per year), while these districts performed poorly during 1979-80 to 1989-90 period (with annual growth rates of –1.12, 2.47 and 0.51 respectively)[465].

Crop-sector profitability may increase for one or more of the following four reasons: (i) general increase in the relative price of output to those of inputs, (ii) favorable shift in relative prices of inputs, (iii) land improvements making it feasible to shift land allocation towards producing more profitable crops, and (iv) optimal use of inputs under individual crops (moving towards the boundary of production frontier from within). We have already noted that other than in the case of urea, relative price of the main crop sector produce (rice) did not increase vis- à-vis other inputs during the decade under scrutiny (1980's). It is also beyond the scope of the present study to comprehensively address the relative contribution of individual inputs to growth and then map evidence on changes in relative prices of these inputs on such contributions, in order to address point (ii) above.

The BIDS study had compared 1990-92 (post-SAP) with 1979-81 (pre-SAP) and found the farmer-level net returns from crop production to have increased in real terms. The econometric exercise had shown that liberalization with regards to the irrigation market (procurement of equipments as well as siting of wells) had the most significant impact on the adoption of modern variety of rice, which raised land productivity and increased farm-level profit. Moreover, gradual privatization of fertilizer distribution had generally ensured timely supply of fertilizer to the farmers; and the fertilizer market is found to be spatially well integrated. Thus, short-term impacts of SAP in these two areas are found to be positive.

Policies, however, open up new opportunities, and the short-term gains may not be sustained in the long term. Moreover, behavior of agents under a new policy regime raise new set of issues, all of which may not be conducive to healthy growth in the agricultural sector. Even though a limited set of information have been provided on recent changes in the crop sector, they suggest of stagnation in the crop sector, with possible decline in returns from crop production in real terms. It is therefore important that the second generation problems be raised so that the economy may be revitalized out of current stagnation and future policies may designed upon lessons drawn from past experience. A number of such issues, which are directly related to policy changes that were initiated during the 1980's and early 1990's, are rather hotly discussed.

[465] See Table 2.10 in p. 23, Mahmud et al (1994). One may also look into the recent work by Raisuddin Ahmed. It is important to note that within a dynamic setting, additional income accrued by the early adopters of technology may find ways into new line of economic activities, which has rarely been probed in the context of Bangladesh.

Table 28: Percentage Distribution of the Gross Cropped Area before and after the SAP

Percentage Distribution of Gross Cropped Area Before and After the SAP

Crop	% of gross cropped area			Crop	% of gross cropped area		
	1983-84	1990-92	1996		1983-84	1990-92	1996
Local Aus	20.81	11.09	11.03	Turmeric	0.18	0.11	0.09
Modern Aus	2.83	2.78	3.47	Chili	1.15	0.49	1.52
Broadcast Aman	10.15	6.46	5.96	Ginger	0.05	0.05	0.04
Local Trans. Aman	21.73	19.80	15.14	Coriander Seed	0.09	0.04	0.05
Modern Aman	4.93	15.42	15.76	Garlic	0.21	0.09	0.37
Local Boro	3.08	2.00	3.95	Onion	0.52	0.25	0.93
Modern Boro	6.58	16.73	17.50	**Spices**	2.22		3.04
Local Paddy	**55.77**	**39.35**	**36.08**	Lentil	1.83	1.51	1.45
Pajam/HYV Paddy	**14.34**	**34.93**	**36.73**	Gram	0.90	0.67	0.15
Local Wheat	1.88	-	0.00	Khesari	2.23	1.77	1.98
Modern Wheat	2.19	4.36	5.32	Black Gram	0.68	0.49	0.25
Maize	0.04	0.02	0.03	Moong	0.44	0.40	0.71
Other minor cereals	1.72		0.17	**Pulses**	6.56	**4.84**	4.63
Jute & mesta	5.49	4.02	4.55	Brinjal	0.34	0.21	0.57
Cotton	0.12	0.14	0.08	Pumpkin	0.11	0.09	0.05
Tobacco	0.45	0.27	0.50	Radish	0.13	0.15	0.05
Sugarcane	1.22	1.36	1.15	Cucumber	0.06	0.03	0.06
Potato	1.01	0.92	2.05	Long Bean	0.04	0.02	0.02
Sweet Potato	0.45	0.35	0.09	Tomato	0.08	0.08	0.06
Rape & Mustard	2.75	2.31	3.43	Cauliflower	0.03	0.06	0.04
Sesame	0.79	0.59	0.31	Cabbage	0.02	0.06	0.02
Linseed	0.60	0.55	0.04	Ladies Finger	0.04	0.03	0.02
Ground Nut	0.25	0.27	0.34	Arum	0.17	0.09	0.06
Oil Seeds	4.42	**3.73**	4.14	**Vegetables**	1.94		1.41
Other Crops[1]	0.18	3.87	.03	Gross Crop. Area	100.00	100.00	100.00

Note: 1: In case of 1990-92, other crops include some vegetables, spices and minor cereals.
Source: In case of 1990-92, it is author's calculation from data of the Yearbook of Agricultural Statistics, BBS, various issues. Other two columns are from census data, published by the BBS.

Observations on the Irrigation Sector

There are several lessons to be learnt from the policy experiences during the 1980's; these are summarized below[466]:

1. The move towards import substitution with establishment of plants to manufacture pumps and diesel engines during the early 1980's proved to be a wastage of scarce capital for the country. These plants turned out to be inefficient when the standardization was withdrawn and private import of irrigation equipment was allowed during 1987.

2. In retrospect, it now appears that continuation of subsidy on fertilizer during the late 1980's was not a fair policy to maintain, especially since such subsidy was later withdrawn during 1992. Since there are complementarities in usage of the two inputs (irrigation water and chemical fertilizer), stability in relative prices and availability of these inputs is crucial in ensuring healthy investment. It is quite possible that low fertilizer prices had induced excessive investment on minor irrigation, a part of which turned out to be less economic under later policy regime (with no fertilizer subsidy). This, however, remains a conjecture, and cannot be verified due to absence of adequate data.

3. Increase in investment on irrigation with the withdrawal of standardization does suggest that size of investment is an important factor, which should be duly considered in future policy formulation.

4. While withdrawal of standardization did promote investment in irrigation, in the absence of complete knowledge on makes, farmers had often incurred losses due to inappropriate choices.

[466] Ibid

Adequate information, independent of the promotional activities of the commercial firms, could have reduced such losses.

Increased investment in irrigation opened up several new concerns, which needs to be adequately addressed in the future. They include:

1. Current practice of irrigation through flooding of land promotes rice cultivation, and in the absence of appropriate design of field channels, cultivation of minor crops in association with rice within the same command area has not been in vogue. Thus, increased dependence on minor irrigation has led to increase in the extent of monoculture practice in the crop sector. We have also observed that revenue from rice production has declined in real terms; and it is necessary to promote other crops in order to reverse the trend.

2. Excessive extraction of ground water is believed to have led to drying out of aquifers during the dry season. In parts of the country, this has led to digging the well deeper, and often switching from shallow to deep tubewells. Such technological switch necessitates significant institutional rearrangements. Moreover, irrigation with deep tubewell at the latter's economic price, is yet to prove financially viable. These two aspects remain to be resolved in the future.

3. Extraction of ground water, in excess of the natural recharging capacity of the aquifers, is also believed to have led to the arsenic problem, which is considered to be a major health disaster during the recent past. It is therefore important to bring in balance between the alternative uses of water and between alternative sources of water.

Observations on the Fertilizer Sector

Policy changes had been more gradual in the field of chemical fertilizer. Gradual phasing out of the monopoly role, once played by the BADC, is considered to have benefited the farmers. There are however several aspects to take note of for future policy making. These are briefly highlighted below[467]:

1. On withdrawal of subsidy, the experience shows that there had always been two opposite views, upheld by the World Bank and the GoB, without any party ever engaging in any major confrontation. GoB was able to continue its subsidies on imported fertilizer until 1992; and is alleged to continue with implicit subsidy on urea through administration of mill-gate prices. Unfortunately, the debate was never based on meaningful reference prices. In the specific context of Bangladesh, where urea is locally produced and MoP and part of TSP are imported, it is necessary to define the objectives of a price policy (including tax and subsidy) more explicitly. Simplistic reference to the world price is no less dubious than an ad hoc continuation of subsidy on fertilizer on political ground. In future, it is therefore important to resolve this issue, not only within the context of the crop sector, but also upon taking cognizance of the externalities that fertilizer use cause for other sub-sectors of the economy.

2. Private sector participation in procurement and distribution of fertilizer gave rise to several vices of the market forces. Two noteworthy ones are, (i) since the content of any particular fertilizer is not visible, it has been easy for profit-seeking firm to fool the customers and sale poor quality fertilizer (say, TSP) at a price normally associated with higher quality fertilizer; and (ii) due to differences in demand for fertilizer across seasons and across space, market segmentation (across time and space) and oligopolistic pricing has often been observed. Effort by the current Minister for Agriculture in

[467] Ibid

regulating the market forces through persuasion and threat (to cancel dealership) is generally perceived to have been effective. In future, it is important to institutionalize regular monitoring of the market forces and regulate market forces, which deviate from fair play.

3. The policy focus on fertilizer had largely dealt with three major types of fertilizer – urea, TSP and MoP. The concern with environmental degradation due to fertilizer use and due to more intensive cultivation of land requires future policies to address use of micro-nutrients as well.

The present study had a narrow focus on two major input markets and policy changes affecting these markets to explain how crop-sector profitability had changed due to structural adjustment policies. It abstracted from the changes in the output market, which determines one important component of profit (i.e., prices influencing revenue). Various exercises presented in this paper shows that crop sector profit had increased during the 1980's in real terms, and that such increase is largely attributable to increase in output due to switch to modern variety of rice, facilitated by change in policy towards the irrigation sector. It is however important to acknowledge the fact that output prices (especially, that of rice) had also increased; and is alleged to have been artificially maintained at a high level till the market crush in 1992. The trends during the recent past clearly show how the stagnation in output prices may reduce the real return from crop cultivation. These are outcomes of broad macroeconomic policies pursued.

The review of policies suggest that both the Government of Bangladesh and the World Bank had identical objective of raising crop sector output, primarily through increasing food production. There had also been consensus on how to realize this objective. The only difference possibly lay in the pace of bringing about the required changes. Given that the oversights have been commonly erred and the short-term decisions have been commonly upheld, it may be worth looking into, in future, how the appearances are so similar. On the whole, policies of the 1980's had helped farmers in Bangladesh to reap additional benefits in real terms. This could not however be sustained d uring the 1990's, both due to stagnation in crop-specific yield and deteriorating terms of trade for the crop sector. The report does not discuss the technologies in the pipeline. Within the current set, it is suggested that there should be regular monitoring of the input markets and regulatory mechanisms may be institutionalized to make the market function in a healthy way.

4.1.5 A Review of Land Conversion Trends

A sharp contrast in the way land-conversion has shaped up over the last century can be observed when we tally the data and information we could collect from the National Archives of India with the data and census that we find from the Modern day Bangladesh[468].

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Bangladesh is one of the most densely populated country in the world. With the growing population, and their increasing needs in various sectors, land use patterns are undergoing a qualitative change in which the areas under the net cropped land, and forest land is gradually shrinking. This country has humid tropical monsoon type of climate, warm and humid in the summer, dry and moderate cool in the winter with three meteorological seasons summer, monsoon and winter. With the temperature remaining above the biological zero all through the year, the annual rainfall ranges from 1500mm in the northwestern part to 5000mm in the northeast. It is the rainfall along with depth and duration of flooding that remains the critical factor for agriculture in this country. The critical aspects of rainfall in relation to the use of land for agriculture relate to the uncertainty of the start and parting of the monsoon as well as the occurrence of droughts. Bangladesh is really very lucky in having a hyper-thermic temperature regime where agricultural production is possible all over the year. More than 60% of the land area of Bangladesh is used under agricultural purposes against only 12 % for the world. Very few countries in the world employed such a high percentage of its land area under cultivation. This has been possible for the existence of the proverbially fertile soils on the few vast floodplains that are annually replenished by siltation during the flood. Two-thirds of the population in Bangladesh depends directly or indirectly upon agriculture, while nearly 25% of the gross national product comes from this sector. With scattered settlement patterns in Bangladesh homesteads, urban centers, industries, educational institutions and inhabited lands together occupy about 25% of the national area. Although forests

Like many other countries, soil is overwhelmingly the greatest national resource of Bangladesh on which its entire population depends for food supply. To understand the nature and properties of the soils in Bangladesh and their geographical distribution, this country has conveniently been divided into three physiographic units having three distinct geological ages, such as: (1) Tertiary hills (12 %), (2) Pleistocene terraces (8%) and (3) Recent floodplains (80%). Interestingly, the above demarcation of Bangladesh on the basis of physiography also conveniently coincides with the types of their parent materials. More than 60% of the land area of Bangladesh is used under agricultural purposes against only 12 % for the world. Very few countries in the world employed such a high percentage of its land area under cultivation.

Table 29: Some Geo-Environmental Facts on Bangladesh[469]

Index	Facts	Remarks
Total area	14.7 million ha	-
Latitudinal location	$20^0 34'$ to $26^0 88'$ N	Tropical environment
Longitudinal location	$80^0 1'$ to $92^0 41'$ E	-
Climatic type	Humid tropical monsoon	-
Annual rainfall	Varies from 1500 – 5500 mm	Distinct wet and dry seasons
Mean annual temperature	25.5^0C	Hyperthermic regime
Mean winter temperature	19^0C	-
Mean summer temperature	29^0C	-
Present population	130 million	-
Population density	800 persons/sq. km	Increasing trend
Land /man ratio	0.07 ha / person (2000)	Not enough to produce required food and fiber
Length of coast line	654 km	Mostly muddy and fragile
Coastal area below one meter contour line	2.85 million ha	May disappear by sea level rise
Area under cultivation	9.3 million ha	Almost 63% of total land area
Area of grassland	Nil	No grazing land
Cropping intensity	175 % in 1999	Increasing trend
Forest area	2.2 million ha	Actual tree covered area is 6%
Number of farm holdings	11.3 million	Increasing trend
Average farm size	Less than 1 ha	Decreasing trend
Irrigated land	3.7 million ha	35% of total agricultural land
Flooded land	56 % of total area	Normally flooded
Labor in agriculture	60 %	Increasing trend
Natural hazards	Tropical cyclones, flash floods, storm surges, river bank erosion and drought	All are disastrous

Source: **Bangladesh Bureau of Statistics (BBS), 1999.**

The major portion of the fabulously fertile agricultural land in Bangladesh occurs on the vast floodplains of the Bengal delta formed by the deposition of sediments from the enormous rivers- the **Ganges, the Brahmaputra and the Meghna (GBM)** and the Tista, all of which have been originated from outside the country. The combined total catchments area of these major river systems is about 174 million sq km, of which only 7% lies within Bangladesh territory. The rest comes from the upper catchments of the rivers. For this reason Bangladesh has very little control over the huge quantity of surface water of this vast catchments area that flows through these rivers to the Bay of Bengal.

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are officially stated to occupy 15% of the land area of Bangladesh, the actual tree-covered area is reported to have fallen to only 6% at present (Huda and Roy, 2000). Remnants of tropical rainforest occurs in the hilly regions in the northeast; while the world‟s largest mangrove forest, the Sundarbans, with an area of 6,017 sq. km., occurs along the coast of the Bay of Bengal in the southwestern corner of the country. Land use has evolved through natural forces as well as human needs, cultivated land, forestland and settlements and homesteads are the major land use types in Bangladesh.

[469] Ibid

About 17 percent area of the country along the coast has an elevation of less than one meter above the mean sea level. Elevation gradually increases towards the north. Due to the flat terrain, the rivers in the floodplains of Bangladesh have low gradients causing deposition of substantial quantities of river-borne sediments on the riverbeds forming sandbars, while the rest of the 2.5 billion tons of the sediments annually move to the offshore areas through the Meghna estuary (Khan,1978 and Coleman,1969). The sediments are finally carried away towards the middle of the Bay of Bengal through the Swatch of no ground, a submarine canyon that occurs only 20 km to the south of the coast of Bangladesh. Over 20 percent of the total area of Bangladesh along the coast is tidally affected. Only 0.83 million hectares of land along the coast is saline, and a part of this saline tract is occupied by mangrove forest locally known as Sundarbans. This forestland is flat and developed through the process of sedimentation, subsidence and down warping of sediments. About 80 percent of Bangladesh territory can be defined as wetlands according to the Ramsar convention (Ullah, 2002). These include the entire floodplain areas. Although during the rainy season the floodplains behave like wetlands because of standing water for varying periods, during the dry season when the droughts are long, many of them demonstrate deserts like appearance. Because of hyperthermic temperature regime the organic matter mineralization rate in soils is usually very high. There is therefore depletion of organic matter, which is a basic problem of these soils (Karim and Iqbal, 2001). There are many freshwater wetlands in the floodplain areas, which include haors, baors, beels and jheels, where 200-300 wetland plant species are found. Histosols occur in the few large depressions that occur in the Gopalganj-Khulna and in the Sunamganj-Netrokona areas that constitute around one percent of the area of Bangladesh (SRDI Staff, 1965-86).

In the floodplains of Bangladesh there is a general textural gradation from river bank to basin sides north to south with the fine-textured soils predominantly occurring towards the south (Brammer, 1997). There is also textural gradation from river bank to basin sides. The major agricultural soils in Bangladesh have moderate textures with the majority ranging from loam or silt to silty loam to silty clay loam. Only a relatively few soils in Bangladesh belong to the extreme textural classes. With respect to textural aspects majority of the Bangladesh soils appear to be suitable for having quick resilience.

4.1.6 Land usage scenario

Land use in Bangladesh has evolved through natural forces as well as human needs. Cultivated land, forestland and settlements and homesteads are the major land use types in Bangladesh[470].

[470] Land degradation occurs when land qualities are affected negatively due to natural causes or human interference. Natural degradation and hazards are conditions of the environment, which lead to high susceptibility to degradation. Example may be flood, steep slopes, rains of high intensity, strong leaching in humid and droughty situation in the dry regions. This is very much true for Bangladesh. Direct causes of degradation are irrational land use and inappropriate land management practices. These vary with the type of degradation and include:

O Deforestation of hilly land, unsuitable for sustained agricultural use
O Shifting cultivation without adequate fallow periods
O Intensive cultivation of MV crops; primarily cereals
O Unbalanced fertilizer use
O Depletion of organic matter
O Non-recycling of crop residues, cowdung and organic wastes
O Plant nutrient deficiency
O Improper crop rotation
O Overgrazing
O Absence of soil conservation management practices
O Extension of cultivation in lands of low potential or high natural hazards
O Problems arising from improper planning and management of irrigation systems
O Withdrawal of groundwater much exceeding the rate of recharge

Table 30: Land-Usage Scenario in Bangladesh[471]

Land Use Types	Hectares (in 000)	%
Total land area	14,845	100
Not available for cultivation	3,700	24.9
Forest	2,255	15.2
Cultivable waste	445	3.0
Current fallow	2,999	20.2
Double cropped area	979	6.6
Single cropped area	451	3.0
Triple cropped area	4,013	27.0
Net cropped area	7,992	53.8
Total cropped area	13,964	--
Net cultivable area	9,443	56.9

Source: **BBS (1999).**

With the growing population, and their increasing needs in various sectors, land use patterns are undergoing a qualitative change in which the areas under the net cropped land, and forest land is gradually shrinking. A large part of the forestland is now under different types of non-forest land use, for example, as shifting agriculture, illegal occupation for homestead, shrimp culture etc. Another important feature in land use in Bangladesh at present is the small area (only 3%) of fallow land, which indicates that land in this country is not allowed sufficiently long rest period for regaining their natural biophysical properties which is vitally needed for good maintenance of soil health. It is perhaps needless to say that for sustained agricultural production maintenance of good biophysical condition of soil is essential[472].

[471] Ibid; Reproduced

[472] In Bangladesh, active land degradation process is water erosion and loss of fertility due to physical, chemical or biological degradation of soils.

The land area under the head, not available for cultivation includes mainly urban, rural settlements, and industrial lands cover around one-fourth of the total national land area. Area covered by homestead is around 9.3% of the total land area and is characterized by intensively planted but is not efficiently managed (Bashar, 2001).

Table 31: Summary of Land Capability and Classes[473]

Land capability class	Area (million ha)	%
I. Very good agricultural land	0.19	2
II. Good agricultural land	4.19	34
III. Moderate agricultural land	4.82	39
IV Poor agricultural land	1.92	16

Source: FAO, 1988.

The homesteads represent the agroforestry model in rural Bangladesh. In the face of diminishing trend in forest reserve the homestead agroforestry is playing an important role in mitigating the needs of rural masses. These rural homesteads are often uncared and underutilized and can be made more productive through application of better technology. Well planned marginal land management combining woody perennials with vegetables, fruits, livestock, poultry, fish and

Types of Land degradation	Areas (in mha) affected by different degrees of degradation				Total area (mha)
	Light	Moderate	Strong	Extreme	
1. Water Erosion	0.1	0.3	1.3	-	1.7
- Bank erosion	-	1.7	-	-	-
2. Wind Erosion*	-	-	-	-	-
3. Soil Fertility Decline	3.8	4.2	-	-	8.0
- P deficient (for HYV rice)	5.3	3.2	-	-	8.5
- P deficient (for Upland Crops)	3.1	2.5	-		5.6
- K deficient (for HYV rice)	4.0	3.4	-		7.4
- K deficient (for Upland Crops)	2.1	5.4	-		7.5
- S deficient (for HYV rice)	4.4	3.3	-		7.7
- S deficient (for Upland Crops)	4.1	4.6	-		8.7
Soil Organic Matter depletion	1.94	1.56	4.05		7.55
4. Waterlogging	0.69	0.008	-	-	0.7
5. Salinization	0.29	0.43	0.12	-	0.84
6. Pan formation	-	2.82	-	-	2.82
7. Acidification	-	0.06	-	-	0.06
8. Lowering of water table*	-	-	-	-	-
9. Active floodplain	-	-	-	-	1.53
10. Deforestation	-	0.3	-	-	0.3
11. Barind	-	-	-	-	0.773

Land Degradation Situation in Bangladesh, Soils Division, BARC, 1999
* No quantitative estimate available
Note: Estimates are based on currently available information.

[473] Ibid; Reproduced

farming in tune with the farmers need will lead to sustainable livelihood. Areas under double and triple cropping are showing an increasing trend over time. Cropping intensity, which may be an indicator of land use intensity, is gradually increasing and stood at 176 percent in 1996-97 (BBS, 1999). Soils of Bangladesh are revealed that Moderately good and good agricultural lands together constitute the bulk of the land area in Bangladesh. It is interesting to note that almost one-fourth of the agricultural land is of poor quality. Care will be needed to manage these lands otherwise they may turn unproductive. Quantified data for land and soil properties need to be developed for major crops for sustainable production, development and conservation of the limited land resources of the country.

4.1.7 Conflict in Priority of Land Usage

With the growth of a country's economy, agricultural land is usually transferred to non-agriculture as the demand for non-farm products and services increases. This is specially so when the country's population and its per capita income rise[474]. Transfer of farmland to non-agriculture is also needed for expansion of housing facilities in both rural and urban localities. Such transfer is also evidenced in building infrastructures such as roads, markets, educational institutions, electricity and industrial establishments, etc. Bangladesh is a land scarce country where per capita cultivated land is only 12.5 decimals[475]. It is claimed that every year about one per cent of farmland in the country is being converted to non-agricultural uses (such high rate of conversion will not only hamper agricultural production but will have adverse impact on food security). The converted land is predominantly used for construction of houses, followed by roads and establishment of business enterprises. The land-poor records higher rate of land conversion[476]. The two principal determining factors for such

[474] Since there is an acute shortage of land in Bangladesh, still competition among the various land uses is natural. Agriculture, being the dominant land use type, is in constant conflict with other uses. There are competitions for land within each use type. Most often land related disputes end up in litigation and murder. It has been reported that around half of the murders in Bangladesh are caused over conflicts / enmity related to land. The shortage of land is so serious that more than 50 percent farmers have become landless and many people are compelled to settle in the undeveloped offshore islands as soon as this appear on the middle of riverbeds or in the offshore areas, risking their lives (Mahbub Ullah, 1996). Some of these undeveloped and unstabilized charlands are inundated during the high tide and dry out during the low tide.

Land type	Area (ha)	Proportion (%)
Highland	4199952	29
Medium Highland 1&2	5039724	35
Medium Lowland	1771102	12
Lowland	1101560	8
Very Lowland	193243	1
Total Soil Area	**12305581**	**85**
River, Urban, Homesteads etc	2178045	15
Grand Total	**14483626**	**100**

Source: FAO, 1988.

[475] Previous and others;
Collected from work titled, "Agricultural Land Use and Land susceptibility in Bangladesh: An overview" by Md. Hasibur Rahman, Department of Soil, Water and Environment Dhaka University

[476] The conflict between agriculture and urbanization is the direct result of population increase, as new living houses are needed for new families. Agricultural lands owned by parents are being converted to homestead for building new houses to accommodate the offspring. The net result is the decrease of total agricultural land and an increase in the number of smaller sized plots. As the development is going on in all sectors of economy with aid from international agencies, more and more lands are being diverted to development activities for building townships, industries, educational institutions, roads and highways etc. Encroachment of forests for agricultural use and human settlement near the fringe of forests is very common and in this process the actual forest land under tree cover is estimated to have gone down to 6 percent at present (Ullah, 2002).

The competition for land between agriculture and livestock has become very acute. At present there are about 37 million bovine population for which there is no demarcated grassland. This huge bovine population thrives mainly on rice straw and grasses that grow on road and canal side patches and homestead areas. Seasonally the cattle can graze in the

conversion are found to be land ownership size of a household and the non-agricultural occupation of household heads. To arrest the existing rate of land conversion, the surveyed households suggest for more profitable rates of return from farming activities besides imposing special sales tax for conversion of farmland[477].

We are not aware of the extent of conversion of farmland for non-agricultural uses in Bangladesh and consequent production losses in agriculture. It is generally claimed that in Bangladesh every year over 80 thousand hectares of agricultural land i.e. nearly one per cent a year (Planning Commission 2009) is being converted to non-agriculture. This is definitely a matter of serious concern for the land-scarce country like Bangladesh where per capita cultivated area is only 15 decimals. This is too meagre an amount for the country's food security as the productivity of land in Bangladesh is also low. Another case study, carried out in 2004 by Directorate of Land Records and Surveys (DLRS) of the Ministry of Land in Palas Upazilla of Narsingdi and Sonargaon of Narayanganj district, observed a substantial decline in the share of agricultural land to the extent of 27 per cent in Palas and 16 per cent in Sonargaon during the period of 20 and 25 years respectively (1983-2003; 1978-2003) i.e. more than one per cent per year. On the other hand, there has been several-fold increase in the area under housing and permanent fallows in both these areas. The recently completed report on Agriculture Sample Survey of Bangladesh-2005 by Bangladesh Bureau of Statistics (BBS) does not, however, show such high rate of decline in cultivated land. Total cultivated land of all holdings in rural Bangladesh amounts to 17.77 million acres in 2005, which was almost the same in 1996 i.e. before nine years[478].

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agricultural fields during their short lay period. But these fields are rarely available for grazing if they are used for double or triple cropping. Land in Bangladesh has tremendous potential for growing grass and herbs but the main problem is the shortage of land. Shrimp culture is mainly concentrated in the coastal areas of Bangladesh where the previous croplands and forests have been converted to shrimp culture fields. When the shrimp culture fields are abandoned they cannot easily be converted to croplands, as these fields are made saline artificially by adding salts. The estimated area of shrimp cultivation in four coastal districts of Khulna, Shatkhira, Bagerhat and Cox's Bazar is 140,000 hectares, around 70 percent of which are located in greater Khulna district (Rahman, 2000). Although economically profitable the unplanned expansion of shrimp culture has created a negative impact on water quality, mangrove deforestation and degradation of agricultural land. Chakoria Sundarban along the southeastern Chittagong coast has almost disappeared due to the encroachment by shrimp farms.

Good quality agricultural lands are randomly being used as brickfields all over the country but their concentration is more in the villages than the cities. About 4000 brickfields require soils and woods as fuel, which, indiscriminately destroying trees, homestead forests and agricultural lands. When the brickfields are abandoned they cannot be easily converted to crop fields as burnt soils cover the land there. So the loss of land due to brick making becomes more or less permanent.

[477] "Conversion of Agricultural Land to Non-agricultural Uses in Bangladesh: Extent and Determinants" by Md. Abul Quasem, Bangladesh Development Studies Vol. XXXIV, March 2011, No. 1

The study estimates the rate of land conversion and consequent loss of agricultural production of the country besides determining the factors affecting such conversion. The study is based mainly on field survey covering 24 villages from six divisions of the country Annual Conversion of farm land is estimated to be 0.56 per cent and the country's loss of rice production is also estimated to be between 0.86 and 1.16 per cent.

[478] Ibid

Table 32: Cultivated Area in the Three Census/Surveys of Bangladesh[479]

CULTIVATED AREA IN THE THREE CENSUS/SURVEYS OF BANGLADESH

(in '000 acres)

Census/Survey Year	Cultivated Area of	
	All Holdings	Farm Holdings
Agriculture Sample Survey-2005		
Total	18,084	18,047
Rural	17,725	17,692
Agriculture Census-Rural 1996	17,771	17,749
Agriculture Census-1983/84	20,158	20,139

Source: BBS (2006).

Note: Net cultivated area is the area actually cropped during the census year regardless of the number of crops grown and it includes the area under temporary crops, current fallow, and permanent crops (Fruits wood trees); In other words, it is the actual area occupying perennial and non-perennial crops and area under current fallow.

This is difficult to explain. It seems to be due to conversion of forest and low lying fishing land as well as newly accreted char land to crop cultivations; this needs careful investigation. It may, however, be noted that the cultivated area per farm household has over time reduced to 1.20 acres in 2005 from 1.50 acres, recorded in 1996. This is largely due to a sharp rise in the number of rural farm households, by 24 per cent, from 11.8 million in 1996 to 14.7 million in 2005[480].

The recently completed Agricultural Census-2008 finds the number of farm households (14.40 million) almost equal to the figure of 2005 (14.47 million) accounting for 56.74 per cent of total rural households of the country. During the 12 year period of 1996 to 2008 the number of rural families increased from 17.8 million to 25.36 million i.e. an increase by 42.5 per cent. All these new families must have residential accommodations largely derived from the existing Agricultural land, indicating their absolute decline over time. The Government of Bangladesh is very much aware of such conversion of agricultural land and accordingly it has framed the National Land Use Policy-2001 keeping in view the competitive use of land for food production, housing, urbanisation and environment protection. The Policy has also emphasized the efficient use of land to ensure minimum level of food security to people and suggests restrictive use of land for housing, physical infrastructures and other constructions. For full-fledged implementation of the Policy, the Land Act is being formulated[481].

In Bangladesh, the average cultivated holding is too small for sustainable livelihood of farmers, especially of the marginal and small ones. The land transferred to non-agriculture is derived mainly from the land poor (upto 2.49 acres) constituting 88 per cent of total farm holdings. They are thus, becoming more vulnerable to food insecurity. Increasing number of functionally landless and the tenant farm households seem to have been already affected by the reduced size of farms and land degradation due to intensive cropping[482].

According to land ownership size the proportion of land converters generally increases with their size, the average being 42 per cent. It increases from 30 per cent among landless households to 35 per cent among the large landowners during 2001 to 2008, which is expected. But in terms of land owned by them, the highest rate of conversion was recorded among the functionally landless

[479] Ibid

[480] Ibid

[481] Ibid

[482] Ibid

households estimated to be 23 per cent or 2.9 per cent a year and the lowest among the large land ownership groups (1.6 per cent) or only 0.2 per cent of their land per year. In the remaining three other groups, the rate of conversion was observed to be about 0.6 per cent per year. The highest rate of conversion among landless households suggests that they are becoming more vulnerable to food security, especially when their land ownership size is alarmingly low (0.22 acre)[483].

During the eight year study period, land was converted to non-agricultural uses under different possession rights other than self-ownership[484]. Some land was sold, some acquired by the government and some was donated. The data show that the major proportion (45 per cent) of the converted was sold while only 34 per cent was converted under self ownership, where peri-urban village dominate covering 55 per cent of total converted land. Land acquired by the government had also significant share (19 per cent), mostly observed in urban village (38 per cent). It may be noted that conversion after sales was substantially high in rural and in metro-village, as compared to other this categories. Such analysis by land ownership size indicates that 63 per cent of large landowners' converted land took place under self-ownership, while only 17 per cent was in the case of landless category. Conversion that occurred after sales of the land was quite high among the medium landowners. Surprisingly, over half of the converted land of the landless households was derived from acquired land. Such share for the large landowners was negligible (2.1 per cent), indicating that the land poor is more adversely affected by the acquisition of land by the state[485].

According to the estimates, agricultural land is being converted at a rate of 0.56 per cent per year[486]. On the basis of this rate of conversion and the country's total cultivated area of all farm households amounting to 7.19 million hectares in 1996, conversion of land amounts to 40,452 hectares per year[487].

Another estimate based on annual per household conversion of land @ 0.0096 acre {(46.25 acres ÷ 600) ÷ 8} and the rural land owning households numbering to 16.01 million or {(17.828 − 1.815 or 10.18% completely landless)} in 1996 annual converted land is estimated to be 62,478 hectares. None of these estimates is close to the previously quoted figure of over 80,000 hectares. Furthermore if the previously quoted figure of 80,000 hectares is taken into account, total converted land in the country comes to 720,000 hectares during the nine year period of 1996 to 2005. But the total cultivated area in rural Bangladesh remains almost the same (17.77 million acres) in both the

[483] Ibid

[484] The intensified monocropping, shrimp cultivation and numerous brickfields are all degrading the long-term soil quality. New and fragile char lands are being cultivated for rice before they are stabilized which initiates erosion and even sometimes cause the disappearance of the entire char. In the newly formed charlands there is competition between afforestation and agriculture use of lands. Structures built for flood control and drainage regulation in many areas sometimes drastically altered the land and water use patterns and the environment which has resulted in unbelievably decline in fresh water fish culture and production in many areas in the recent years (Nishat and Bhuiyan 1995).

[485] Ibid

[486] Ibid

[487] It has been observed that of the total converted agricultural land, crop land occupied 90 per cent where different crops were cultivated. The remaining 10 per cent was used either in bamboo bushes and jungles or left fallow. There was some land where unplanned orchards and trees were also grown. The share of crop land was the highest in rural villages (95 per cent) and the lowest (85 per cent) in both the peri-urban and metropolitan villages. Among the five land ownership categories, the share of crop land in the converted land was the highest (93 per cent) in small category and the lowest (85 per cent) among the marginal land category. In Dhaka division, 95 per cent of the converted land was derived from crop land, indicating that there is little scope for further urban expansion in the division without losing valuable crop land, which is a matter of serious concern.

years of 1996 and 2005 with marginal difference of only 46,000 acres. We may, therefore, conclude that the previous figure of land conversion is an over estimate.

Information collected indicates that more than half (55 per cent) of the converted local was used in housing predominantly in metro villages (60 per cent), as expected. The next two important uses were in the construction of roads and business establishments covering 10 and 8 per cent respectively. Nonreported area of use was also substantial (15 per cent). The share of such land was the largest in rural villages (25 p[er cent). Among different residential status of the households, the second most important utilisation in peri-urban villages was road construction covering 19 per cent of its converted land. In urban villages, next to housing, other major uses were (a) business establishments, (b) agro-based industries, (c) education and health institutions, and (d) road construction, each clearing five per cent of total converted land[488] [489].

Of total converted agricultural land, 90 per cent was cropland where different crops and vegetables were grown. Collected data show that 92 per cent of cropland was under paddy and about 6 per cent was used for vegetables. The area under vegetables was higher (27 per cent) in peri-urban villages. Among different land ownership groups, the proportional shares of paddy land varied little, the highest being among the large land owners (97 per cent). In the case of vegetables, marginal landowners had the highest share (12 per cent). Before conversion, non-crop land which was kept almost unutilised amounted to 78 per cent, ranging between 81 and 97 per cent in metropolitan and peri-urban villages respectively. One-tenth of the land was occupied by bamboo bushes and trees, mostly in urban areas (23 per cent). There were some scattered plots where vegetables were grown, accounting for only 6.0 per cent of land. The pattern of land use as practised before conversion indicates that the conversion of land to nonagricultural uses has adversely affected agricultural production, which is estimated below.

According to the field survey quoted here, production of different crops and vegetables is lost due to conversion of farmland to non-agriculture. The main crops lost were HYV paddy, local paddy and vegetables; and total annual loss of production was reported to be Tk.22,774 per acre. On the basis of annual production losses of Tk.22,774 per acre, the country's total loss from converted land of 40,452 hectares of 99,512 acre i.e. @ 0.56% as estimated earlier, stands at Tk. 228 crore per year.

The main policy suggestions to arrest the magnitude of land conversion are: agricultural occupations need to be made more profitable and attractive compared to non-agriculture and at the same time special tax may be imposed on the conversion of crop land. Area specific ceiling for different non-agricultural uses may be determined and imposed in industrialisation and urbanisation. Open discussions with the respondents in this regard suggest strict control on population growth, creation of more employment opportunities in rural non-farm sector and increase of land productivity through adoption of modern technologies, to be facilitated by the use of hybrid and high yielding seeds, uninterrupted supply of electricity to the irrigation equipment and adequate agricultural credit at subsidised rates of interest. In the adoption of new technologies, improved farm management practices are required.

4.1.8 Land Vulnerability in Bangladesh

[488] Ibid

[489] It is interesting to note that income of the converter households was observed to be higher by about 50 per cent over that of the non-converters household. Such higher income was recorded in all size ownership groups, but more so among the marginal and the large land owners. The converters have also higher share of income from trade and businesses (42 per cent against 36 per cent) and different services (24 per cent against 22 per cent).

The geographical settings as well as some man-made activities have made the country vulnerable to various natural disasters. These natural calamities occasionally cause drastic crop failures along with huge loss of lives and properties. In some cases the natural calamities influence land use and land management practices. Annual flooding[490] in central part of Bangladesh is a regular feature during the peak monsoon season when a certain part of the country remains inundated for varying depths and duration; and when the land temporarily goes out of control of man[491].

[490] Several types of floods are there in Bangladesh depending on the sources of water. Over 26,00,000 hectares of land or 18% of the country are inundated normally every year by river water alone coming from the upper reaches (FAO-UNDP, 1988). During the 1987 and 1988 floods, 39 and 61 percent area, respectively of the country had been submerged. As compared to that about 66 percent of the country went under water during the 1998 flood (Chowdhury, 2000). The 1998 flood in Bangladesh is yet to become part of history, as it still is very fresh in the minds of the people. However, such abnormal floods inundate the country only infrequently damaging crops and property, disrupting economic activities and causing loss of lives and properties. Influence of flood on land management is so intense that the land types in Bangladesh have been designated on the basis of depth and duration of flooding (FAO-UNDP, 1988). Land management (cropping seasons and cropping pattern) in this country has become dependent on annual flooding. Sustainability in land management in Bangladesh faces a big challenge from the unusual flooding. Flood control is not feasible beyond a certain limit as it is gigantic natural calamity and it may have adverse impact on other sectors. There is thus a suggestion that people in Bangladesh should learn the habit of „living with floods". It is often argued that floods enrich our soil with addition of fresh nutrients by new siltation. Loss of crop production in one flood season may be compensated by increased yield in the subsequent cropping seasons. This is the empirical experience the farmers of Bangladesh have learnt over the past centuries. However, recently it has been observed that fresh sediments deposited by flood in 1998 contained higher amount of nutrient elements and organic matter content (Idris, 1999).

[491] Organic Matter Status of Bangladesh Soil:

It is believed that, the declining productivity of Bangladesh soils is the result of depletion of organic matter caused by high cropping intensity. In Bangladesh, crop residues are widely used as fuel and fodder and usually not returned to the soil. Even cowdung is widely used as fuel in rural areas. This results in a decrease in soil organic matter content. In Bangladesh, the average organic matter content of top soils (high land and medium highland situations) have gone down, from about 2% to 1% over the past 20 years due to intensive cultivation which means a decline by 20-46% . Besides, the hot humid climatic conditions encouraging rapid mineralisation of OM is also responsible in enhancing the process. According to a recent study almost similar situation in depletion of organic carbon and total N depletion percentage are observed in different intensive cropping areas of Bangladesh during 1967-1997. Highest depletion of organic C(>20%) was observed in Old Himalayan Piedmont Plain, Gangetic Floodplain, Brahmaputra Floodplain and Meghna River Floodplain areas of Bangladesh.

The areas of low fertility comprise about 60% of the total cultivable land of the country. Nutrient uptake by modern crop varieties is usually greater than that by the local varieties. Hence, in areas with increased cropping intensity coupled with the use of modern varieties, the net removal of major nutrient (N,PK,S) are high and ranges between 180 and 250 kg/ha/yr (Karim et al. 1994). Plant nutrient balance sheet is shown in Table L. Most of the soils under high land and medium high land situations are low in fertility level where especially N,P K, and S are deficient . Deficiencies of micro nutrients like Mg, Zn, B and Mo have also been detected in some areas.

Removal of nutrients from the soil through crop harvest is substantially high exceeding inputs as natural replacement and fertilizer use. Negative soil nutrient balances have been found for all three major nutrients in Bangladesh . Potassium depletion trend in some soils where rice was cultivated over a period of 12 years indicated that, 90-95% more potash was removed than applied .

Nutrients	Input Supply ('000 tons)	Removal ('000 tons)	Balance ('000 tons)
Nitrogen (N)	1198	1322	(-) 124
Phosphorus ($P_2 0_5$)	339	362	(- 23)
Potash ($K_2 0$)	481	1585	(-) 1104
Total:	2018	3269	(-) 1251

Source : Karim, et al. (1994).

Of the total nutrients used in Bangladesh agriculture, nitrogen alone constitutes over 75 percent while the use of P and K - are limited to about 6.0 and 6.6 percent only. Recent data shows that the use of phosphatic fertilizers has remarkably fallen to about 6% in 1996-97 from 12% in1980-81. The probable causes are high price and use of substandard phosphatic fertilizers available in the market. But the use of N-fertilizer has steadily increased which shows inappropriate/imbalance

ratio of N,P205 and K20 (1:0.12:0.13). If this trend of fertilizer use continues along with intensive cropping of high yielding varieties, the productivity of our soils is bound to be seriously affected in future.

With intensive cropping in the same land year after year without proper soil management practices, both physical and chemical properties of soils are liable to degradation. Changes in particle size distribution in the top 15 cm of most soils of different physiographic units showed a wide variation over the last three decades. Changes in clay content showed a decline in all the physiographic units. The clay content declined in favour of the sand content of surface soils (Table I). The highest decrease in clay content was observed in the top 15 cm of Old Himalayan Piedmont Plains (OHP), Brahmaputra Floodplain (BF) and Meghna River Floodplain (MRF) (about 50%) followed by Tista Floodplain (TF), Barind Tract (BT), Madhupur Tract (MT) and Chittagong Coastal Plain (CCP) (30-40%). But in lowland situation, decrease in clay content in Surma Kushiyara Floodplain (SKF) is comparatively low (about 20%). Changes in pH showed a decrease of 0.15, 0.37 and 0.48 units within the upper 100 cm of Meghna River Floodplain, North-East Piedmont Plain and Madhupur and Barind Tracts, respectively during the period 1967-1997. Most soils showed a decline in the levels of exchangeable K, Ca, Mg and effective cation exchange capacity at the same time.

Class of soil organic matter	AEZ No.	Main Locations	Total area (Mha)	% of NCA
Very low (<1.0%)	1, 7, 8, 10, 11, 16, 25, 26, 27, 28,29,30	Dinajpur, Sherpur, Jamalpur, Rajshahi, Pabna, Kushtia, Bogra, Naogaon, Rangpur, Khagrachari, Bandarban, Chittagong	4.05	44.5
Low (1.0%-1.7%)	2, 3, 17, 18, 19	Adjoining areas of Tista, Dharlus Chandpur, Lakshimipur, Noakhali, Bhola, Barisal Patuakhali, Narsingdi, Dhaka	1.56	17.1
Medium (1.7%-3.5%)	4, 12, 9, 20, 22, 23	Sirajganj, Mymensingh, Kishoreganj, Sherpur, Jamalpur, Sylhet, Moulvibazar, Feni, Cox's bazar	1.94	21.3
High (> 3.5%)	5, 6, 1, 13,14, 15, 21	Panchagaher, Natore, Naogaon, Khulna, Satkhira, Madaripur, Gopalganj, Munshiganj, Habiganj Sunamganj, Netrokona	1.56	17.1

Source: Land Degradation Situation in Bangladesh, Soils Division, BARC, 1999

Changes in particle size distribution (%) in the 0-15 cm. layers of different soils during the period 1967-97 in Bangladesh

Location/Soil Series	Land type	Physicgraphic unit/AEZ	Sand (%)		Change	Silt (%)		Change	Clay (%)		Change
			1967-68	1997-98	%	1967-68	1997-98	%	1967-68	1997-98	%
1. Atwari	High land	OHP/AEZ	38.00	42.23	+ 11.13	46.13	49.79	+ 7.87	15.87	8.01	- 49.53
2. Jagdal	High land	OHP/AEZ 1	48.33	66.45	+ 37.49	34.47	23.50	- 31.82	17.20	10.05	- 41.57
3. Kaunia	High land	TF/AEZ 2	25.56	47.54	+ 85.99	56.28	38.60	- 31.41	18.16	13.86	- 23.68
4. Pirgacha	High land	TF/AEZ 2	69.48	68.87	- 0.87	21.11	24.91	+ 18.00	9.41	6.22	- 33.90
5. Chandra	High land	BT/AEZ 26	52.34	42.76	- 18.30	30.89	45.60	+ 47.62	16.77	11.64	- 30.59
6. Balabo	High land	BT/AEZ 26	43.61	53.08	+ 21.72	30.17	29.30	- 2.88	26.22	17.62	- 32.80
7. Gopalpur	Med.Low land	GF/AEZ 11	57.42	48.26	- 15.95	26.78	34.06	+ 27.18	15.80	17.68	+ 11.90
8. Sara	Med.Low land	GF/AEZ 11	47.80	24.17	- 49.43	37.59	47.79	+ 27.13	14.61	28.04	+ 91.92
9. Garuri	Med.Low land	GF/AEZ 11	19.84	27.58	+ 39.01	37.03	36.11	- 3.21	43.13	36.31	- 15.81
10. Tarakanda	Med.Low land	BF/AEZ 9	50.92	66.66	+ 30.91	27.38	24.33	- 11.14	21.70	9.01	- 58.48
11. Sonatala	Med.Low land	MBF/AEZ 9	28.86	45.84	+ 58.83	50.54	40.32	- 20.22	20.60	13.84	- 32.81
12. Tippera	Med.Low land	MRF/AEZ 16	28.50	34.31	+ 20.39	60.10	60.36	+ 0.43	11.40	5.33	- 53.25
13. Burichang	Low land	MRF/AEZ 16	15.88	20.49	+ 29.03	49.62	52.70	+ 6.21	34.50	26.81	- 22.29
14. Goyanghat	High land	SKF/AEZ 20	32.03	40.08	+ 21.16	50.11	38.34	- 3.53	18.86	11.58	- 38.60
15. Demra	High land	MT/AEZ 28	33.37	9.67	- 71.02	39.03	70.20	+ 79.86	27.60	20.13	- 27.06
16. Noadda	High land	MT/AEZ 28	35.60	45.98	+ 29.16	38.57	38.54	- 0.08	25.83	15.48	- 40.07
17. Mirsarai	Med.Low land	CCP/AEZ 23	41.16	51.27	+ 24,56	36.67	35.57	- 3.0	22.17	13.16	- 40.64
18. Noapara	Med. Low land	CCP/AEZ 23	2.70	8.62	+ 219.3	46.65	57.93	+ 24.18	50.65	33.45	- 33.96
19. Jhinaighati	High land	NEPP/AEZ 22	73.68	68.10	- 7.57	16.10	24.08	+ 49.56	10.22	7.82	- 23.48
20. Pritimpasa	High land	NEPP/AEZ 22	24.74	22.83	- 7.72	50.40	53.29	+ 5.73	24.86	23.88	- 3.94

Changes in pH, CEC, available P and S content in the 0-10 cm layers of different soils during the period 1967-97 in Bangladesh:

Tropical cyclones, which are the most devastating natural calamities in terms of tolls of human lives, originate near the equatorial region of the Bay of Bengal and slowly move northward towards the offshore areas of Bangladesh. Colossal loss of lives of human and livestock along with the loss of agricultural crops are common. The water surges that accompany these cyclones often sweep the coastal areas with saline water causing the soils to become temporarily saline and rendering them completely unsuitable for agricultural use. After several washings with rainwater the soils ultimately become normal again by natural ways and be again suitable for agricultural use. These storms cause loss of standing crops by depositing eroded materials from the foothills over the adjoining crop fields in the lowlands.

Drought is another serious calamity for agriculture in Bangladesh that is most unpredictable and uncertain and cause heavy loss to the standing crops. During long droughts, if there are no facilities for supplemental irrigation, crop failure may occur over a large area. Drought is due to rainfall shortage and can be mitigated in some areas by provision of irrigation, use of improved cultivation techniques and introduction of more drought tolerant crop varieties. Drought tolerant crops (millet,

Location/Soil Series	Land type	Physiographic unit/AEZ	pH (1:2.5) Change			CEC (me/kg) change			Avail P (mg/100g) Change			Avail S (ppm) Change		
			1967-68	1997-98	%	1967-68	1997-98	%	1967-68	1997-98	%	1967-68	1997-98	%
1.Atwari	Highland	OHP/AEZ 1	5.71	5.58	-2.3	2.7	2.8	+3.7	3.7	2.7	-27.0			
2. Jagdal	Highland	OHP/AEZ 1	5.30	5.40	+1.9	2.3	2.9	+26.0	5.4	8.5	+57.4			
3. Kaunia	Highland	TF/AEZ 2	5.47	5.78	+5.7	1.7	1.5	-11.8	6.5	6.1	-6.2			
4. Pirgacha	Highland	TF/AEZ 2	5.47	4.91	-10.2	2.5	0.50	-60.0	7.1	8.1	+14.1			
5. Chandra	Highland	BT/AEZ 26	5.33	5.34	+0.2	1.5	1.6	+6.7	1.4	1.0	-28.6			
6. Belabo	Highland	BT/AEZ 26	5.67	4.97	-12.3	2.1	2.2	+4.8	2.7	4.0	+48.1			
7. Gopalpur	Highland	GF/AEZ 11	8.13	8.05	-1.0	47.4	35.6	-24.9	1.3	1.6	+23.0			
8. Sara	Med.Lowland	GF/AEZ 11	7.70	7.68	-0.3	17.8	18.8	+5.6	7.3	4.3	-41.1			
9. Garuri	Med.Lowland	BF/AEZ 9	7.47	7.03	-5.9	34.9	24.0	-31.2	4.1	6.9	+68.3			
10. Tarakanda	Med.Lowland	BF/AEZ 9	6.49	5.69	-12.3	13.6	5.0	-63.2	5.6	4.2	-25.0			
11. Sonatala	Med.Lowland	MRF/AEZ 16	6.60	6.46	-2.1	12.6	11.2	-11.1	5.2	8.0	+53.8			
12. Tippera	Med.Lowland	MRF/AEZ 16	6.32	6.62	+4.7	2.9	4.5	-13.8	4.5	9.4	+108.9			
13. Burichang	Med.Lowland	MRF/AEZ 16	6.25	5.55	-11.2	7.3	9.3	+27.4	0.6	0.5	-16.7			
14. Goyaiphat	Highland	SKF/AEZ 20	5.36	5.21	-2.8	2.5	2.4	-4.0	0.9	1.6	+77.8			
15. Demra	Highland	MT/AEZ 28	5.49	4.74	-13.7	5.6	4.9	-12.5	2.6	0.9	-65.4			
16. Noadda	Highland	MT/AEZ 28	5.40	4.72	-12.6	0.8	1.0	-25.0	1.0	1.6	+60.0			
17. Mirsarai	Med.Lowland	CCP/AEZ 23	5.42	5.89	-8.3	6.0	2.5	-58.3	0.5	1.0	+100.0			
18. Noapara	Med.Lowland	CCP/AEZ 23	6.19	5.55	-10.3	10.4	8.0	-23.1	0.3	0.4	+33.3			
19.Jhinaighati	Highland	NEP/AEZ 22	5.20	4.06	-21.9	0.4	0.5	+25.0	0.9	1.8	+100.0			
20. Pritimpasa	Highland	NEP/AEZ 22	5.10	4.98	-2.4	1.4	1.2	-14.3	2.7	1.4	-48.1			

Change in exchangeable K, Ca and Mg content in the 0-10 cm layers of different soils during the period 1967-97 in Bangladesh:

Location/Soil Series	Land type	Physiographic unit/AEZ	Ex. K (me/100g) change			Ex. Ca (me/100g) change			Ex.Mg (me/100g) change		
			1967-68	1997-98	%	1967-68	1997-98	%	1967-68	1997-98	%
1.Atwari	Highland	OHP/AEZ 1	0.16	0.06	-62.5	1.93	1.86	-3.6	0.38	0.33	-13.2
2. Jagdal	Highland	OHP/AEZ 1	0.16	0.09	-43.7	1.65	1.85	+12.1	0.39	0.89	+128.2
3. Kaunia	Highland	TE/AEZ 2	0.15	0.05	-66.7	1.16	0.99	-14.7	0.28	0.37	+32.1
4. Pirgacha	Highland	TE/AEZ 2	0.26	0.12	-53.8	1.55	0.27	-82.6	0.57	0.06	-89.5
5. Chandra	Highland	BT/AEZ 26	0.13	0.05	-61.5	0.87	1.15	+32.2	0.32	0.36	+12.5
6. Belabo	Highland	BT/AEZ 26	0.15	0.13	-13.3	1.30	1.48	+13.8	0.50	0.54	+8.0
7. Gopalpur	Highland	GF/AEZ 11	0.27	0.15	-44.4	33.27	17.59	-47.1	2.68	2.00	-25.4
8. Sara	Med.Lowland	GB/AEZ 11	0.17	0.21	+23.5	14.90	15.87	+6.5	1.70	2.06	+21.2
9. Garuri	Med.Lowland	BF/AEZ 9	0.53	0.35	-34.0	26.24	18.82	-28.3	4.70	6.63	+42.3
10. Tarakanda	Med.Lowland	BF/AEZ 9	0.12	0.05	-58.3	9.50	3.73	-60.7	3.30	1.01	-69.4
11. Sonatala	Med.Lowland	MRF/AEZ 16	0.16	0/05	-68.8	9.23	8.06	-12.7	2.84	2.63	-7.4
12. Tippera	Med.Lowland	MRF/AEZ 16	0.06	0.05	-16.7	1.59	2.35	+47.8	0.93	1.10	+18.3
13. Burichang	Med.Lowland	MRF/AEZ 16	0.21	0.14	-33.3	4.30	6.54	+52.1	2.30	2.37	+3.0
14. Goyaiphat	Highland	SKF/AEZ 20	0.10	0.07	-30.0	1.40	1.34	-4.3	0.90	0.68	-24.4
15. Demra	Highland	MT/AEZ 28	0.25	0.10	-60.0	4.00	4.00	0	1.10	0.69	-37.3
16. Noadda	Highland	MT/AEZ 28	0.10	0.05	-50.0	0.40	0.76	+90.0	0.20	0.12	-40.0
17. Mirsarai	Med.Lowland	CCP/AEZ 23	0.19	0.08	-57.9	2.90	1.29	-55.5	2.60	0.89	-65.8
18. Noapara	Med.Lowland	CCP/AEZ 23	0.24	0.13	-45.8	4.60	4.33	-5.9	8.80	3.25	-32.0
19.Jhinaighati	Highland	NEP/AEZ 22	0.04	0.05	+25.0	0.20	0.27	+35.0	0.10	0.12	+20.0
20. Pritimpasa	Highland	NEP/AEZ 22	0.11	0.02	-81.8	0.80	0.87	+8.8	0.40	0.22	-45.0

sorghum, ground nut, legumes, cassava and yarns are the good choices (Brammer, 1975[492]). In Bangladesh, drought is more severe at the South-western part in the month of October to March. At this time, some places remain barren, which turn to severe erosion. Construction of Farakka barrage aggravates the situation in a serious turn and the whole area performs almost like deserts[493].

In Bangladesh, riverbank erosion is caused mainly by strong river current triggered by channel diversion especially during the rainy season when the river water is heavily laden with suspended materials. About 1.7 million hectares of floodplain areas of Bangladesh are prone to riverbank erosion. The loss of land due to riverbank erosion is highest in the Brahmaputra-Jamuna basin, where the erosion rate is estimated to be between 139 and 358 hectares per year (Chowdhury, 2000). Riverbank erosion causes not only quantitative loss of the land, but also severely affect the socioeconomic condition of million of the affected owners. Displaced people lose everything including stability in their lives and social status and become destitute over night. Finding no alternative the affected people move away in search of new land and shelter. People of this category in Bangladesh run into millions some of which live on dykes near the vicinity of their former home and work as landless labour. Those who cannot do that move on to the big cities in search of work and ultimately settled in slums.

For fertilization of soils, farm-yard manure, municipal sewage sludge and chemical fertilizers of different types are used. All these materials contain some hazardous substances and heavy metals (e.g. Pb, Cd, As, Sb, Hg, Ni, Cr). In some countries of the world municipal wastes are increasingly applied to agricultural land. All phosphate ores contain traces of uranium, its radioactive decay products and a number of heavy metals. The threshold levels for Cd in Fertilizer products is now taken as 48 mg/kg P205. Fertilizer applications that supply nutrients in quantities far in excess of those and taken up by the plants can result in contamination of both surface and drainage waters. Nitrates and phosphates are the chemicals most often involved. Nitrate contamination can occur in both surface runoff and drainage waters, while excessive levels of phosphates generally occur only in surface runoff. Nitrogen and phosphorous in lake waters stimulate the growth of algae and other water loving plants in the lakes[494].

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[492] Brammer, H. 1975. Disaster Preparedness Planning Precautionary and Rehabilitation Measures for Agriculture, Bangladesh.

[493] Per cent losses of soil fertility from intensified crop cultivation in 11 agroecological zones, 1967/68–1997/98

Affected agroecological zones (of nos. 1–30)	Land classification by flooding depth†	Per cent increase in cropping intensity	Per cent losses in soil fertility
Old Himalayann Piedmont Plain (1)	High	100	25–45
Tista Floodplain (2)	High	100	10–35
Tista Meander Floodplain (3)	High	100	10–40
Old Brahmaputra Floodplain (9)	Medium high	100	25–65
High Ganges River Floodplain (11)	High	100	20–45
Middle Meghna River Floodplain (16)	Medium low	100	15–40
Surma Kushiyara River Floodplain (20)	Medium low	100	20–40
North Eastern Peidmont Plain (22)	High	100	20–70
Chittagong Coastal Plain (23)	High	100	10–30
Barind Tract (26)	High	100	30–60
Madhupur Tract (28)	High	100	40–65

†High=no flooding; medium high=flooding depth of 0.01–0.90 m and medium low=flooding depth of 0.91–1.83 m.
Sources: Bangladesh Agricultural Research Council (http://www.barc.gov.bd/maps_images/landtype.jpg) and MOA (2008: Table 4.04).

[494] Application of fertilizer far in excess of plant uptake should be discouraged and the time of fertilizer applications should coincide with plant needs. In Bangladesh, excess amounts of N-fertilizers are usually applied in intensive vegetable growing areas during winter season. Recent studies showed that N03 -N content of some ground water samples ranged from 14 to

Water erosion[495] is a serious menace in the soils formed on the older formations the hills and terraces of Bangladesh. In many places the surface horizon has been washed away[496] and the soils have become truncated. In around 1.7 million hectares of land in the hilly region erosion is very severe (Karim and Iqbal, 2001). In Chittagong hill tracts erosion is being hastened by deforestation as well as jhum cultivation. Erosion is the major cause of land degradation in the hilly region. Some researches have been carried out on land erosion in the hilly region but no work has been done on erosion on the floodplain soils. In the floodplain areas erosion occurs on the higher locations and deposition takes place on the depressions. On the floodplains as a whole, deposition of sediments in the form of siltation is a common phenomenon. As a consequence the water bodies are being gradually silted up with a change in biodiversity.

Soil salinity is another natural disasters in Bangladesh. About 0.883 million heactares of the arable lands, which constitutes about 52.8 percent of the net cultivable area in 64 Upazilas of 13 districts, are affected by varying degrees of soil salinity (Karim, et al. 1990). The factors that contribute significantly to the development of saline soils are: tidal flooding during wet season (June-October), direct inundation by saline water and upward on lateral movement of saline ground water during the dry season (November-May). The severity of soil salinity increases with the dryness of the soil body. On the other hand, the severity of salt injury is reduced due to the dilution of the salt in the root zone of the standing crops[497].

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30 ug/g in intensively cropped areas of Comilla and Rangpur districts . Different kinds of sub-standard phosphatic and Zn-fertilizers are also being applied in soils. These fertilizers may add heavy metals (Cd,Pb etc.) to the soils, which may ultimately enter into the food chain through uptake by plants

[495] Waterlogging is responsible for lowering of land productivity through rise in groundwater close to the soil surface. Also included under this heading is the severe form, termed ponding, where the water table rises above the surface. Waterlogging is also linked with salinization, brought about by incorrect irrigation management. In Bangladesh, about 0.69 million hectare has been protected from tidal surges by constructing coastal embankments. About 8000 hectares of waterlogged land in Khulna Jessore areas(popularly known as Bil Dakatia) is the result of human induced degradation due to faulty construction of embankment.

[496] About 3-5 cm firm ploughpan has been formed below ploughed layer due to cultivation of transplanted rice through puddling year after year using country plough. This firm pan restricts the proliferation of roots and utilization of sub-soil nutrients by the growing crops. Ploughpan formation has been observed in about 2.82 million hectares of Tista, Ganges, Brahmaputra, Meghna flood plains and Barind areas.

[497] Salinization here is used in its broad sense, to refer to all types of soil degradation brought about by the increase of salts in the soil. It thus covers both salinization in its strict sense, the builtup of free salts; and sodificiation (also called alkalization), the development of dominance of the exchange complex by sodium. As human-induced processes, these occur mainly through incorrect planning and management of irrigation schemes. Also covered in the definition is salinity intrusion, the incursion of sea water into coastal soils arising from over-extraction of groundwater and tidal flooding.

In Bangladesh, salinization is one of the major natural hazards contributing towards land degradation. About thirty percent of the net cultivable area is in the coastal region of the country. Out of 2.85 million hectares of the coastal and off-shore areas about 0.84 million hectares of arable land are affected by varying degrees of soil salinity. The factors which contribute significantly to the development of saline soils are: tidal flooding during wet season (June-October), direct inundation by saline or brackish water and upward or lateral movement of saline ground water during the dry season (November-May) and wilful inundation with brackish water for shrimp farming. The severity of salinity problem in Bangladesh increases with the desiccation of the soil. Recently, salinity both in terms of severity and extent has increased much due to the intrusion of saline sea water because of the diversion of the Ganges water in the dry season. Recent investigations of SRDI has revealed sporadic but increased development of salinity in new areas like Chandpur, Faridpur, Magura, Jessore etc.

Soil salinity distribution:

The availability of water during the dry season is reduced, drying up of riverbeds and salinity intrusion in the Ganges basin area of Bangladesh are caused by reduced flow of water from the Farakka dam point. About 10 percent land in the hilly areas is considered to be highly eroded and less than 50 percent land has impeded drainage which suffer from water logging and poor aeration (Karim, 1993[498] and Karim and Iqbal, 2001[499]).

Water logging caused by rise in ground water is also responsible for lowering of land productivity in many areas. Water logging may be natural or may be due to faulty irrigation management. About 8000 hectares of waterlogged land occurs in Khulna- Jesssore area (popularly known as Beel Dakatia). This is an example of human induced land degradation caused by faulty construction of embankment. The land in this beel area is now under process of reclamation through introduction of appropriate management practices with integrated approach and easy engineering work.

Table 33: Land Degradation Scenario[500]

Type of degradation	Areas affected (million ha)			Total area (M ha)	% National Area
	Light	Moderate	Strong		
Water erosion	0.1	0.3	1.3	1.7	12
River bank erosion	-	-	-	1.7	12
Soil fertility decline	3.8	4.2	-	8.0	54
Organic matter depletion	1.9	1.6	4.0	7.5	51
Water logging	0.7	-	-	0.7	5
Stalinization	0.6	0.3		0.9	6
Plough pan	-	1.0	-	1.0	7
Acidification	-	0.6	-	0.6	4
Deforestation	-	1.5	-	1.5	10
Total	7.1	**11.2**	**5.3**	**23.6**	-

Source: **Hussain, M.S. (1999).**

Deforestation is a serious environmental concern in Bangladesh, which is caused by industrialization, rapid urbanization, high population pressure, jhum cultivation and shrimp culture. Deforestation is becoming more and more an acute problem with time and is threatening the destruction of evergreen tropical rainforest of the country at an alarming rate. According to present estimate the actual tree cover in the forest area has now been reduced to only 6 percent of the total land area of the country. Another startling fact is that about 50 percent of the forest of the country has been

District	Salinity Category				District Total
	S_1	S_2	S_3	S_4	
Satkhira	16.50	85.60	33.35	10.90	146.35
Khulna	3.90	92.54	13.80	9.80	120.04
Bagerhat	28.30	77.08	2.60	0.00	107.98
Barguna	96.39	7.20	0.00	0.00	103.55
Patuakhali	68.50	46.60	0.00	0.00	115.10
Bhola	9.52	30.81	0.00	0.00	40.33
Pirojpur	18.40	1.90	0.00	0.00	20.30
Chittagong	18.40	15.10	7.00	5.20	45.70
Cox's Bazar	7.20	16.20	17.30	14.00	54.70
Noakhali	6.30	39.90	3.40	0.00	49.60
Laxmipur	10.90	6.80	1.60	0.00	19.30
Feni	1.60	6.70	0.70	0.00	9.00
Chandpur	1.50	0.00	0.00	0.00	1.50
Grand Total:	**287.37**	426.43	**79.75**	**39.90**	833.45

[498] Karim, Z., 1993. Land Use Policy for Bangladesh. Bangladesh Agriculture Research Council, Dhaka

[499] Karim, Z. and A. Iqbal. 2001. Impact of Land Degradation in Bangladesh. Bangladesh Agricultural Research Council. Farm Gate. Dhaka. P. 60 and 160

[500] Ibid

destroyed during the last 20 years (Huda and Roy, 2000[501]). Such a drastic depletion of forest cover is now blamed for the doughtiness of the central part of the Barind tract in northwestern Bangladesh.

Severe forms of acidification have been developed in the soils of the hills, terraces and some floodplains of Bangladesh. Intensive acidification has been reported in the heavy clays in the Sylhet and lower Atrai basins and in some broad valleys within the Madhupur and the Barind tracts. Aluminium toxicity and phosphate fixation the major are problems in the tea growing soils. Active acid sulfate soils occupy about 62,000 ha in the eastern coastal area and potential acid sulfate soils are reported to occupy some 8,000 ha in the adjoining tidal lands.

More than one million hectares of cultivated land of the Tista, Ganges, Brahmaputra, Meghna floodplains and the Barind tract of Bangladesh are reported to have developed a compacted plough pan at 10-15 cm depth below the surface (Brammer, 1997). Due to repeated puddling of wet soils by using country made plough for rice cultivation this pan has been formed. Proliferation of roots and utilization of subsoil moisture and nutrients by the deep rooted crops are restricted by this firm pan (Karim and Iqbal, 2001).

Sedimentation, drainage congestion and loss of wetlands contribute infertile sand or coarse sediments in the Brahmaputra basin of Bangladesh and reduce the productivity of the topsoil. Climate change induced by higher sedimentation rates has serious social and economic implications (World Bank Report, 2001[502]). Land types in the floodplain areas of Bangladesh are changing as a result of rural infra-structural development (USAID, 1991[503]. Andriesse (1982)[504] mentioned that changes in land type occurs in Ganges and Brahmaputra areas of Bangladesh due to irrigation expansion and development of flood control and drainage projects. Transplanted Aman rice has largely replaced by Broadcast Aman rice in the Flood Control Drainage and Irrigation polders with the decrease of inundation depth, more over with the fall of general flood level in the Brahmaputra and Ganges floodplain, the Medium Low Land (MLL) have changed to Medium High Land (MHL) (Karim and Iqbal, 2001).

4.1.9 Pollutions and Other Degraders

Appropriate land use and adoption of suitable management technology can enhance and sustain high productivity and soil management, include crop and livestock management. Although no study has been undertaken as yet on the soil nutrients management of Bangladesh, the alarmingly low organic matter content in Bangladesh soils indicates that their resilience may be at the lower end. The growing demand of ever-increasing population of Bangladesh for growing more food, fuel, and timber has resulted in rapid oxidation of organic matter in soils, massive deforestation and as well as ecological imbalance. Land use changes in Bangladesh and related to land type degradation is impacting on the socioeconomic condition and on agricultural system of the country. At the present time the important environmental impacts of agriculture in Bangladesh is the gradual degradation of

[501] Huda, N and Roy, M.K. 2000. State of the forests. In Chowdhury, Q.I. (Edi.). State of Environment Report. Forum of Environment Journalists of Bangladesh, Dhaka.

[502] World Bank Report, 2001. Bangladesh: Climate Change and Sustainable Development. South Asia Rural Development Team. Report No. 21104 BD. World Bank Office, Dhaka.

[503] USAID, 1991. Programmatic Environmental Assessment of the USAID/Bangladesh. Integrated food for Development Programme. Florida, USA.

[504] Andriesse, W 1982. Changes in Land use and Soils in major irrigation and drainage project areas in Bangladesh. FAO/UNDP.

its land resources because of high population density of the country. Land degradation is taking place due to both natural causes as well as human induced causes[505]. Natural hazards like sudden flash floods, tidal surges and droughty situations causes agricultural vulnerability. Significant, land degradation processes due to soil erosion, soil salinization, continuous water logging, river bank erosion, jhum cultivation, acidification, plough-pan formation, organic matter reduction, deforestation etc. are sometimes causes difficult to land use planning and appropriate land management practices[506].

[505] Pollution control issues are relatively recent in Bangladesh. Bangladesh now has about 30,000 industrial units, of which about 24, 000 are small and cottage industries. Industrial production for all industrial groups has increased by 46% since 1981 with some sectors such as garment, leather products and industrial chemicals has increased production by 200 to 4,000 per cent over the last ten years. The Department of Environment (DOE) estimated that, the total number of industries generating waste water from production operations has gone over 1,200. With a few exception, Bangladeshi industries in general are not equipped with pollution control systems. All the Dhaka based industries discharge industrial waste water within the Dhaka Municipality. Over 300 industries lack any means of treatment of waste water generated by them.

Management of hazardous wastes from industrial activities in Bangladesh is in a totally primitive state. The majority of hazardous wastes are deposited in low lying land, along road beds, or in the nearby vicinity of the industrial operations that produce the material. Tanneries of Hazaribagh have been operating over the last 35 years. Current estimates are that 40 tons of solid wastes are produced daily in the area and that about 50% is hazardous due to its high chromium content. The highly insoluble chronium is ubiquitious throughout the area.
The rivers around Greater Dhaka City (Buriganga, Lakhya, Balu, Turag) are highly polluted (Table N) with heavy metals and organic pollutants. Recent revelation of Arsenic in ground water in over fifty greater districts of the country is a major public health concern and a threatening disaster for the country. The farmers around the rivers of Dhaka, Narayanganj, Gazipur are using this polluted river water and others are using contaminated ground water for their irrigation purpose in rice and vegetable cultivation. Uptake of the heavy metals by crops especially leafy vegetables may ultimately enter into the food chain and will create problems for several generations. Such hazardous situation may also be occurring to other rivers around industrial townships like Khulna, Chittagong, Narayanganj etc (Iqbal, 1999).

Concentration of Heavy Metals in Surrounding Rivers of Dhaka City:

District	Salinity Category				District Total
	S_1	S_2	S_3	S_4	
Satchira	16.50	85.60	33.35	10.90	146.35
Khulna	3.90	92.54	13.80	9.80	120.04
Bagerhat	28.30	77.08	2.60	0.00	107.98
Barguna	96.39	7.20	0.00	0.00	103.55
Patuakhali	68.50	46.60	0.00	0.00	115.10
Bhola	9.52	30.81	0.00	0.00	40.33
Pirojpur	18.40	1.90	0.00	0.00	20.30
Chittagong	18.40	15.10	7.00	5.20	45.70
Cox's Bazar	7.20	16.20	17.30	14.00	54.70
Noakhali	6.30	39.90	3.40	0.00	49.60
Laxmipur	10.90	6.80	1.60	0.00	19.30
Feni	1.60	6.70	0.70	0.00	9.00
Chandpur	1.50	0.00	0.00	0.00	1.50
Grand Total:	**287.37**	**426.43**	**79.75**	**39.90**	**833.45**

Note : ND Not detectable
** Environmental Quality Standards (EQS) for Bangladesh: DoE July 1991 Source: Dhaka, WASA 1997.

Urban pollution is present in all common forms, as waste water and polluted surface waters, air emissions from vehicles and urban point sources, and solid wastes. Throughout Bangladesh, the needs of sanitation are only partially met, whether represented by improper drainage, solid wastes in the streets and inadequate latrine facilities in public areas or polluted waterways, traffic congestion and smoke in public thoroughfares and insufficient housing.

[506] Lowering of the water table is a self-explanatory form of land degradation, brought about through tubewell pumping of groundwater for irrigation exceeding the natural recharge capacity. This occurs in areas of non-saline ('sweet') groundwater. Pumping for urban and industrial use is a further cause.

In Bangladesh, extraction of ground water has increased many folds due to rapid expansion of irrigated agriculture during the past three decades (1967-1997). Among the 36 shallow ground water observation wells of BWDB, water level went to the lowest level in 17 wells in March 1995. The level was lower than normal in 14 wells in some years but higher than

A good soil should have an organic matter content of more than 3.5 percent. But in Bangladesh, most soils have less than 1.7 percent and some soils have even less than 1% organic matter. It is believed that, the declining productivity of Bangladesh soils is the result of depletion of organic matter caused by high cropping intensity. In Bangladesh, crop residues are widely used as fuel and fodder and usually not returned to the soil. Even cow dung is widely used as fuel in rural areas. This results in a decrease in soil organic matter content. In Bangladesh, the average organic matter content of top soils have gone down, from about 2% to 1% over the past 20 years due to intensive cultivation which means a decline by 20-46% (Miah et al, 1993). Soil organic carbon levels tend to be stable or increase under irrigated rice double cropping sites (Cheng, 1984[507], Nambiar, 1994[508]). Organic matter content is generally lower in the upland sites of rice–wheat cropping (Nambiar, 1994 and Cheng, 1984). Soil organic carbon variability depends on the land class variability and also management conditions. Land-use management and soil organic carbon management is important phenomenon for agricultural land management and crop yielding.

Fertilizers, insecticides and pesticides applied to croplands are the leading sources of chemical pollution of surface and ground water. Fertilizers, pesticides, insecticides and farmyard wastes enter waterways as runoffs from the agricultural lands are polluting water and soil. Bangladesh has at present more than 30,000 industrial units, large and small. They are discharging their wastes and effluents in the natural systems in most cases without any treatment and thereby cause environmental pollution especially due to heavy metals and organic toxins. The hazardous wastes and effluents are generally discharged in low-lying areas or in the vicinity of the industrial installations. The toxic heavy metals discharged from industries in Bangladesh are cadmium, lead, chromium, mercury, zinc, arsenic and in few cases copper and manganese. The industries like tannery, paper and pulps, textiles, carbides, pharmaceuticals, pesticides, distilleries etc, discharge heavy metals with their effluents and wastes. The heavy metals that are present in the effluents may enter the growing crops from contaminated soils. When the effluents enter the river water it may cause harm to the biodiversity, plant and soils. The concentration of the harmful effluents increases during the dry season resulting in the death of many fishes. Most of the industries in past were established without thorough study of their environmental impact assessment (EIA).

Problem of arsenic pollution of the ground water of Bangladesh has turned to a crisis of unprecedented proportion. The sources of arsenic in the deep-scaled sediments are mainly the parent rock materials from which they were derived. For long, the arsenic bearing minerals such as arsenic sulfides were submerged in groundwater and remained inert. With the start of intensive withdrawal of groundwater for irrigation for growing Boro rice, the aquifers started to drop causing arsenic to oxidize. Once oxidized, arsenic sulfides become water-soluble which ultimately come up with the pumped water. It has been identified that a vast area in the lower Ganges delta, the Jamuna, the Padma and the lower Meghna river alluvia has emerged as the single largest arsenic contaminated region in the world. The people of this vast region are continuously getting exposed to the arsenic toxicity causing serious health hazards through drinking arsenic contaminated ground water. Using arsenic polluted water for irrigation potentially is risky, as this poisonous element will ultimately enter the food chain. Latest information indicates that out of 64 districts in Bangladesh,

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normal in 2 wells in previous four years. Excessive diversion of the Ganges water in the dry season has aggravated draw-down situation of ground water in the entire western part of the country

[507] Chang, Yun-sheng, 1984. Effects of drainage on the characteristics of paddy soils in China. In: Organic matter and rice. Los Banos (Phillipines). International Rice Research Institute. P 417-430.

[508] Nambiar, KKM. 1994. Soil fertility and Crop Productivity under long term fertilizer use in India. Indian Council for Agricultural Research, New Delhi.

waters of 61 districts have arsenic in their ground water where more than 65% of the country's population live (Chowdhury, 2000[509]).

4.1.10 Global warming and sea level rises

Bangladesh constitutes with the 654 km long coastline along the Bay, the coastal zone about one-fifth of the country‟s total area, whose average elevation is less than one meter above the mean sea level. The anticipated global sea level rise of one meter by the middle of this century may cause inundation of the coastal zone by seawater (Bijlsma, 1995[510]). The estimated loss of land along the coast will be more than 17%, and is likely to displace more than 30 million people (Huq *et al.*, 1995[511]). These people will move northward in the un-inundated areas where the population density will increase and the environment will be further aggravated. Other environmental and agricultural issues associated with this global warming and potential sea-level rise are cause for grave concern for Bangladesh (Islam, 2001[512]). It is horrifying to think that many islands in the offshore areas of Bangladesh including Bhola, Hatia, Swandip, Kutubdia and Manpura, where millions of people now live, will face extinction. The Sundarbans is the world‟s largest mangrove forest and the extensive shrimp farms and the associated agricultural lands will disappear. The Sundarbans, as declared as the world heritage is still quite rich in terms of biodiversity and is the home of around 315 species of birds and 13 forest and 4 non-forest types of vegetation (Ullah, 2002[513]). But global warming and sea level rise will inundate this portion of Bangladesh has been assumed by the environmental scientists[514].

In terms of the effects, the farmer is still using land with light and moderate degrees of degradation, but the boundary with strong degradation is the point at which land use has to be abandoned. It is uncommon for the farmers that they are not aware of the land degradation situation. Light

[509] Chowdhury, Q.I. 2000. State of Environment Report. Forum of Environmental Journalists of Bangladesh (FEJB), Dhaka.

[510] Bijlsma, L. 1995. Coastal Zones and Small Islands. P 289-324. In R.T. Watson *et al.* (ed.). Climate Change 1995. Cambridge University Press.

[511]

[512] Islam, M.S. 2001. Sea-level changes in Bangladesh: The last ten thousand years. Asiatic Soc. Bangladesh. 175 P

[513] Ullah, M. 2002. Biodiversity irreplaceable asset. Weekly Holiday. (8.2.2002 issue) Center for sustainable development (CFSD). Dhaka.

[514] Change in the selected parameters influencing land use and agricultural development:

Parameters	1983-84	1996-97	Change over 83-84(%)
Number of total farm holdings	10,045,299	11,798,242 1	+17.4
Small farm ('000)			
Medium farm ('000)	7066	9423	+33.3
Land farm ('000)	2483	2078	-16.3
Absolute landless ('000)	496	297	- 40.1
Ag. labour holdings ('000)	1198	1815	+51.5
Homestead area (ha)	5495	6401	16.5
Cultivated area (ha)	91087	533771	+36.48
Average farm size (ha)	8160957	7194874	-11.83
Irrigated area (ha)	0.81	0.61	-24.7
Farm holdings reporting	16209381	3762514	+132.12
use of fertilizer	6176100	97826851	58.40

Note: a. Small farm: 0.02-1.008 ha
b. Medium farm: 1.01-3.03 ha
c. Large farm : 3.04 ha and above

Source : BBS, Agricultural Census, Govt. of Bangladesh, 1983/84 and 1997

degradation may not be clearly visible, but the farmer knows that yields or other agricultural productions are lower than they might otherwise have been or that additional inputs are necessary. Moderate degradation will often be visibly apparent, including stunted crops or sparsely vegetated rangeland and crop yields are clearly and substantially lower. By definition, strong degradation means that the land has to be abandoned and no longer has the potential for economically viable production. The moderate forms of land degradation, for example soil nutrient depletion, can be reversed by change in management, the resource is renewable and the degradation reversible. In case of severe forms of degradation, like salinization and waterlogging, land productivity can be restored by reclamation. In case of soil erosion, some of the effects may appear to be reversible. Arresting further erosion by soil conservation measures and restoring lost nutrients and organic matter are some of the measures. But where land has been lost by gullying, or severe sheet erosion has removed the soil down to a gravelly residue, degradation is clearly irreversible.

4.1.11 Rural and Micro-Credit

At the moment, roughly one-fifth of Bangladesh's GDP originates from agricultural sector, and the sector absorbs about half of the total labor force of the country[515]. Agricultural credit is being construed as an integral part of the modernization of agriculture and commercialization of rural economy. Agriculture as a sector depends more on credit than any other sector because of seasonal variations in farmers' returns and a changing trend from subsistence to commercial farming. The lack of access to credit not only deprives a person to put him in poverty; it also means that GDP is reduced in the absence of the contribution of the person concerned[516].

Historically, the public sector stepped into the rural credit market –mainly through Krishi Bank – to help farmers come out of the clutches of money lenders/land-owners who, allegedly, charge

[515] AN EMPIRICAL ANALYSIS OF THE IMPACT OF AGRICULTURAL CREDIT FROM BANKS AND MICRO FINANCE INSTITUTIONS (MFIs) IN GDP GROWTH: BANGLADESH PERSPECTIVE; an evaluation report prepared by Abdul Bayes and Fazlul Karim Patwary for Bangladesh Bank

[516] Ibid;
Bangladesh has made commendable progress in addressing two basic problems of the rural credit market: dualism and fragmentation. It is true that the share of rural households seeking credit has remained at same level over the last two decades (about 45% of all rural households), but the sources of credit have remarkably changed over time. Preponderance of the informal sources of credit was quite evident in the initial periods. For example, two decades back about one-third of rural households used to access credit from non-institutional sources (money lenders: 15%, Friends and relatives: 17%). In recent years, the share has dropped to only about 10%. On the other hand, the share of households borrowing from institutional sources went up from 13% to 39% during the same period of time (commercial banks 5% and NGOs 34%). More importantly, the share of poor borrower-households (owning up to 0.2 ha) went up almost ten-fold from about 4% to about 40% during the same period of time. Specifically speaking, the share of this poor group in accessing credit from institutional source has gone up from 21% to 43% over time (Hossain and Bayes 2009, 2010). However, the aggregate statistics appear to conceal the fact that the small and marginal sharecroppers remained outside the orbit of opportunities opened up by formal credit channels, especially by Banks and NGOs. Such a state of unequal access to financial services continues to adversely affect household income as well as GDP.

Another development in agrarian transformation in rural Bangladesh, and its links with credit market, needs to be noted. It is the growing tenancy market. The Preliminary Report on Agricultural Census of 2008 shows that roughly one-thirds of rural households are tenant households (BBS 2010). Field level evidences reveal that nearly 40% of the cultivated land is now operated under tenancy arrangement as compared with 23% of two decades back, and thus depicting growing thickness in the tenancy market. Again, 26% of farms are reported to be pure tenants (living in own house but living on others' land), 15% constitutes tenantowner (large portion comes from others), 8% appear to be owner-tenant (large portion owned land) and 52% are reported to be pure owner-cultivators (Hossain and Bayes 2009, 2010).

usurious rate of interest[517]. Over time, other financial institutions entered to cater to agricultural credit needs[518]. But since the credit from the Krishi Bank or other institutions requires collateral, (especially land), the loans so disbursed seemingly went mostly to large and medium land owners at the peril of the poor farmers[519]. On the other hand, the credit from NGOs has two problems: it requires that the borrower must have at least 50 decimals of owned land, and the loan is disbursed largely for non-farm activities. Thus, in one way or the other, the sharecroppers were denied of the access to credit by formal sources[520]. Obviously, the inaccessibility disdained their contribution to GDP growth rate.

It is in this backdrop, and in an epoch-making move, Bangladesh Bank (BB) has stipulated a special fund of Tk.5000 million to provide agricultural loans to the sharecroppers only – to those engaged in cultivation (at least for last three year), not being member of any NGO, and only for crop production. BRAC, the largest NGO in the world, was given the responsibility of distributing the credit under its group-based lending polices[521]. The programme started in December 2009, and so far could reach a vast number of sharecroppers (Number?[522]) throughout Bangladesh.

[517] The nexus between credit and growth is well-known. Equal access to credit is necessary not only for poverty reduction, but also for growth itself. A person deprived of the access to credit might miss the opportunity to participate in economic activities and, thus, fall in poverty. But the other side of this problem is that, at the same time, the national output is lost in the absence of the contribution of the deprived person (Osmani 1997).

[518] Ibid; According to Agricultural Credit Department of Bangladesh Bank, eight Government Banks along with Foreign Commercial Banks (FCBs) and Private Commercial Banks (PCBs) disbursed a total of Tk.11,2100 million from July 1 2010 to 31 May 2011 against Tk.9,8890 million in previous period.

[519] Ibid

[520] A working paper prepared by MM Shawkat Ali shows that in the mid-eighties, farmers had to pay up to 25% of loan money to access agricultural credit from various agencies – a constraint that only large and medium land owners could possibly bear with.

[521] Ibid; Reproduced:
BRAC Information on Load for sharecroppers:

Indicators	Status as of March 2012
Total Amount Stipulated (Tk)	5000 Million
Disbursed Amount	4440 Million
Number of Districts covered	41
Number of Upazilas covered	204
Loan Range (Tk)	7000-30,000
Average Loan (Tk)	12,000
Total Members (No)	2,84000
Total Borrowers (No)	1,75,000
Total loans to Borrowers (Tk.)	3,69,000
Average number of loans	2
Scaled up (% of borrowers)	50-55%
Loan recovery rate (%)	98
Non-Eligible cases (% of borrowers)	4-5

Source: Brac

[522] Ibid

The Bangladesh Bank paper cited in this section is a detailed study - based on sample surveys done on target households – receiving this credit – and the control households without such loan and had a total effective sample size of 400 distributed across 7 Divisions, and generated quantitative information relating to socio-economic and demographic parameters[523].

To start with, we can look at few of the aggregate statistics before taking up issues of impacts at household level. The programme seemingly progressed well. Information gathered from BRAC shows that, out of the stipulated amount of Tk.5000 million, Tk.4440 million has already been disbursed as of May 2012 - across 204 Upazilas of 41 districts. A total of 175 thousand sharecroppers have accessed loan so far averaging Tk.12, 000 credits per applicant. Meantime, about 284 thousand sharecroppers joined as members in village organizations (VOs). Assuming that a member has to deposit Tk.50/month as saving, the amount of savings generated amounts to Tk.170 million/year. Nearly half of the borrowers seemed to have scaled up (taking successive loans by large amount), and the recovery rate from the loan is 98%.

Impacts at the Household Level are multi-layered[524].
Economic Impacts included:

i. The average amount of loan received amounts to Tk.14,000 with a range of 8,000- 30,000. About 95% of the participants have repaid the loan timely. Again, accessing loan from Brac involved no 'extra money' whereas a survey shows that, even to access loans from NGOs, 1% of the loan money had to be paid by borrowers as 'extra'.
ii. Four-fifths (80%) of the borrowers now cultivate modern paddy (MV) as the available credit, to a great extent, eased the working capital constraint. In consequence, and for example, gains from increased yield almost doubled – from 8-10 maunds/bigha for TV to 15-20 maunds/bigha for MV.
iii. Ninety per cent (90%) of the respondents reigned on the importance of loan for their economic uplift; three-fourths (around 75%) of the participants revealed that, in the absence of this particular loan, they would have to borrow from village moneylenders at an interest rate of 10% per month. In some areas, 10 maunds of paddy worth of Tk.8000 had to be surrendered to get a loan of Tk.10, 000 (for three months). This kind of dependency has also forced distress sales of agricultural output. The availability of credit from present source, reportedly, relieved them of the rough days of those hardships as they now have to part with Tk.1000 as service charge.
iv. The 'beauty'[525] of the current programme appears to be that it takes maximum 21 days – from joining the group to approval of loan. This compares with more than half of the borrowers from NGO making three visits to get the loan. It seems that, in the improvement of economic condition, membership of NGOs does matter. For example, among those who reported improved economic condition over the year, three-fourths (75%) of them are NGO members. This contrasts with 38% of non-members reporting positive change. Specially, roughly four-fifths (80%) target respondents reported a positive change, while in the case of control respondents, the share was just one-fourth (25%);
v. Econometric exercises (Multivariate Logistic Regression) carried out to relate change in economic condition with relevant explanatory variables show that: (a) responses about economic change aren't correlated in same Division (insignificant), but correlated at union level (significant); (b) all variables explain the economic change (improvement, same or deterioration

[523] Ibid; A Multivariate Logistic Regression was run to ascertain the impact of the special credit for sharecroppers where the perceived change of economic condition of the household was treated as a dependent variable (Dichotomous), and related to some explanatory variables, including the access to the credit line.

[524] Reproduced for comparing notes.

[525] Ibid

after the loan) significantly excepting land ownership variable; (c) most importantly, for target farmers, the chance of having improved condition is about 2.2 times higher than the control ones[526].

Non-Economic Benefits include:

i. Knowledge on agricultural technology, banking through pass books leads to modernization and commercialization;
ii. Group cohesion from regular monthly meetings: sharing experiences, savings mobilization, voices against vulnerability, Women empowerment: decisions on choice of crops, crop management, children's education, travels and recreation etc.
iii. Spill-over effects on non-borrowers
iv. Children's education: promise to be kept- private tutors, better schools.
v. Housing condition: improved
vi. Access to Food: More and better quality food – fish and occasionally meat unheard before.

Identified Problems[527] [528]:

i. The survey data show that 10% of the borrowers shouldn't have got this loan either due to bigger land size or already accessing loans from other sources.
ii. As sharecroppers left earlier lenders (especially village owners and mohajons) in search of a 'soft' option like this credit, some of the inter-linkages were cut-off due to apathy from lenders.
iii. In some areas, and in the face of weak monitoring, over enthusiasm in getting loans at subsidized 10% led to misuse of the credit money.
iv. Only 30% of borrowers could scale up indicating that there is mismatch between structure of opportunities and the structure of endowments.
v. Farmers complained about lower price of paddy.

4.1.12 Competitiveness and Key Drivers

The key factors having an impact on competitiveness and export availabilities of the JACKS are, on the production side, price stability and reliability of supplies. These, in turn, are affected by climatic conditions, relative prices of competing crops and returns to farmers in the previous season. Production policies, such as those favouring food crops, also influence farmer planting decisions. This is a factor driving intercropping practices in some producing countries such as in Tanzania, where intercropping sisal with food crops is a common occurrence.

On the demand side, competitiveness is influenced by prices of JACKS *vis-à-vis* those of competing fibres, particularly synthetics, in various end-use markets where substitution is a technically acceptable option. Aggressive price competition from synthetic products, particularly polypropylene, in many major end uses was the single most important factor responsible for the drop in demand for jute and hard fibres, until oil prices (and consequently polypropylene prices) increased more than threefold in 2010.

[526] In reply to a question as to how much interest rate would they accept before the programme is called off owing to financial constraint, one-third (66%) of the respondents agreed to accept 13% and almost all agreed to accept 12%.

[527] Ibid; reproduced

[528] It has been suggested in the study that Bangladesh bank should continue this special credit programme as the poorest of the villages get the opportunity of improving economic condition by utilizing the money. However, the problem of targeting should duly be addressed immediately. Second, time has possibly come to think whether a part of the loan could earmark for non-crop activities such as livestock.

Underlying structural conditions such as the increasing share of smallholders in the supply chain and increasing domestic demand in many producing countries have had an impact on the size and distribution of markets. Although also confronted by competition from synthetics, domestic demand for JACKS has held up better in some of the large producing countries, such as China and India, than in some of the smaller producing countries relying on export markets. However, potential for developing composite building materials and other industrial products targeting import substitution is seen as a means to dramatically increase demand of JACKS in the smaller producing countries, such as Tanzania.

At the international level, competitiveness is affected by the policy environment under which trade occurs. Increasing trade of agricultural commodities, such as coffee, continued to be a major source of growth in demand for jute. Although bulk handling of commodities has made significant inroads in international trade, bagging is still extensively used for domestic transportation, distribution and storage in rural areas. Until the hike in oil prices from 2005/06, jute bags had been losing market share to bags made from synthetics. However, demand has recovered largely through competitive prices, with assistance from deliberate policy choices by commodity traders, for example to use jute rather than synthetic bags for packing sugar to supply the domestic market, many of which are parastatals In the case of sisal, demand also fell with competition from synthetic baler twines prior to 2006. The decline became more pronounced as new harvesting techniques increased the size of hay and straw bales aimed at reducing unit cost of handling and better utilization of storage space. As in the case of jute, this trend was reversed as oil prices dramatically increased, and with environmental concerns in recent years, demand has accelerated even more. Among the JACKS, the only fibre that resisted competition from synthetics was and continues to be abaca, due to the superior properties of its fibre relative to synthetics in its chief end-use – specialty papers.

4.1.13 Jute Manufacturing Sector: A Sectoral Review

Jute manufacturing sector is one of the oldest traditional manufacturing sectors of Bangladesh, which emerged in erstwhile East Pakistan in the early 1950s[529]. During the 1960s and 1970s major share of the manufacturing sector in national income and manufacturing employment was accounted for by this sector. Exports of jute and jute goods were the two most important sources of foreign exchange of Pakistan during the 1960s. However, both share and importance of jute and jute goods in manufacturing, export and overall foreign exchange earnings, and the Gross Domestic Product (GDP) have gradually declined over time. The sector currently accounts for a more 3.9 per cent of the country's total export, which is of extremely low significance when compared to its contribution in the overall export observed during the1970s (89.9 per cent in 1973). The ascendancy of the export-oriented readymade garments (RMG) was a major reason. However, this was also the result of successive policies pursued by Bangladesh alongside decline in the demand for jute goods in both domestic and international markets over time.

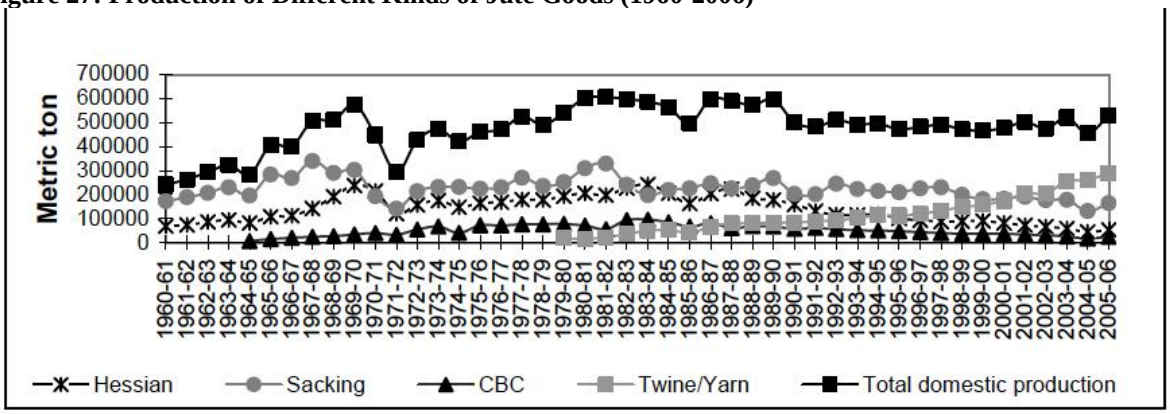
Production trend of the jute manufacturing sector can be broadly categorised into four periods: first phase (1950-1970); second phase (1972-1981)[530]; third phase (1982-1990); and fourth phase (1991-

[529] Material referenced from monograph titled, "Jute Manufacturing Sector of Bangladesh: Challenges, Opportunities and Policy Options"; Paper 78; by Khondaker Golam Moazzem, Md. Tariqur Rahman, Abdus Sobhan; published by Centre for Policy Dialogue (CPD), January 2009, ISSN 1818-1570 (Print), ISSN 1818-1597 (Online). It may be noted that the CPD conducted a primary survey of 45 jute mills in 2007—these accounted for about 35 per cent of the total number of jute mills currently in operation in Bangladesh. Of the 45 jute mills, 14 jute mills were owned by the BJMC, 17 by the Bangladesh Jute Mills Association (BJMA) members and 14 by the Bangladesh Jute Spinners Association (BJSA) members. A total of 85 workers working in different jute mills were also interviewed. The Paper was found to be very effective in identifying the key points to assess and correlate.

[530] A total of 72 jute mills were operated by the public sector in 1982, immediately before the initiative of denationalisation. Since 1982-83, government started to denationalise the public sector jute mills — out of 72 public sector

onward) (Figure 1). During these four phases, jute manufacturing sector had experienced various changes in policies, and also in the pattern of utilisation of jute and jute goods. In the pre-independence period, jute mills were owned by a small number of private entrepreneurs. During this phase, average hessian production was 155,586 metric ton (MT) per year, of which 87 per cent was exported; the comparable figures for sacking were 267,614 MT and 78 per cent respectively[531].

Figure 27: Production of Different Kinds of Jute Goods (1960-2006)[532]



Source: BJMC, BJMA and BJSA.

Production reached its peak in 1969, with an output of 5.74 lakh MT. Due to political instability and damages caused during the year of Liberation in 1971, operations of jute mills were interrupted. Consequently, production declined in 1971 and 1972. Thereafter, production started to increase. In the second phase (1972-1981), government decided to nationalize the jute manufacturing sector, and took control of all the private sector jute mills. During the 1970s, average level of production of hessian was about 165,000 MT, of which 94 per cent was exported, while comparable figures for sacking were 225,460 MT and 86 per cent respectively. Growth in the production of jute goods between 1960 and 1980 can be attributed to the growth in production of hessian, sacking and carpet backing cloth (CBC) products[533].

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jute mills, the government denationalised 34 jute mills between 1982 and 1985 (Table 2). Out of these 34 privatised jute mills, 6 were composite, 21 were conventional and 7 were CBC jute mills. A total of another 22 jute mills were privatised during the last two decades. Besides, a number of new jute mills (mostly of spinning type) were established under the private sector initiative. Currently a total of 129 jute mills are in operation, of which 18 mills operated under the public sector and the remaining 111 mills operated under the private sector. Of the 111 private mills, 61 mills were owned by the BJMA members while the remaining 50 mills were owned by the BJSA members.

Types of Mills	Denationalisation of Jute Mills					
	Number of Mills as on 31.06.1982	1982-83	1983-84	1984-85	Total	Total Retained
Composite	19	5	1	0	6	13
Conventional	31	18	3	-	21	10
CBC	15	6	-	1	7	8
Jute carpet producers	2	-	-	-	-	2
Other specialised mills	3	-	-	-	-	3
Inoperative mills	2	-	-	-	-	2
Total	**72**	**29**	**4**	**1**	**34**	**38**

Source: BJMC.

[531] Ibid

[532] Ibid

[533] Ibid

Table 34: Periodic Trend of Jute Goods Production (Periodic Average)[534] [535]

(in metric ton)

Period	Hessian	Sacking	CBC	Yarn/Twine
Upto 1970	155,586 (86.9)	267,614 (78.2)	23,929 (96.7)	0 (0.0)
1972-80	165,033 (93.7)	225,458 (86.3)	63,578 (95.5)	1,953 (73.3)
1981-91	219,048 (94.8)	270,556 (83.7)	80,415 (97.0)	61,090 (69.1)
1992-05	87,968 (99.5)	196,839 (71.7)	39,777 (89.7)	163,830 (90.8)

Note: Figures in parentheses indicate export as percentage of total production of that period.
Source: Based on BJMC (1979-80 – 2005-06), BJMA (1972-73 – 1978-79), BJMC as cited in IDRL (1992) (1960-61 – 1971-72), Alim (1978).

Although overseas export comprised major share of Bangladesh's jute goods production, domestic sale has been posting a rise, which now accounts for 38 per cent of the total production. Bangladesh is the leading exporter of jute goods in the world and her share in the global market is gradually increasing—which accounted for 60 per cent of the global exports in 2006[536]. If export of raw jute is taken into account, total export would reach more than 75 per cent. According to Bangladesh Jute Association (BJA), Bangladesh exports about 25 lakh bales of jute goods which accounted for about 56 per cent of the total raw jute grown in the country. It is worth noting here that Bangladesh and India currently meet more than 90 per cent of the global export demand for jute and jute goods; to compare, this share was 79 per cent in 1970.

[534] Ibid

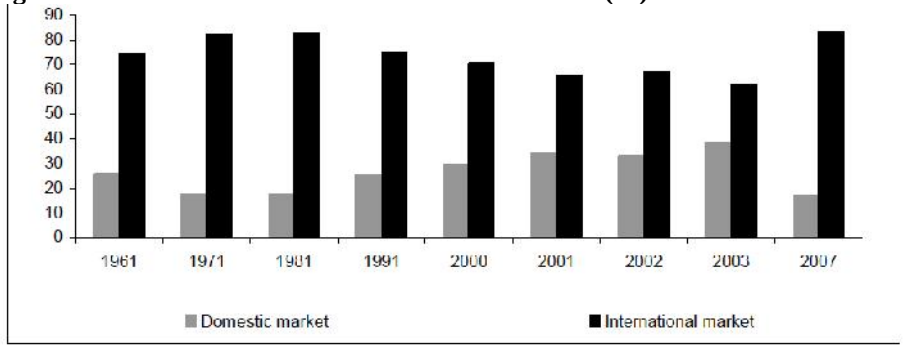
[535] Production of yarn/twine accounted for a small share of total production during the 1970s. During the 1980s (third phase), the then government decided to denationalise a number of jute mills in line with the initiative of economic liberalisation. A mixed trend is observed in the production of jute goods during this phase, which reached its peak in 1990 with a production of 5.96 lakh MT. Production of yarn gradually increased in the 1980s. Most importantly, production of hessian and sacking — two major traditional products gradually declined, especially since the late 1980s. Production of CBC declined as well. In the fourth phase (1990-onward), following the suggestions of the World Bank, government started to denationalise a number of other public sector jute mills which resulted in the shutdown of many jute mills as well. However, production of jute goods has not picked up even after adoption of various policy measures. Indeed, production of traditional products such as hessian, sacking and CBC has continued to decline with the exception of growth in the production of yarn and twine. Yarn/twine now accounts for the major portion of jute goods and over time, its production has also been on a steady rise. During 2006, Bangladesh's share in the global production of jute goods was approximately 18 per cent.

[536] Number of Mills operational in 2006

	Hessian, Sacking & CBC	Hessian & Sacking	Hessian	Sacking	CBC	Carpet	Yarn/Twine	Others	Total
BJMC	8	6	-	-	3	-	-	1	18
BJMA	6	32	1	2	5	4	2	9	61
BJSA	-	-	-	-	-	-	50	-	50
Total	**14**	**38**	**1**	**2**	**8**	**4**	**52**	**10**	**129**

Source: BJMC, BJMA and BJSA.

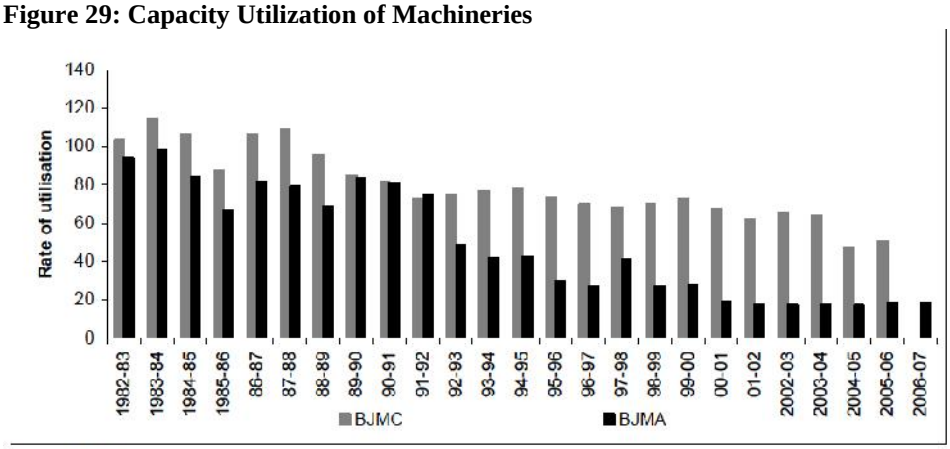
Figure 28: Sale in domestic and International Market (%)



Source: BJMC.

A total of 25,792 looms were in operation in the 72 jute mills during 1981-82. In other words, average number of looms in a jute mill was 358. The number of operable looms increased to 26,033 by 1991-92, as a number of new mills was established during this period. In 2006-07, there were 22,944 looms in 129 mills, which means an average of 178 operable looms in a mill. It shows that though the number of installed looms did not change by a significant quantity during this decade (1981-1991), operable looms declined by almost half on the average. It implies that capacity utilisation of the mills has substantially declined over time, from as high as 103 per cent during 1982-83 to 50 per cent in 2005-06 in BJMC mills and 94 per cent to 19 per cent in mills owned by the BJMA. It is important to note here that capacity utilisation had substantially declined in cases of hessian, sacking and CBC mills in mid 1990s, especially in the private sector jute mills. Capacity utilisation in yarn/twine mills is found to be relatively better when compared against other mills.

Figure 29: Capacity Utilization of Machineries



Source: BJMA.

4.1.13.1 Financial Position of Jute Mills

Most of the jute mills have been experiencing poor financial conditions for a large part of the time since Bangladesh's independence in 1971. According to the World Bank (1986), jute mills were profitably operated by the pre-independence regime, when financial profit per unit of manufacturing hessian product was Tk. 4,977; however, when considering the other economic costs such as subsidy and fiscal incentives, overall economic profit can be considered to be negative (-Tk. 1,545).

Table 35: Gross Profit for Manufacturing Jute Goods

(Tk. per MT)

	Hessian		Sackings		CBC	
	BJMC	BJMA	BJMC	BJMA	BJMC	BJMA
1965-70	4977					
1973-75	-2007					
1975-80	-1887					
1980-85	-582					
1987-88	-5184	-7420	-4413	-3971	-8226	-4390
1988-89	-5710	-8742	-4885	-5923	-9546	-10023
1989-90	-9971	-7773	-6895	-5283	-13623	-10664
1990-91	-11303	-9678	-9877	-6649	-19139	-12058
1991-92	-16917	-11052	-12141	-8074	-15599	-10508
1992-93	-19340	-26575	-11108	-17463	-17642	-20941
1993-94	-20828	-20454	-12412	-8609	-20632	-14569
1994-95	-11075	-10761	-8883	-7137	-12639	-10808
1995-96		-8585		-7209		-12690
1996-97		-6640		-4339		-10348

Source: World Bank Report 1986; BJMA.

In the following years, both financial and economic profits of jute mills have continued to decrease. According to the BJMA, private jute mills suffered a loss of Tk. 7,420 for manufacturing one MT of hessian in 1988, which marginally declined to Tk. 6,640 during 1996-97. Similarly, BJMC mills had a negative profit of Tk. 5,184 from manufacturing of one MT of hessian product in 1988, while the loss further increased to reach Tk. 11,075 during 1994-95. In order to compensate losses, the government provided various kinds of support to jute mills. Between 1985 and 1988, the then government compensated losses incurred by the mills against difference in the exchange rate between Bangladesh and India in the form of 'XPB.' From 1989 to 1991 government paid 'cash subsidy' to all mills against their losses. Under the World Bank programme (Jute Sector Adjustment Credit or JSAC), government compensated the mills through export loss finance for BJMA mills between 1992 and 1995 and up to 1995-96 for BJMC mills. The loss of finance to BJMC mills ranged between 31 per cent and 67 per cent, i.e. on an average 50 per cent; on the contrary for the BJMA mills this was 16 per cent during 1992-93 and 20 per cent between 1993 and 1995. According to the BJMA, private sector mills are yet to receive the support in the form of export loss finance, which was Tk. 52 crore. It is also important to note here that when the mills were denationalised in 1982 some were given back to their former management, and some given to new management. In both these cases all the previous loans and liabilities were also transferred. Those debts and liabilities, according to private entrepreneurs, had come into surface because of inefficient management during the nationalised regime. However, a part of those liabilities also originated even before that period, in the 1960s.

4.1.13.2 Prospect of Jute Products in the World Market

According to a report published by the FAO, global demand for jute and jute goods declined by 16 per cent from 3.4 million tonnes of fibre equivalent in 1988-90 to 2.9 million tonnes during 1998-2000. This happened because of the influence of two interrelated factors, such as the intensity of competition with, and the displacement by, synthetic fibres and extension of commodity bulk handling facilities. The decline of jute demand, in the period under consideration, was much higher in developed countries (40 per cent) compared to that in the developing countries (10 per cent). Competitiveness of jute and jute goods relative to polypropylene is determined by both price and non-price factors. Between 1988-90 and 1998-2000, prices for polypropylene fibre decreased on an average by 2 per cent per year in real terms, while world demand grew at approximately 8-10 per cent each year between 1988 and 2000. During the same period, world consumption of jute fibre and jute products declined by 1.54 per cent per year to 2.9 million tonnes in 2000. It is important to examine how strong the substitutability of jute and polypropylene would be in the coming years.

Prospect of increasing the global demand[537] for jute and jute goods largely depend on the extent of use of jute goods for different purposes, as well as its relative competitiveness vis-à-vis synthetic products. Polypropylene, which is the end product of petroleum, has become more expensive in recent years, mainly due to substantial rise of petroleum price. This was likely to lead to the rise in the consumption of various substitutes of polypropylene, including jute goods, at the international level. Analysis shows that substitutability of jute and jute goods vis-à-vis polypropylene has been declining over time, as shown in the following table. One could infer from the figures presented that the demand for artificial fibres will be gradually fulfilled by natural fibres. However, a low substitutability of polypropylene indicates that global jute market would keep growing approximately at the current level in the upcoming years.

Table 36: Trend of Production Change under Different Scenario[538]

Period	Polypropylene	Jute Goods	Total
1980-2003	10.14	0.18	6.98
1985-2003	7.62	0.88	5.95
1990-2003	5.96	-2.82	4.14
1995-2003	5.52	-0.71	1.47
2000-2003	-0.18	-0.33	-0.20

According to FAO (2003), although bulk handling is getting popular in the case of food and other items, due to the substantial amount of capital required for developing such facilities, bulk handling has not been widespread in developing countries where infrastructure facilities have often been poor. Utilisation of jute as a diversified product has been on the rise though its share in the total production is still insignificant[539].

The United Nations (UN) has declared 2009 as the 'Year of Natural Fibre' in order to popularise the use of natural fibres in manufacturing goods. Consumers of developed countries have started to show increasing interest in buying more environment-friendly products. From this perspective, jute is considered as demandable items because of its biodegradability and environment-friendly nature. Besides, anti-polythene movement is also getting popular in developed countries. Under such circumstances, jute and jute goods have considerable prospect and potentialities in the coming years[540].

[537] Ibid; "Increasing returns to scale in the petrochemical industry, as well as its vertical–integrated structure that allows a flexible allocation of cost components alongside processing stages for different outputs, contribute towards decreasing unit costs and therefore result in polypropylene polymer and the related synthetic products being price competitive with their jute counter parts," (please see, www.fao.org/docrep/006/45143e/y5143elg.htm).

[538] Ibid

[539] Diversified jute products include geotextiles for land erosion control, jute-reinforced plastics, jute laminates, pulp and paper, decorative fabrics, carpets and handicrafts

[540] It is difficult to agree fully with the conclusion made by FAO as regards prospects of jute and jute goods based on the data of the year 2001. FAO projected that by 2010, global consumption of jute is expected to contract due to competition from polypropylene and bulk-handling technology. It was projected that global consumption will decline by 1.07 per cent per year from 2.89 million tonnes in 1998-2000 to 2.62 million tonnes in 2010. Consumption of jute and jute products in the developed countries is expected to continue to decline in the medium term, albeit slower rate than in the 1990s. A slow down in the contraction of the market, according to FAO, "may reflect the gradual exhaustion of substitution possibilities between jute and competing products or technologies, at least in these countries. In the developing countries consumption is expected to decline at an annual rate of 0.95 per cent from 2.49 million tonnes in 1998-2000 to 2.33 million tonnes in 2010. Consumption of jute products is likely to remain at approximately 1.6 million tonnes in spite of the revised administrative regulations that determine the shares of jute and synthetic fibres in food grade sacks for agricultural commodities. In China, it is expected that the consumption of jute will decline at around 13 per cent per year, faster than during the last decade as a result of increases in the capacity of synthetic fibre production plants and the subsequent intense competition by synthetic sacks. In Africa and Latin America, consumption is projected to follow a downward trend due to competition by synthetic packaging materials."

In the case of Bangladesh, there is ample scope for the development of use of jute and jute goods at the domestic level. Government regulations as regards ban on polythene, if appropriately implemented, would enhance the use of jute goods in the country. There is a huge amount of unutilised capacity in most of the jute mills. If those machines can be utilised effectively by using a part of the raw jute, which is at present exported without any substantial value addition, production and income from jute goods could be substantially increased. In this context, duty free market access in India, accorded to Bangladesh under the South Asian Free Trade Area (SAFTA), should create prospects for more exports to the Indian market. Thus, given the discernible market signals, there is considerable room to enhance both production and export of jute goods[541].

4.1.13.3 Trade Policies Affecting Fibres and their Production

The Agreement on Agriculture under the Uruguay Round contained significant reductions in trade barriers and trade distorting support measures in many countries. JACKS are exclusively produced and exported by developing countries, which, apart from Brazil, China and India, typically do not have the resources to provide trade distorting support. It is the support provided by countries producing and exporting competing products, such as hemp and flax, that are important for the competitiveness of the JACKS market. Although tariffs on JACKS have been generally brought down under both multilateral and bilateral trade liberalization, their market access is still plagued with some remaining levels of tariff escalation (tariff increases as the stage of processing rises) and the use of non-tariff barriers (NTBs) for non LDC countries. Some countries maintain these tariff escalation and NTBs to protect their domestic industries: for example, Iran imposes a tariff of 30-65 percent on jute manufactured products reportedly to protect its domestically produced wool (carpets) and polypropylene (bags) fibres. Pakistan imposes zero tariffs on jute fibre imports, while China and India apply MFN tariffs of 5 and 10 percent respectively (Table following[542]). Bangladesh, a key producer, imposes 25 percent MFN duties on all jute and jute products except jute twine and cordage for which the duty is zero for all countries. China imposes a tariff of 10-14 percent, India uniform at 10 percent and Pakistan 10-25 percent.

[541] According to FAO (2003), in the medium term, "jute consumption in Bangladesh is projected to grow at an annual rate of approximately 1 per cent from 152,000 tonnes in 1998-2000 to 162,000 tonnes in 2010, partly due to the ban imposed on polythene shopping bags that was introduced in 2002 for environmental reasons."

[542] Complete tariff tables are available in the policy supplement of the Statistical Bulletin, CCP:HF/JU/ST/2013.

Table 37: Tariff on Jute and Jute Products for Selected Major Importers (MFN Applied Tariffs)

Product name	Jute fibres, raw or retted	Other raw fibre of Jute	Single Yarn of Jute	Multiple Yarn of Jute	Fabrics of jute : Un-bleached	Fabrics of jute : Other	Felt and stitch-bonded of Jute	Other felt of jute	Carpets of Jute	Sack and bags of Jute
HS Code	5303.10	5303.90	5307.10	5307.20	5310.10	5310.90	5602.10	5602.29	5702.39	6305.10
Australia	0	0	5	5	0	0	5	5	3.33	0
China	5	5	6	6	10	10	10	10	14	10
EU	0	0	0	0	4	4	6.7	6.7	8	3
Ghana	10	10	10	10	20	20	20	20	20	20
Indonesia	0	5	5	5	7.5	10	10	5	15	5
Iran	22	4	10	10	50	50	30	30	50	65
Japan	0	0	0	0	10	10	5.6	5.6	8.2	0
Nepal	5	5	10	10	15	15	15	15	30	15
Pakistan	0	0	10	10	25	25	15	15	25	25
Russian Fed.	5	5	5	5	10	10	15	15		15
Saudi Arabia	5	5	5	5	5	5	5	5	5	5
Syria	1	1	1	1	5	5	5	5	50	3
Thailand	5	5	5	5	5	5				10
Turkey	0	0	0	0	4	4	6.7	6.7	8	3
USA	0	0	0	0	0	0	11.3	6.3	1.8	0

Source: WTO.

Although the multilateral trade agreements under the WTO[543] have reduced import tariffs and imposed disciplines on other trade distorting measures, such as domestic support and export subsidy measures, the tariff structure of JACKS and competing products exhibit the same pattern that existed prior to the WTO agreements[544]. MFN tariffs on raw and some semi-processed products are low to zero[545] in many countries with higher tariffs for processed products (tariff escalation). However, it should be pointed out that two of the largest exporters, Bangladesh for jute and Tanzania for sisal, are LDCs and enjoy tariff and quota free market access to the European Union (EU) for all their products under the Everything But Arms (EBA)[546] Agreement with the EU.

For the main competing products, such as polypropylene, imports are still widely taxed and often at higher rates in developing countries. Importantly, also, as tariff barriers are being dismantled in many countries, the use of non-tariff barriers (NTBs) still exists. Removal or gradual elimination of NTBs are likely to bring significant benefits for developing country exporters provided robust strategies are in place to capture gains along the value chain, especially if the emerging composite fibre market proves viable for JACKS.

[543] Beginning with the Ministerial decisions and declaration embodying the final act of the Uruguay Round Multilateral Trade Negotiations in Marrakesh in April 1994, and the Agreement to establish the World Trade Organization (WTO).

[544] The apparent reduction is deceiving because in most cases the bound rates committed under the Uruguay Round were higher than actual existing applied rates.

[545] Tariff cuts of developed countries were for the most part phased in over five years from 1 January 1995. The result is a 40 percent cut in their tariffs on industrial products, from an average of 6.3 percent to 3.8 percent. The value of imported industrial products that receive duty free treatment in developed countries will jump from 20 percent to 44 percent.

[546] The agreement was reached in 2000, phasing out quotas and tariff restrictions for LDC exports to the EU for all commodities by 2009. In 2011, imports to the EU under the EBA was worth €10.5 billion or 12 percent of imports under its Generalised Scheme of Preferences (GSP).

Some major jute fibre producing countries are also key importers of jute fibre (India and China). However, Pakistan, a minor producer is the main jute fibre importer globally and, together with China and India, accounted for almost 75 percent of world imports of jute fibre in 2009.

The effectively applied tariffs in trade amongst developing countries are mostly governed under either some form of preferential, bilateral or regional trade agreements which are at or near zero, except in the fibre producing countries where tariff escalation is common. For example, jute products attract a 25 percent tariff in Bangladesh, whereas jute twines enter duty free. Similarly, in Tanzania, a major sisal producer, imposes zero MFN duty for the raw fibre and 25 percent for processed sisal products. Furthermore, a number of developed countries have granted duty and quota free access to some LDCs and/or duty free access under the GSP.

Developing country exports to major importing developed countries, namely the EU, Japan and the United States, are mostly under GSP which renders tariffs at or near zero. However, a number of countries have not been able to effectively utilize these preferences due to stringent product specific rules of origin provisions in the case of the EU-GSP (the EBA) and competitive need limits, in the case of the United States – which requires that GSP treatment be suspended if imports of an eligible product from a single country exceeds a specified threshold limit.

GSP tariff rates are zero for slightly woven jute products while MFN tariff is 4 percent in the EU and 10 percent in Japan. As for hard fibres, the United States, which accounts for 61 percent of the world imports of sisal and sisal products, and Japan impose zero import tariff (GSP and MFN), while the EU, which accounts for 19 percent of world imports of sisal products, imposes a 12 percent MFN tariff (table following). Australia imposes a 5 percent duty on twines/cordage of sisal; China has a duty of 5 percent, and India charges 10 percent on ropes and twines of sisal.

Table 38: Tariff on Sisal and Sisal Products by Major Importers (MFN applied tariffs)

Product Name	Raw Sisal fibre	Twine, cordage, ropes of Sisal (binder or baler twine)	Other twine, cordage, ropes of Sisal
HS Code	5305.00 1/	5607.21	5607.29
Australia	0	5	5
Canada	0	0	6.7
Chile	6	6	6
China	4.8	5	5
Egypt	5	5	5
EU	0	12	12
India	10	10	10
Indonesia	5	5	5
Japan	0	0	4
Saudi Arabia	5	5	5
USA	0	0	3.6
VietNam	5	12	12

Source: WTO.
1/ The HS code for sisal fibre 5304.10 and 5304.90 was eliminated from the Harmonized System effective 1 January 2007. Therefore, sisal tariffs are classified under HS code 5305.00

India, Sri Lanka, the Philippines and Thailand are the major producers of coir fibre. China is the world's largest importer and imposes zero duty on the fibre, but 6 percent for coir yarn and 14 percent for coir floor covering (table following). The EU is the largest importer of coir yarn and mats. Its principal suppliers are India, Sri Lanka, Philippines and China. The EU imposes an MFN duty of 4 percent on coir floor coverings with zero on other products. However, most of the trade takes place under GSP or some other preferential arrangement.

Table 39: Tariff on Choir and Choir Products for Selected Major Product (MFN applied tariffs)

Product Name	Raw Coir fibre	Coir yarn	Floor coverings of coir fibres
HS Code	5305.00	5308.10	5702.20
Australia	0	0	0
Canada	0	0	0
Chile	6	6	6
China	4.8	6	14
EU	0	0	4
Japan	0	0	0
Pakistan	0	10	25
Saudi Arabia	5	5	5
South Africa	0	0	30
USA	0	0	0

Source: WTO.

The Philippines and Ecuador are the main producers and exporters of abaca and abaca products principally to the EU, the United States and Japan. All countries have set a zero MFN duty for most products except for cordage and ropes of abaca, where the duties range from a low of 1.9 percent for the United States to a high of 5 percent in Egypt.

Table 40: Tariffs on Abaca and Abaca Products for Selected Major Importers (MFN applied tariffs)

Product Name	Raw Abaca fibre	Abaca cordage
HS Code	5305.00	5607.90
China	4.8	5
EU	0	7
Japan	0	1.7
Malaysia	0	1.8
Singapore	0	0
Thailand	5	5
USA	0	1.9

Source: WTO.

4.1.13.4 Non-Tariff Barriers (NTBs)

Although there is no agreed formal definition of NTBs, in general, NTBs refer to all non-tariff restrictions on trade in goods, services and investment. These include border measures such as customs procedure as well as behind-the-border measures flowing from domestic laws, regulations and practices. Exporters of JACKS products face a number of NTBs which often inhibits their ability to profitably engage in international trade. These include strict packaging and labelling requirements, SPS measures, complex and bureaucratic customs and administrative procedures and import licensing requirements on the exports of processed fibre products.

Fibre products that are packed in wooden crates or placed on wooden pellets have to be quarantine treated. Up until recently methyl bromide was used to fumigate these crates and pellets, because of its penetrating ability, rapid action and high toxicity to a broad spectrum of insects and pests. However, the use of methyl bromide is now banned in many countries[547]. Alternative treatments are costly because more than one chemical is needed to treat the broad spectrum of pests that need to be controlled to satisfy the quarantine requirements of importing countries. So far there does not

[547] Methyl bromide is a broad based pesticide used in fumigation of export commodities. In 1999, of the 71 500 tonnes of synthetic methyl bromide used worldwide, 97 percent was used for fumigation. In regard to export of JACKS, methyl bromide is used for fumigating packaging material and pest control in storage. Under the Montreal Protocol, developed countries agreed to phase out the use of methyl bromide by 2005 and a total phase out in developing countries by 2015.

seem to be any chemical available in the market to treat the same broad spectrum of pests as methyl bromide. A lot of confusion has also arisen because of the different phasing out periods in the use of methyl bromide between developed and developing countries under the Montreal Protocol. As developed countries were required to phase out the use of methyl bromide at the end of 2005, while developing countries could continue using the chemical until 2015, often shipments of fibre products treated with methyl bromide in developing countries were not allowed entry into developed importing countries.

A common complaint from exporters is that the plethora of standards imposed by importing countries has increased cost of compliance to significant levels and perhaps consideration should be given to harmonizing some of these standards. In Australia, sacks and woven fabrics require certification that industrially processed JACKS have originated from pest-free crops, while in Japan, blended products require additional certification depending on the specific percentage of certain JACKS in the fabric. Exporters who sell directly to specialised retail outlets also face obligatory requirements to meet private standards regarding such issues as health, safety, child labour, fair wages and working hours, freedom of association and environmental impacts. These concerns are considered legitimate or precautionary by the countries imposing them. Exporters cannot overcome the problems associated with application of these requirements unless they are effectively engaged and participate in both bilateral and multinational negotiation. Capacity building is also needed to enhance their ability to comply.

In the area of domestic support and other trade distorting measures, JACKS were not subject to reduction commitments under the WTO as key producers and exporters - the developing countries - typically do not provide such support. Also, in the case of competing products, flax and hemp, no export subsidy commitments are reported to the WTO, with the exception of Canada which lists its total outlay for oilseeds in which linseeds (from flax) are covered.

The implementation of the Uruguay Round commitments and the phasing out of the Multi-Fibre Agreement (MFA) in 2004 were two important milestones for international trade in JACKS. Under the WTO, disciplines were put in place to reduce tariffs and convert other forms of restrictions into tariff equivalents and reduce them under an agreed formula for improvements in market access. The end of the MFA, which had imposed quota restrictions on textile imports and for which exports were charged MFA duty rates instead of lower GSP rates when imports exceeded quota limits, is expected to improve market access for textile and clothing products from developing countries. Added to these developments, the increase of bilateral and regional trade agreements in recent years have all served to create a conducive environment for exporters from developing countries. However, this situation should not encourage complacency, as there are still tariffs and significant NTBs that pose problems for JACKS producers and exporters in trying to exploit export opportunities. In particular, efforts need to be made to engage with trade partners in bilateral, regional and multilateral negotiations to review the remaining tariffs, and especially the issue of tariff escalation. In the case of NTBs, although minor progress has been made on some fronts, in terms of reporting and monitoring, no concrete actions or road map to their reduction and harmonization have been agreed at the multilateral level.

However, there is little point in improving market access if products are not available in acceptable quality and quantity. In this regard, producers of JACKS would need to ensure that supply-side and marketing constraints would be overcome. These need to be addressed on several fronts: through operationally effective policy, capacity and institution building, investment in research and development along the value chain and on market enhancing infrastructure. The focus should not be limited to improving the agronomic conditions but should also include research and development on new and prospective end-uses, building on the current heightened environmental concerns over the use of synthetic substitutes. Enabling policies could be considered in JACKS producing countries to support the emerging composite fibres industry, for example, with incentives to use composite materials for the construction of public buildings, such as hospitals and schools.

4.1.13.5 Competition and Competitive environment of Jute[548]

4.1.13.5.1 Revealed Comparative Advantage

As is known, the concept of Revealed Comparative Advantage (RCA) is used to identify a situation when free trade allows countries to gain from increasing specialisation in activities where they have (strong) comparative advantage. The competitiveness of jute exports from Bangladesh has been measured through RCA which indicates the relative export performance situation of a country and industry, defined as a country's share of world exports of an item divided by its share of total world exports. If RCA value of a product is more than 1, the product is considered to be having comparative advantage in the global market. The following Table indicates that Bangladesh enjoys higher RCAs compared to India in a number of jute items of export.

In 2009, Bangladesh enjoyed the highest RCA in all items of raw jute and jute goods except carpet. On the o ther hand, India had the highest RCA in carpet. Higher RCAs in many jute items indicate that Bangladesh's export specialisation in these products is higher than the average export specialisation in the world in these same products, and testify to the fact that Bangladesh's competitive strength in these products was greater than the world's average competitiveness. A matter of heightened concern for Bangladesh, however, was the loss of her comparative advantage in almost all jute products, except jute yarn (multiple cables), over time. This is clearly visible for woven fabric of jute/bast fibre (not unbleached/bleached) and twine, cordage, ropes and cables, of jute. Conversely, India's comparative advantage has been on the rise for raw jute, between 2005 and 2009. Even though, India had significantly higher RCAs for carpets, Bangladesh enjoyed price advantage for this product (USD 6,658 per ton and USD 3,594 per ton respectively for India and Bangladesh)[549].

[548] Section draws data and ideas from Global Market Opportunities in Export of Jute, Occasional Paper: 93, by Mustafizur Rahman and Nafisa Khaled; April 2011; © Centre for Policy Dialogue; ISSN 1818-1570 (Print), ISSN 1818-1597 (Online); C42011_2OP93_TRC (quoted later in the text as well)

[549] Ibid;

However, within this overall growth in global production, there are important nuances. The most important is the growing importance of India, both as a producer and as a consumer. India used to account for 32% of production in 1961 but today accounts for 60% and accounts for just below 50% of global annual consumption. At the same time exports to non jute producing countries have moved in the opposite direction from 1976 when half of the annual production was traded. Today the volume traded is one-third. India used to export 28% of national production in 1976; today it is below 14%. Jute is now far less dependent on exports than it used to be.

Production is also becoming far more concentrated with India and Bangladesh, always the leading producers, but who have had their dominance reinforced with the decline in production in China and in Thailand. Myanmar and Nepal continue to remain producers.

There is a general recognition that this increasing level of concentration of consumption in the domestic Indian economy is an inherently unstable development and that it would be better if it were reduced. This is accompanied by a conviction that a reduction in costs in the conversion process could enhance both the internal competitiveness of jute and in export markets for higher value diversified products. (quoted)

Table 41: Revealed Comparative Advantage of Selected Jute Items from Bangladesh and India

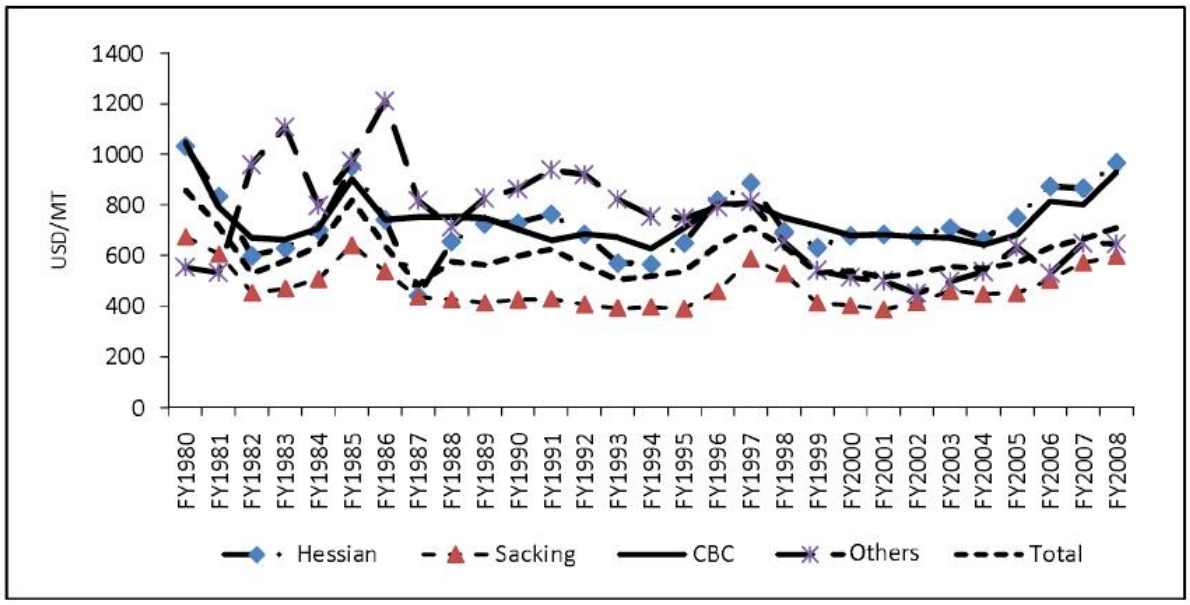
HS Code	Description	Bangladesh		India	
		2005	2009	2005	2009
530310	Jute and other textile bast fibres, raw or retted	1021.2	648.7	2.4	2.6
530390	Jute and other bast fibres, not spun, nes, tow, waste	615.1	351.1	0.5	0.4
530710	Yarn of jute or textile bast fibres nes, single	978.9	688.9	7.2	2.7
530720	Yarn of jute, textile bast fibre nes, multiple, cable	179.7	529.2	68.5	13.2
531010	Woven fabric of jute/bast fibres, unbleached/bleached	326.8	200.9	51.8	37.7
531090	Woven fabric of jute/bast fibre, not unbleached/bleached	357.2	55.6	1.7	0.9
560710	Twine, cordage, ropes and cables, of jute, bast fibre	655.1	423.1	5.5	0.0
570500	Carpets and textile floor coverings, nes	3.5	0.1	21.9	14.2
630510	Sacks and bags, for packg of goods, of jute or of other textile bast fibres	451.2	239.9	39.0	18.0
640590	Footwear, nes	2.5	0.1	0.6	0.1

Source: Trade Map Database.

4.1.13.5.2 Price Competitiveness

Price competitiveness analyses of the raw jute and jute products reveal that export prices of almost all Bangladeshi jute items were found to be competitive (excepting yarn). Price of raw jute export from Bangladesh has remained more or less similar when compared to the world average. The following Figure shows that, price of hessian, sacking and CBC were higher in FY1984-85 and FY1997-98. In nominal terms, raw jute price in Bangladesh were at the highest level, almost USD 600 per ton, in FY1984-85. An export ban on raw jute was imposed in Bangladesh from late 1984 to mid 1985 to ensure availability of raw jute for domestic mills. Jute mills in Bangladesh incurred higher costs due to high price of raw jute.

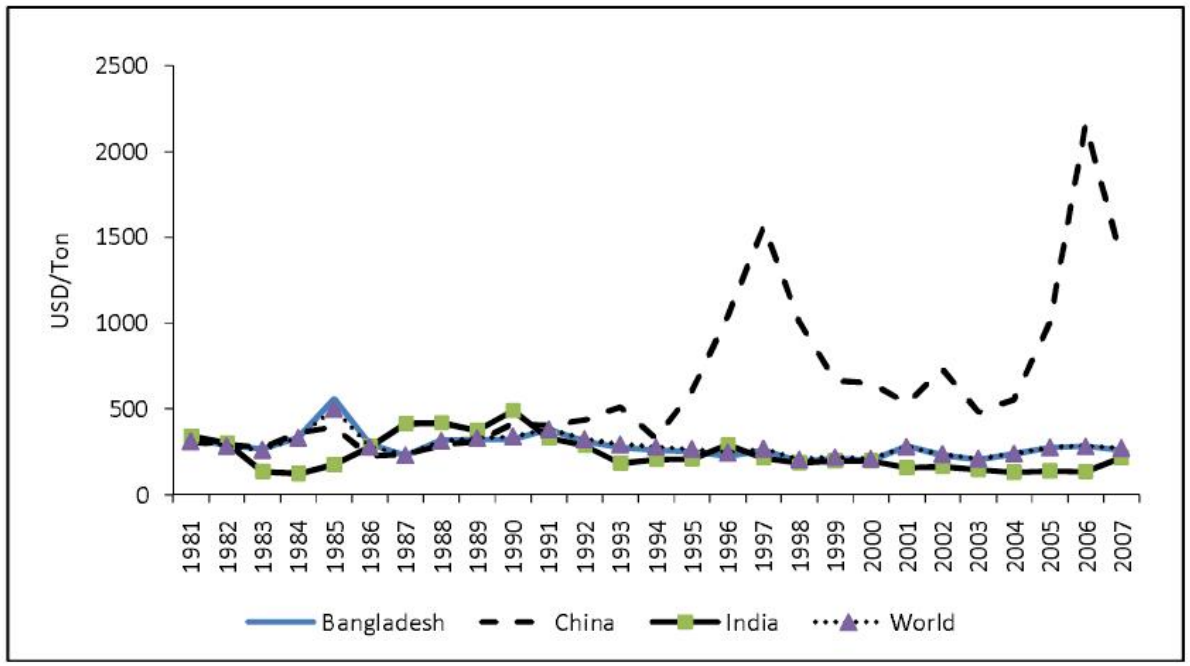
Table 42: Price of Different Jute Items from Bangladesh (2009)



Source: BJMC (2009).

Consequently, in FY1984-85 Bangladesh experienced the highest ever stocks of raw jute as goods could not be sold at the higher asked-for price. As indicated in the following Figure, prices tended to remain significantly lower during the early 2000s compared to the ones prevailing during FY1995-96. Following a decline till FY2002-03, this has again started to rise since FY2003-04. In FY2007-08, prices of hessian and CBC reached as high as USD 966 per ton and USD 929 per ton respectively. Bangladesh faced stiff price competition in exports of yarn of jute (multiple) vis-à-vis India. Although export of fabric was higher than Bangladesh, data shows that Bangladesh's offered price was lower compared to India.

Table 43: Comparative Price of Raw Jute in World Market



Source: FAO (2008).

Jute prices tend to be subject to extreme volatility and seasonal fluctuations. Jute has to face competition with other fibres, especially polypropylene. Whereas the price of jute fibre is about half of propylene, jute sack price generally tends to be more than twice as expensive as polypropylene sack. This price difference affects the competitiveness of jute sacks. Carpet backing also got severely affected due to such price differential with synthetics; although this was not the only reason. Jute is generally favoured as backing material for both primary and secondary carpet for both tufted carpets and woven carpets.

This was an important end-use of jute at one stage during the 1970s; but this has seen drastic decline since then. The export of both primary and secondary carpet backing to USA and Europe has declined sharply in recent times (IJSG, ITC and CFC 2006).

Polypropylene polymer resin prices fell rapidly compared to jute due to widespread availability, as a result of which, during the early 1970s, jute textile packaging lost much of its market share to synthetics. Especially, during FY1984-85, when jute prices increased sharply due to some unfavourable weather conditions in major producing countries, this brought about shortages of jute supplies in the international market. This resulted in sharp rise of jute prices, which provided synthetic fibres an opportunity to further penetrate into the jute markets, particularly in the developed countries; and once the jute products lost its market share to polypropylene, it could not regain the previous share due to its higher cost price and supply constraints. In China and Thailand, woven polypropylene bags were allowed to compete freely, which resulted in the collapse of natural fibre market. Loss of market share of sacking is a long-term process. Sacking is the most widely used item for Bangladeshi jute. During 1970s, jute sacking was increasingly replaced with that of polypropylene plastic bags. Closure of jute mills in Europe, and transfer of part of yarn market away from Europe towards carpet weaving countries in the Middle East had a cumulative affect which caused substantial erosion of the export market of both jute and jute goods for Bangladesh. A series of country studies undertaken by FAO on Egypt, Ethiopia, Kenya and Indonesia have revealed that during 1990s, jute or sisal bags were about 50 per cent costlier than plastic bags. In Pakistan also, price of synthetic bags were almost half the price of jute bags manufactured domestically from imported jute fibre (UNCTAD 1996).

4.1.13.5.3 Non-Price Factors

Although, lack of price competitiveness of the jute bags do not fully explain the reasons for the significant inroads made by polypropylene, combinations of some other price and nonprice factors are also responsible for the exclusion of jute products. Non-price factors include technical characteristics, such as strength, weight, breathability of sacks, biodegradability and water resistance. The following table shows the factors contributing to competitiveness of natural and synthetic fibres.

Table 44: Non-Price Factors Affecting Competitiveness of Jute an Hard Fibers and Polypropylene

Factor	Jute and Hard Fibres	Polypropylene
Technical characteristics	(+) breathability (jute bags) (+) reusability and biodegradability (+) natural look (-) presence of dust and fine fibres (-) unsuitable for automatic filling systems	(+) high tensile strength and impact resistance (+) light weight (+) rot-proof, not shrinkable and water-resistant (-) danger of flammability and smoke toxicity
Quality	(-) occasional problems	(+) consistent quality
Reliability of supplies	(-) instability of supplies due to the dependence on weather conditions and a long-distance transport	(+) regular supplies, production possible at short notice
Marketing	(-) absence of an organised marketing system	(+) aggressive marketing strategies

Source: UNCTAD (1996).
Note: (+) stands for positive quality; and (-) stands for negative quality.

Technical characteristics seem to be also significant for the end use. High tensile strength and impact resistance, light weight, non-shrinkability and water-resistance – these are the major characteristics which act in favour of polypropylene. Jute bags have been largely replaced in the packing of products, especially for chemical and industrial products as these require to be water-proof. On the other hand, breathability is required for vegetable and fruit packaging. Jute bags are preferred in such cases. Polypropylene is preferred in the automatic sack filling system, which is not possible with a jute sack. The use of jute bags in packaging of food products is also negatively affected by the rising concerns of health and hygiene due to the presence of jute dust and fibres. Complaints are sometimes made by importers about the quality of jute yarns, with problems such as unevenness, poorly tied knots and inappropriate packaging (UNCTAD 1996). The main usefulness of polypropylene yarn in this context is the consistency in the quality of the fibre and extra yardage without joins on the yarns. As being a natural fibre, jute is more vulnerable to unfavourable weather conditions. For this reason, some buyers prefer polypropylene products from domestic or nearby origins.

Producers of polypropylene products gave importance to aggressive marketing strategies including vigorous promotional campaigns, technical assistance to users and substantial research in product development and adoption, and getting into new areas of use (UNCTAD 1996). Traditional marketing efforts of jute goods producers failed to provide appropriate counter weight to this. As a result, jute producers have seen their market gradually diminished and undermined. On the other hand, reusability and biodegradability of jute sacks make jute more competitive for the developed world. Due to the environmental awareness with regard to use of natural fibre, jute is likely to gain importance in future. The growing concerns over the dangers of flammability and smoke toxicity of plastic backing favoured the choice of jute cellulose type fibres over synthetic materials in secondary carpet backing, which has been a good news for jute (UNCTAD 1996).

4.1.13.6 Substitutes of Jute Goods in the International Market[550]

4.1.13.6.1 Natural Fibres as Substitutes

As has been noted earlier, jute's substitutes are many, and these include multiwalled paper bags, polypropylene, polyethylene and other natural fibres from kenaf, hemp, sida and sunhemp, etc. As

[550] Ibid

market studies indicate, polypropylene products began to intrude into the market of traditional jute products during the 1960s; their use has sharply expanded during the late 1970s and early 1980s, particularly in the developed world market. Competition of the natural fibre with synthetic materials became intensified since the mid-1970s when excess production capacity of synthetic fibres often resulted in short-term strategies to recover the direct costs, and often led to dumping. Synthetic bags, offered at highly competitive price, particularly from China, helped such products to penetrate the traditional markets enjoyed by jute (UNCTAD 1996). Gradually the market of natural fibres became occupied and substituted by polythene plastic bags.

Other alternative natural fibres of jute are kenaf, sisal, coir and abaca. Kenaf is a natural fibre that grows in Africa and in many parts of USA. Kenaf is used as a forage crop for livestock. Bast fibre is used for cordage, the stalks are used as fuel, and the leaves are consumed as vegetables. Fibres from kenaf can be used in handicraft industries. It is also used to make textiles, paper products or to produce a wide variety of composite products. Recently, some Asian countries including China, India and Malaysia have started to cultivate kenaf.

Traditionally sisal has been used in agricultural twine, thanks to its strength, durability, stretching ability, affinity for certain dyestuffs and resistance against salt water. Apart from these, sisal is used for making low-cost papers, dartboards, buffing cloth, filters, geo-textiles, mattresses, carpets and handicrafts. In recent years, sisal is being used as an environment-friendly strengthening agent to replace asbestos and fibreglass in composite materials in the automobile industries (Wigglesworth 2008). Brazil is the largest s isal producing country in the world, accounting for about 47 per cent of the total world production. Other major countries are Tanzania, Kenya, Venezuela and Madagascar. Sisal occupies sixth position among natural fibres representing 2 per cent of world production of plant fibres. Coir fibres are fibres of coconut. This is found between the husk and the outer shell of a coconut. White coir fibres are harvested from coconuts before they are ripe. These light brown or white fibres are generally smoother and finer but weaker. These are spun to make yarn which is used to make rope and mats. Brown coir is used to make floor mats, door mats, brushes, mattresses, floor tiles, sacking and twine. Major uses of white coir are for rope manufacture. Coir fibre industries are generally located in the coastal regions of India and Sri Lanka. India and Sri Lanka together produces 90 per cent of world's total coir production. Abaca, which is also known as Manila hemp, is extracted from the leaf sheath around the trunk of the abaca plant. Coarse abaca fibres are used as cordage, especially for ship's rigging. Other uses of abaca are in tea bags, casing for sausages, banknotes, cigarette papers and high-quality writing paper. Recently, a novel mixture of polypropylene thermoplastic and abaca yarn is being used in automobile components, including external panels. Philippines is the major producer and exporter of abaca, which is exported in the form of pulp rather than as raw fibre.

Table 45: World Import of Hard fibre

('000 Tonnes)

Natural Fibre	Raw Fibre		Manufacture	
	2002	2008	2002	2008
Jute, kenaf and allied fibre	337.4	512.7[a]	594.2	590.8[a]
Sisal	82.8	93.7[b]	84.8	80.3
Coir	122.9	152.2	58.1	42.6
Abaca	28.0	28.7	27.0	35.4

Source: FAO (2008); FAO (2009).
Note: a. Data for 2007; b. Data for 2006.

According to the table above, import of raw fibre has increased insignificantly between 2002 to 2008, sisal, coir and abaca fibre import increased by 13.2 per cent (2002 to 2006), 23.8 percent and 2.5 per cent respectively; whilst import of jute and kenaf manufacture have increased by 52 per cent during this period. Demand for both raw and manufactured jute is highest among natural fibres.

Demand for manufactures has declined for all the items during the stipulated time. Jute has been used in various sectors in the industry, where natural fibres are increasingly being preferred as substitutes of plastics. These are paper, celluloid products, especially in films, non-woven textiles, composites (pseudo-wood) and geo-textiles. The year 2009 was declared as the International Year of Natural Fibres by the General Assembly of the United Nations, which had helped focus the attention of the global community on this promising item.

Technological advancement and other factors contributed to the advantage enjoyed by synthetic fibres, often reflected in the latter's price competitiveness. Polypropylene is the single most important synthetic substitute for jute. The resin is derived by the polymerisation of propylene. This, in turn, is manufactured by steam cracking of naphtha (which prevails in Western Europe and Japan) or through refining natural gas liquids (USA) (UNCTAD 1996).

Table 46: Prices of Polypropylene, its Base Chemical, Feedstock and Raw Materials in Western Europe and USA

Item	2004	2006	2008	2009 (Jan-Jun)
Western Europe				
Crude oil - f.o.b. Dubai (USD/BBL)	38.0	65.5	97.0	52.0
Naphtha - Spot price range (USD/ton)	375.0	569.0	816.0	426.0
Propylene - Contract prices (USD/ton)	679.0	1030.0	1444.0	610.0
Polypropylene- Raffia grade (USD/ton)	1119.0	1457.0	n.a.	n.a.
United States (contract price)				
Propylene - Polymer (USD/ton)	679.0	1048.0	1304.0	607.0
Raw jute - f.o.b Mongla				
BWD (USD/ton)	293.0	380.0	468.0	524.0
BWC (USD/ton)	319.0	409.0	520.0	555.0

Source: FAO (2009).
Note: f.o.b refers to free on board.

The table above shows the polypropylene chemicals and raw materials prices in the international market. Price of all kinds of raw items has increased significantly between 2004 to 2008. During the first half of 2009, oil, naphtha and propylene came down significantly. However, the price of jute continued to increase. The competition between jute and synthetic fibres varied according to products and markets. Polypropylene is more expensive than jute. At the first stage of processing chain, the price difference is more prominent; at higher stages of processing, this tends to become less important and the prices are quite similar and move more closely together. As the traditional uses of jute fibres are predominantly in the industrial sectors and not in the consumer market, buyers' choice between natural and synthetic substitutes is mainly based on certain economic considerations, mainly on price and technical characteristics of both kinds of products (UNCTAD 1996).

Table 47: Comparative Environmental Impact Assessment of Jute and Polypropylene

Indicator	Jute	Polypropylene
Total energy consumption	3.75-8.02 GJ/t of fibre	84.3 GJ/t of fibre
Total CO_2 emission	-1.6-0 t/t of fibre	3.7-7.5 t/t of fibre
Type of resources used	+ Renewable	- Non-renewable
Production stage	+ Improves soil fertility; + Reduces incidence of weeds and plant diseases; – Retting waste biodegradable, but resulting oxygen depletion in water can increase mortality of certain fish	- Nitrogen dioxide and sulphur dioxide are emitted into the air, contributing to the *acid rain*; - Waste water and solid waste contain bio-accumulating substances like heavy metals
Transformation stage	- Petroleum-based mineral oil used in batching; = Burning production wastes generates energy, but also pollutants; - Dust and noise are major problems as regards work conditions	
Transport stage	Consumption of energy 0.19-0.27 GJ/t	Consumption of energy 3.9 GJ/t
Consumption stage	- Mineral oils used in batching tend to migrate into the foodstuff from the packaging material	
Disposal stage	+ Biodegradable, without a negative environmental impact if suitable methods are selected (composting, production of biogas); + Reusable; + Recyclable	- Carcinogenic substances released into the environment; - Plastic trash threatens farm animals, birds and wildlife; - The remains of drift nets kill marine animals

Source: UNCTAD (1996).
Notes: + stands for a positive impact;
- stands for a negative impact;
= means that findings are inconclusive.

Other than the price difference, if the environmental impact is considered, jute and jute products have always been able to prove their superiority from the perspective of practical use. The table above shows the comparative environmental effects of jute and polypropylene products. Polypropylene products emit nitrogen dioxide and sulphur dioxide into the air during the production stage. At the disposal stage, it releases carcinogenic substances. Plastic trashes threaten birds and animals, and even marine lives. Sometimes it also creates water stagnancy in the storm water disposal line. These negative impacts of the synthetic polypropylene products have raised concerns among environmentalists in the developed world, and a powerful popular opinion has emerged in favour of use of more natural and bio-degradable products such as the jute items.

4.1.14 Results from the Primary Survey

4.1.14.1 Data Parameters

DATA PARAMETERS

I. Identified Parameters for required trends data:

1. LAND
    - 1.1. **Land Availability**: land allocated to the cultivation, processing and production of jute (data parameters include trend data from the ministry of agriculture website on the land cultivated for two main types of jute)
    - 1.2. **Land Accretion**: land added to jute cultivation, processing and production from natural sources, like and if, land rising from river beds and additions or deductions from the shoreline (data parameters include trend data from the lansat/geo-satellite observation on the accretion of landmass from river-islands and extending sea-shores which have been added to or deducted from the jute farming area; data could be both positive and negative)
    - 1.3. **Land Conversion**: positive or negative conversion of land allocated earlier for jute cultivation into other types of productions, construction, usages. Data parameters could include industrial conversion of jute cultivation land and conversion of fallow land into jute cultivation land.
    - 1.4. **Land Utilization**: productivity of land usage in jute cultivation. Composite parameters include: (a) acreage, (b) employment of individual workers per acre (or other unit of measurement) of land, (c) enhancement of irrigation and other productivity enhancement facilities.
    - 1.5. **Land Administration**: Composite parameters: (a) Land reform measures affecting agricultural practices (binary scale), (b) introduction of land development legislations affecting agricultural practices (binary scale), (c) introduction of community development legislations affecting agricultural practices (binary scale), (d) extension of administrative and judiciary services (binary scale).

2. INPUTS
    - 2.1. **Seeds** (trends towards HYV seeds and others): trend data on actual supply of seeds and saplings.
    - 2.2. **Fertilizers**: trend data on actual supply of fertilisers and trend data on subsidies
    - 2.3. **Irrigation** (trends in area under artificial irrigation, drip irrigation etc.): trend data on extension of irrigation services and trend data on subsidies in diesel and electricity
    - 2.4. **Pest Control**: trend data on area under organised pest control measures

3. LABOUR

3.1. **Cropping pattern** : Composite parameter with: (a) labour involvement in jute cultivation (per acre; trend data), (b) incidence of share-cropping in jute (trend data / likert-scale data), (c) incidence of joint-farms
3.2. **Farming intensity** (crops per year; trend data; yield-per-hectare index)
3.3. **Alternative land usage** (incidence of concurrently using jute production area for other productive usages)
3.4. **Alternative employment options** (trend data in jute farmers converting to other professions/vocations/cultivations)
3.5. **Agricultural production learning curve** (five-point likert scale).

4. CAPITAL
   4.1. **Growth rate of the economy** (Proxy derived from GNP)
   4.2. **Credit availability** (trends in agricultural borrowing especially in jute sector)
   4.3. **Working capital flow** (trend data in availability of working capital in agricultural sector)
   4.4. **Public investment in jute agricultural sector** (trend data)
   4.5. **Public investment in jute industrial sector** (trend data)
   4.6. **Private investment in jute agricultural sector** (trend data)
   4.7. **Public investment in jute industrial sector** (trend data)

5. AGRICULTURAL VALUE ADDITION
   5.1. **Centre and state policies supporting agricultural production** (Binary/likert scale proxy; Subsidies for the sector and other incentives)
   5.2. **Agricultural mechanization** (proxy: no. of machines, tractors etc.)
   5.3. **R&D trends** (trend in innovations/discoveries reported)
   5.4. **Agricultural extension**: composite measure: (a) trend data in number of agricultural extension workers employed by the government, (b) trend data in fiscal allocation for agricultural extension work undertaken, (c) trend data in farms/area covered by DOAE (Department of Agricultural Extension) {significance: DOAE achieved mega success in changing the cropping patterns and overall agricultural productivity from sixties till nineties – from a food deficit country in 1971 we became a surplus producer in 1990}
   5.5. **Education and learning** (composite proxy: (a) level of education of average farmer; (b) number of students passing specialised education for agriculture at the tertiary level)
   5.6. **Use of advanced technology**: trend data / binary / likert scale data – whichever is easily available

6. INDUSTRIAL VALUE ADDITION
   6.1. **Centre and state policies supporting industrial production** (trend data: number of legislations affecting agriculture/jute; trend data: Subsidy and incentives for jute industry apart from free trade measures)
   6.2. **Labour employment trends** (Trend data: jute manufacturing)
   6.3. **Management overhead** (costs: trend data/average industry component)
   6.4. **Fixed overhead** (costs: trend data/average industry component)

6.5. **Quality control measures** (trends/likert scale)
6.6. **R&D in production** (trend in innovations/discoveries reported)
6.7. **Industrial product diversification trends** (e.g. from sacking and carpet backing to other uses say in automobile: trend data in product innovation/manufacturing/export/import).
6.8. **Use of advanced technology** in processing and manufacturing trend data / binary / likert scale data – whichever is easily available
6.9. **Learning curve position in industrial production** (five-point likert scale)

7. CONNECTIVITY AND TRANSPORTATION TRENDS
   7.1. **Access to transportation architecture** : Composite measure – (a) trend data in road network expansion, (b) trend data in rail network expansion, (c) trend data in river/water network expansion, (d) trend data in number of ports+truck stations+rail stations
   7.2. **Investment in transport architecture**: trend data
   7.3. **Factor market connectivity** (trend data: growth centre identification and investment in architecture)
   7.4. **Growth centre connectivity** (trend data: number of growth centers connected to national highways).
   7.5. **Utilization of distribution networks** (composite: tonnage carried, total trade value)
   7.6. **World market connectivity trends** (composite proxy: utilisation of ports for foreign trade: trend data; integrated check posts and trend data in utilisation of Land Custom Stations).

8. MARKETS
   8.1. **Trends in development of substitutes** (composite: trend data: market growth and return in substitutes)
   8.2. **Market share of substitutes vis-à-vis jute** (two-stage-catchment: trend data of substitutes and scatter plot vis-à-vis jute)
   8.3. **Effects of substitutes on consumer choice** (proxy: trend data: rise/fall in the world prices of jute)
   8.4. **Trends in development of complements** (composite: trend data in the market of jute complements, i.e., products in which jute is used)
   8.5. **Destination composition** (GDP growth rate of destination countries for jute and corresponding R^2 values)
   8.6. **Trends in rise/fall in destination markets** (trend data: jute trade value in 27 jute trading countries)
   8.7. **Foreign distribution networks and loyalty/stability** (country-specific order placement year-to-year, i.e., if majority of ordered quanta is from the same source as that of the previous year; two-step-catchment).

9. CLIMATIC CONDITIONS

9.1. Adverse changes/**trends in climate change and corresponding changes in jute production** (trend data: number of significant natural disasters in the jute trading countries)
9.2. **Rainfall and water availability and corresponding impact on jute production** (trend data: average rainfall in the jute trading countries)
9.3. **Average temperature and suitability for jute production** (trend data: average temperature of the jute trading countries)

10. EXOGENOUS FACTORS
    10.1. **Entrepreneurial capability** (no. of workforce and efficiency per worker etc.)
    10.2. **Socio-political stability/unrest and corresponding impact on production trends** (two-step-catchment: trend on binary social unrest indicators)
    10.3. **Bilateral agreements affecting domestic conditions and trade** (binary scale, year-wise).
    10.4. **Regional agreements affecting domestic conditions and trade** (binary scale, year-wise).
    10.5. **Global agriculture and commercial arrangements affecting domestic production conditions and trade** (binary scale, year-wise)
    10.6. **Role of IOs** (like WB and IMF with specific guidelines on Non-trade barriers etc.) (Composite data from likert-scale).

11. ADVANCED DERIVATIVES
    11.1. **Product diversification and new usages for existing products over time** (number of reported innovations/discoveries)
    11.2. **Branding** (whether there-1 or not-0; using dummy)
    11.3. **Composite farming trends** (number of composite farms in jute)
    11.4. **Contract farming trends** (number of contract farms reported)
    11.5. **Wholesale farms abroad** (number of farms abroad)
    11.6. **Portfolio investment trends**: trend data in jute portfolio
    11.7. **Securitization of agriculture in the stock market** (dummy)
    11.8. **TVC (total value chain) ownership** (dummy; binary scale: key point: 1947 / 1971)

II. <u>Other major requirements</u>

1. Factors of production: Land, labour, capital (short term working capital and long term investment rates)
2. Establishing Revealed Comparative Advantage (RCA) in the jute sector on the basis of trends data on :

    2.1. Factor Inputs
    2.2. Learning Curve positioning
    2.3. Production stability trends
    2.4. Showing absence of productive competitors in the sector (trends in the emergence of jute substitutes etc.)

2.5. Wholesale operations and solutions through composite farming and corresponding trends; contract farming, wholesale farms and agro-businesses in jute.

3. Data on the following 10 products (on exports, imports at the level of the world/of South Asia/and of Bangladesh) for the purpose of calculation of RCA:

3.1. Tobacco
3.2. Jute
3.3. Tea
3.4. Maize
3.5. Tomato
3.6. Okra
3.7. Aromatic Rice
3.8. Mushroom
3.9. Potato
3.10. Sweet Potato

4. Policy interventions (adequate proxies like degree of nationalization/disinvestment, rates and trends in subsidies, taxes, tariffs and quotas etc.)

5. Trends in agriculture and trade in agriculture, (especially of the 10 products mentioned below), services and solutions generated from Bangladesh over a century and more.

6. Trends in product variations/variety/innovation /discoveries

7. Products

8. Services

9. Wholesale farming solutions

10. Statistics on natural endowments or favourable conditions

10.1. Trends corresponding to natural calamities leading to changing in cropping patterns etc.
10.2. Changes corresponding to war and man-made disasters.

11. Entrepreneurial capabilities (proxies: per worker productivity; no. of management and marketing professionals)

12. Population composition (demographic indicators, workforce in primary, secondary and tertiary sectors especially related to jute; female workforce participation).

13. Trends corresponding to changing political regimes like colonialism

14. Bangladesh's independence and related changes in trends

    14.1. Ownership changes and related divestiture by established jute merchants
    14.2. Impact of land and resource fragmentation as a result of partition and splits.

15. Need for trends data supporting statistics on
    15.1. **Technological inferiority** (reflecting in low level of machinery, defects, no. of industrial accidents and low worker productivity).
    15.2. **Management inefficiency** (losses on salaries etc.)
    15.3. **Absence of advanced marketing plans and control mechanisms** (reflecting in falling demand for and losses in the jute sector)
    15.4. **Input unavailability** (lack of seeds, irrigation facilities, pesticides leading to crop failure etc.)
    15.5. **Access to different assets** (like land, credits, inputs).
    15.6. **Natural Resource Management** (of land and water)
    15.7. **Level of rural institutions and livelihood support** (schemes and benefits to the poor)
    15.8. **Level of subsidies** (provision of safety nets for farmers like MSP for a stable production base; reflected in socio-economic trend indicators of farmers and workers etc.)
    15.9. Level of **adherence to such subsidy rationalization and tariff binds for LDCs and developing countries.**

16. Impact of regional/global, bilateral/multilateral trade negotiations (using proxy for implementation or relaxation of trade barriers, adherence to anti-dumping laws and others as recommended by WB and IMF policies)

17. Impact of nationalization of jute sectors (mills and industry), trends in rise of jute PSUs and politicization of inputs and output markets (using proxy of ownership transfer to the state and changing free trade and marketing policies).

18. Level of technological innovation, market initiatives and branding in the jute sector.

19. Trends in production and pricing of agricultural commodities in Bangladesh (for exports) especially for jute.
    19.1. Situational analysis under different de-subsidized trade patterns and conditions in agricultural commodities under WTO regime.
    19.2. Impact assessment of production and pricing decisions on domestic industrial output.
    19.3. Opportunities for Bangladesh agricultural commodities in international market under different situational conditions
    19.4. Preparing WTO agenda for Bangladesh with respect to agricultural commodities.

4.1.14.2 Results

SUMMARY OF RESULT OF AREA-1: Decade-wise Impact of Variables affecting competitive edge of Jute Trade in International Market

"The objects under scanner are varied in nature. They include, and not limited to, production factors and functions, produce and value-added derivatives, input markets and output markets, comprehensive value chains and cross-cutting networks – concentric on primarily two loci, i.e., international trading configurations (at bilateral, multilateral, regional and global) and jute (at levels of production, processing, manufacturing and value addition, marketing and advanced derivatives). By its very nature, the paper is conceived at a multi-dimensional space where all variables are categorized as per their trend data and also projected at multi-axes spatiotemporal dimensions. "

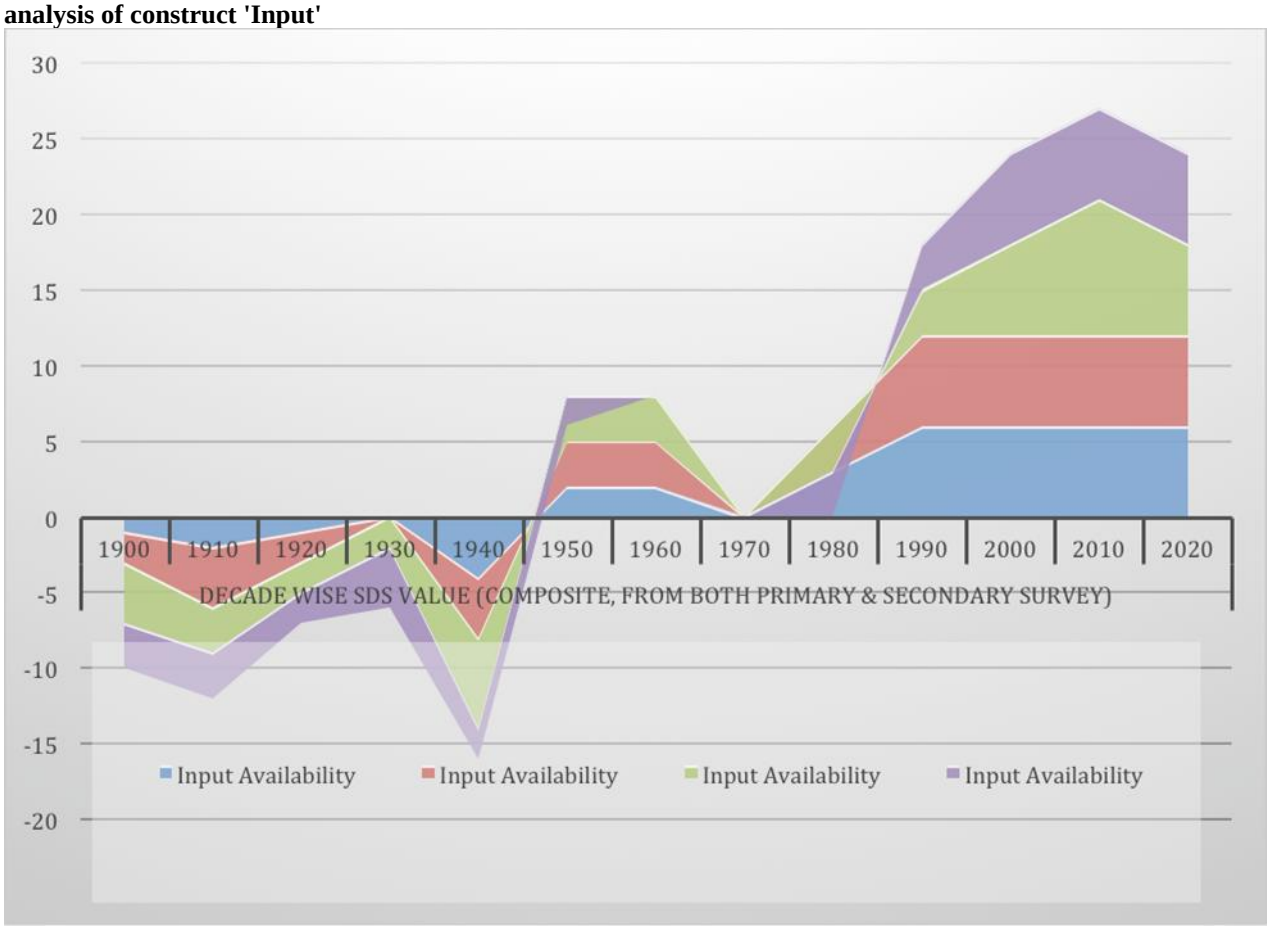
Figure 30: Decade-wise SDS Value (from both primary and secondary survey) for impact analysis of construct 'Land'

Since the 1900s-

Land availability has had very high positive impact on jute production followed by high positive impact since the 1940s and relatively low impact since 1980s. Post 1980s, this importance has fallen due to rising importance of other inputs like HYV seeds and changing cropping patterns, urbanization and more land put to industrial use.

Land Accretion has had a low positive impact on jute production since 1990s, with a relatively stable importance over time.
Land Conversion from jute to other usages has had a high negative impact on jute production and this negative impact has increased over time due to scarcity of land, rise of other cash crops and so on.
Land Utilization for usages other than jute production has had a high negative impact on jute production, However, due to relatively lesser importance of land availability, the impact was slightly dampened over time due to importance of other inputs like HYV seeds, urbanization etc. Recently *Land Administrations* had a very high impact on jute production with a relatively stable importance over time.

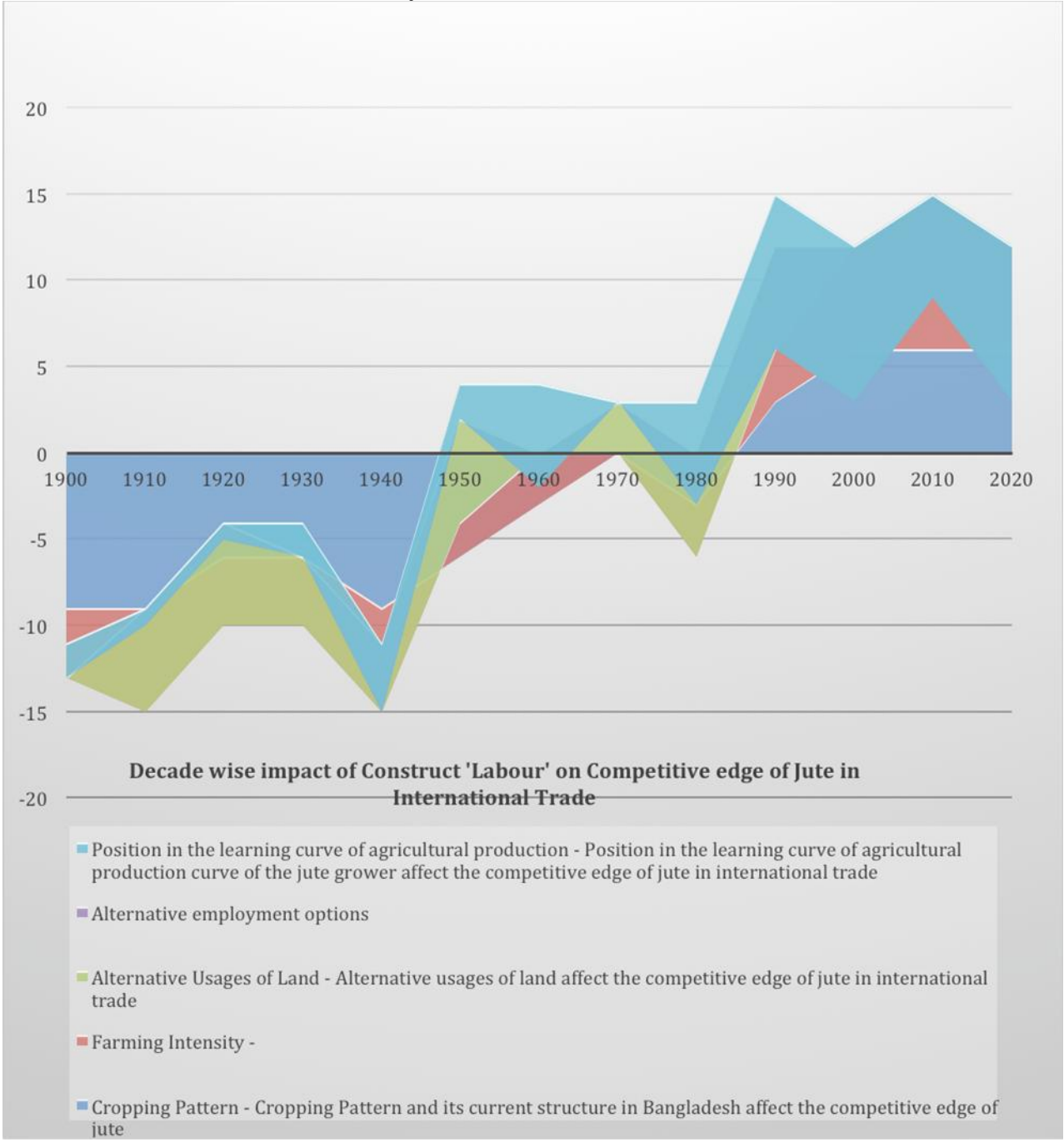
Figure 31: Decade wise SDS Value (Composite, from both primary and secondary survey) for impact analysis of construct 'Input'



Since the 1900s-
Seed Inputs has had a low positive impact on jute production with a relatively high positive impact since 1930s and very high positive impact since the 1980s.Thus, the Importance of seeds as an input increased over time due to variations in the input, popularity of HYV seeds and the like.
Fertilizer Input has had a positive impact on jute production with a relatively very high positive impact since the 1950s. The importance of fertilizers as an input has increased over time due to rise in fertilizer industry, its availability and variety.
Irrigation has had a high positive impact on jute production with a relatively very high positive impact since the 1950s. The importance of irrigation as an input has increased over time due to lower dependence on rainfall uncertainty, especially in less rain-fed and dry areas.
Pest Control Inputs has had a low positive impact on jute production with a relatively high positive impact since 1930s and very high positive impact since the 1980s.Thus, the Importance of pest

control as an input increased over time due to rise in the pest control industry, variations in the in the input availability, quality and variety developed over time.

Figure 32: Decade wise SDS Value (Composite, from both primary and secondary survey) for impact analysis of construct 'Labor'



Since The 1900s-

Cropping Pattern has had a very high impact on jute production with a relatively stable importance over time. Since the 1900s, farming intensity has had a high positive impact on jute production with a relatively very high positive impact since the 1960s. The importance of farming intensity as an input has increased over time due to factors like increasing reliance on other inputs, lower dependence on rainfall etc.,

Pest Control Inputs has had a low positive impact on jute production with a relatively high positive impact since 1930s and very high positive impact since the 1980s.Thus, the Importance of pest

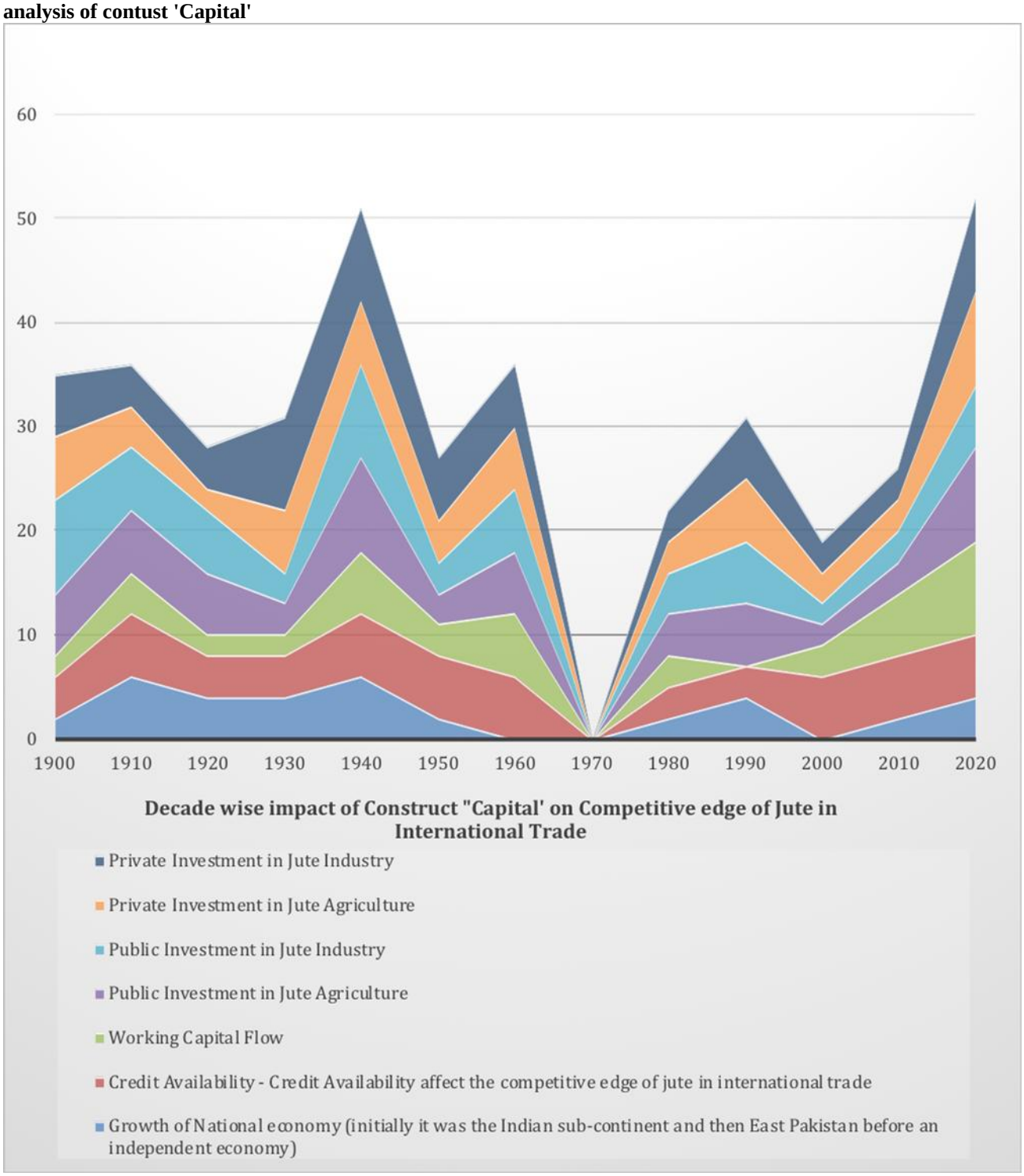
control as an input increased over time due to rise in the pest control industry, variations in the in the input availability, quality and variety developed over time.

Alternative Land Usage apart from jute has had high negative impact on jute production with a relatively very high negative impact since 1970s. Thus, the Importance of alternative land usage has increased over time in jute production, since importance of land as a scarce resource has risen over time due to its multiple and diverse usages.

Alternative Employment Options other than the jute sector has had low negative impact on jute production with a relatively high negative impact since 1940s and a very high negative impact since the 1980s. Thus, the Importance of alternative employments options has increased over time in jute production due to job diversification, urbanization and fall in labor due to migration etc.

Learning Curve Position in Agricultural Production has had a high positive impact on jute production with a relatively very high positive impact since the 1950s. The importance of learning curve as parameter in jute production has increased over time due to factors like rise in R&D, farmer's education, skill and training programs and so on.

Figure 33: Decade wise SDS Value (Composite from both primary and secondary survey) for impact analysis of contust 'Capital'



Since the 1900s-

Growth of National Economy has had a high positive impact on jute production, with relatively stable importance over time. Since 1990s, credit availability has had a high positive impact on jute production with a relatively very high positive impact since the 1940s. This has been an important parameter for farmers in jute production, more so with rising need for expenditure on inputs, machinery and greater operational costs.

Working Capital Flow has had a high positive impact on jute production with a relatively very high positive impact since the 1940s. The importance of this parameter as an input has increased over

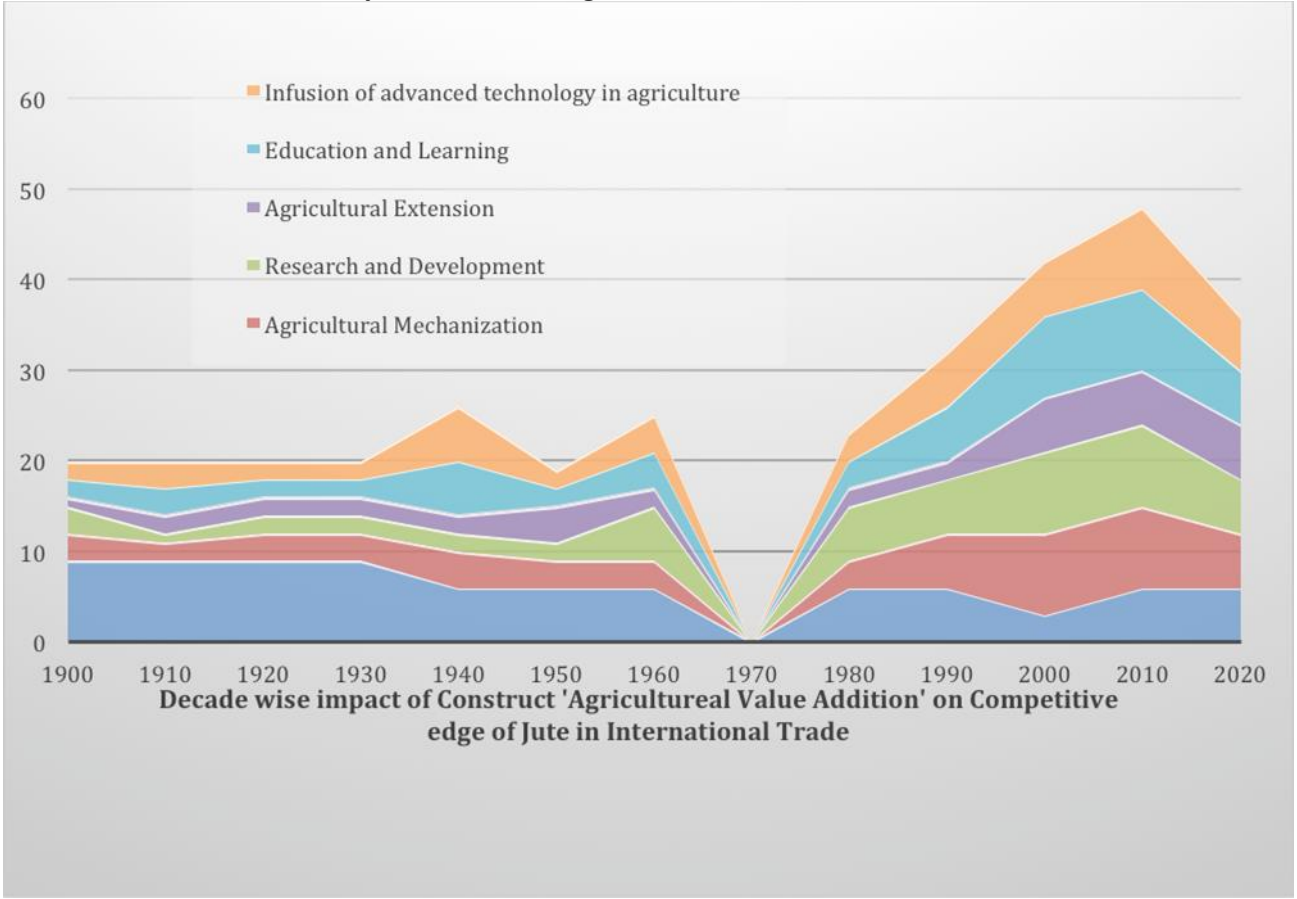
time due to factors like rising operational costs, mechanization of agriculture, machinery, equipment, irrigation facilities etc. with increasing reliance on other inputs, lower dependence on rainfall etc.

Public Investment in Jute Industry has been important all through especially during the nationalization of the industry, but due to various recommendations by organizations like the WB and rising government debt, it has been falling since the 1980s. However, since the 20th century, its need and importance has been realized once again, especially in jute R&D, education, marketing expenditure etc.

Private Investment in Jute Agriculture has had a high positive impact on jute production with a relatively very high positive impact since the 1960s. With the rise in private ownership of land, liberalization in agriculture, this parameter has risen further in importance.

Private Investment in Jute Industry has had a high positive impact and a very high positive impact since the 1930s on jute production. With the rise in private property ownership of, liberalization, increased mechanization and need for additional inputs, this parameter has risen further in importance.

Figure 34: Decade wise SDS Value (Composite from both primary and secondary survey) for impact analysis of construct 'Agricultural Value Addition'



Since The 1990s-

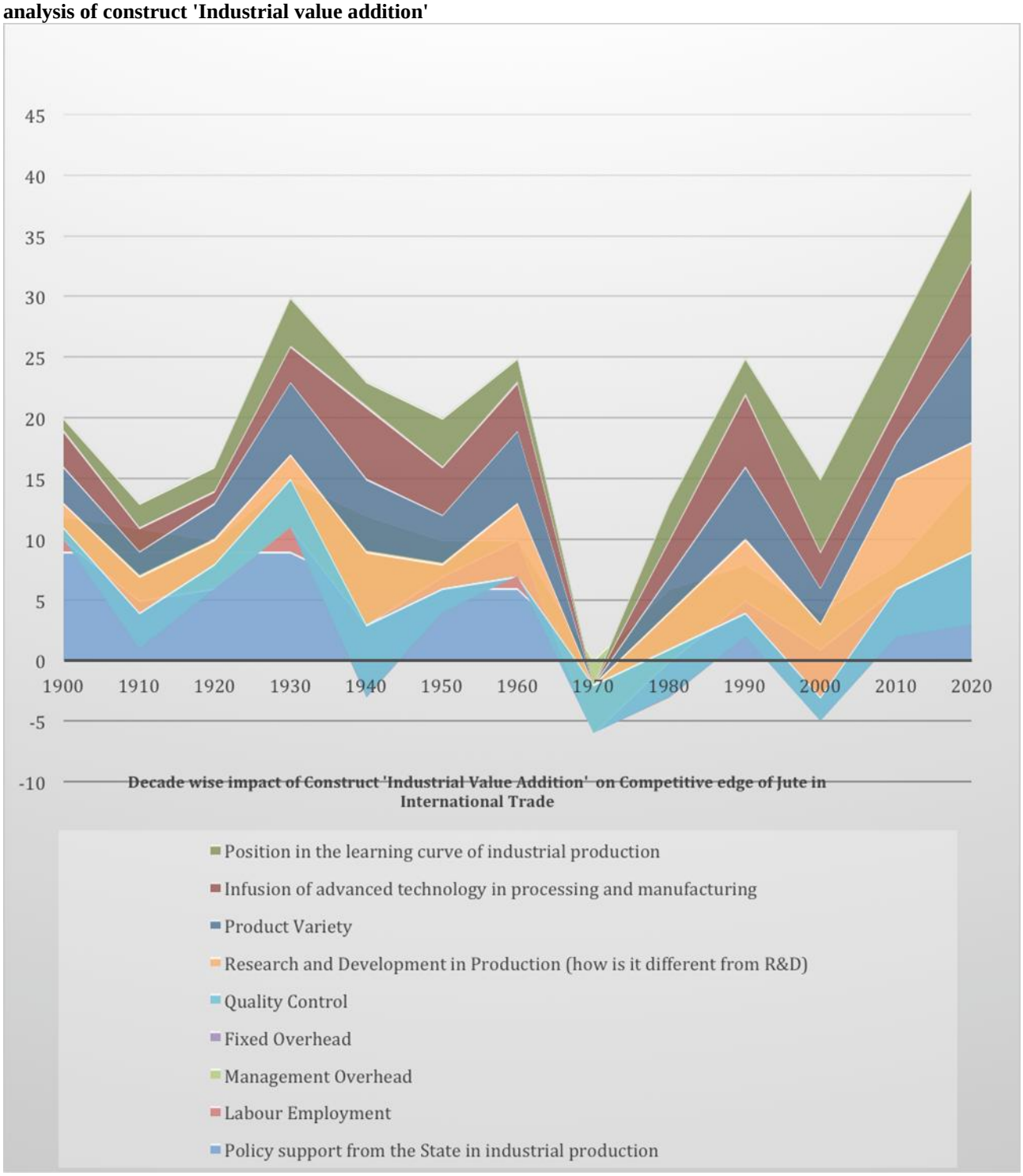
Policy Support from the State has had a very high impact on jute production with a relatively stable importance over time, although policy has become unfavorable lately due to increased denationalization and mass privatization of government assets.

Agricultural Mechanization has had a low positive impact, followed by high positive impact since the 1930s and a relatively very high positive impact since relatively a very high positive impact since the 1950s. The need and importance of this parameter has been rising overtime due to greater demand, technological innovation etc.

Research and Development has had a low positive impact, followed by high positive impact since the 1940s and a relatively very high positive impact since the 1960s. The need and importance of this parameter has been rising overtime due to higher levels of education, awareness, greater demand, technological innovation etc. technological innovation etc.

Infusion of Advanced Technology in agriculture has had a low positive impact, followed by high positive impact since the 1940s and a relatively very high positive impact since the 1980s. The need and importance of this parameter has been rising overtime due to higher levels of education, awareness, skills, greater demand, technological innovation etc.

Figure 35: Decade wise SDS Value (Composite, from both primary and secondary survey) for impact analysis of construct 'Industrial value addition'



Since the 1990s-

Policy Support from the State in Industrial Production has had a very high impact on jute production with a relatively stable importance over time, although policy has become relatively unfavorable since the 1980s due to increased factors like pressure from WB etc. for denationalization and mass privatization of government assets rising debts and managerial inefficiency.

Labor Employment in Jute Agriculture and Industry has had a low positive impact, followed by high positive impact since the 19430s. The need and importance of this parameter has been rising overtime due to higher levels of unemployment, due to mechanization greater availability of skilled workers in jute production, use of labor intensive techniques, rise in migration etc.

Management Overhead Costs in the jute sector has had a high negative impact on jute production with a relatively very high negative impact since the 1940s and a relatively high negative impact since the 2000s. Thus, the Importance of this parameter first increased in magnitude due to greater nationalization of the jute sector followed by managerial inefficiency, higher expenditure on salaries etc. and later fell relatively due to greater denationalization, privatization, laying off of workers, contractual labor over time.

Fixed Overhead Costs in the jute sector has had a high negative impact on jute production with a relatively very high negative impact since the 1940s and a relatively high negative impact since the 2000s. Thus, the Importance of this parameter first increased in magnitude due to greater expenditure on fixed machinery overhead costs and later fell relatively due to greater denationalization, privatization, cheaper availability of technological inputs etc.

Quality Control in jute sector has had a low positive impact, followed by high positive impact since the 1930s. The need and importance of this parameter has been rising overtime due to higher levels of production, product varieties, greater demand, supply, trade, labor standards, mechanization etc.

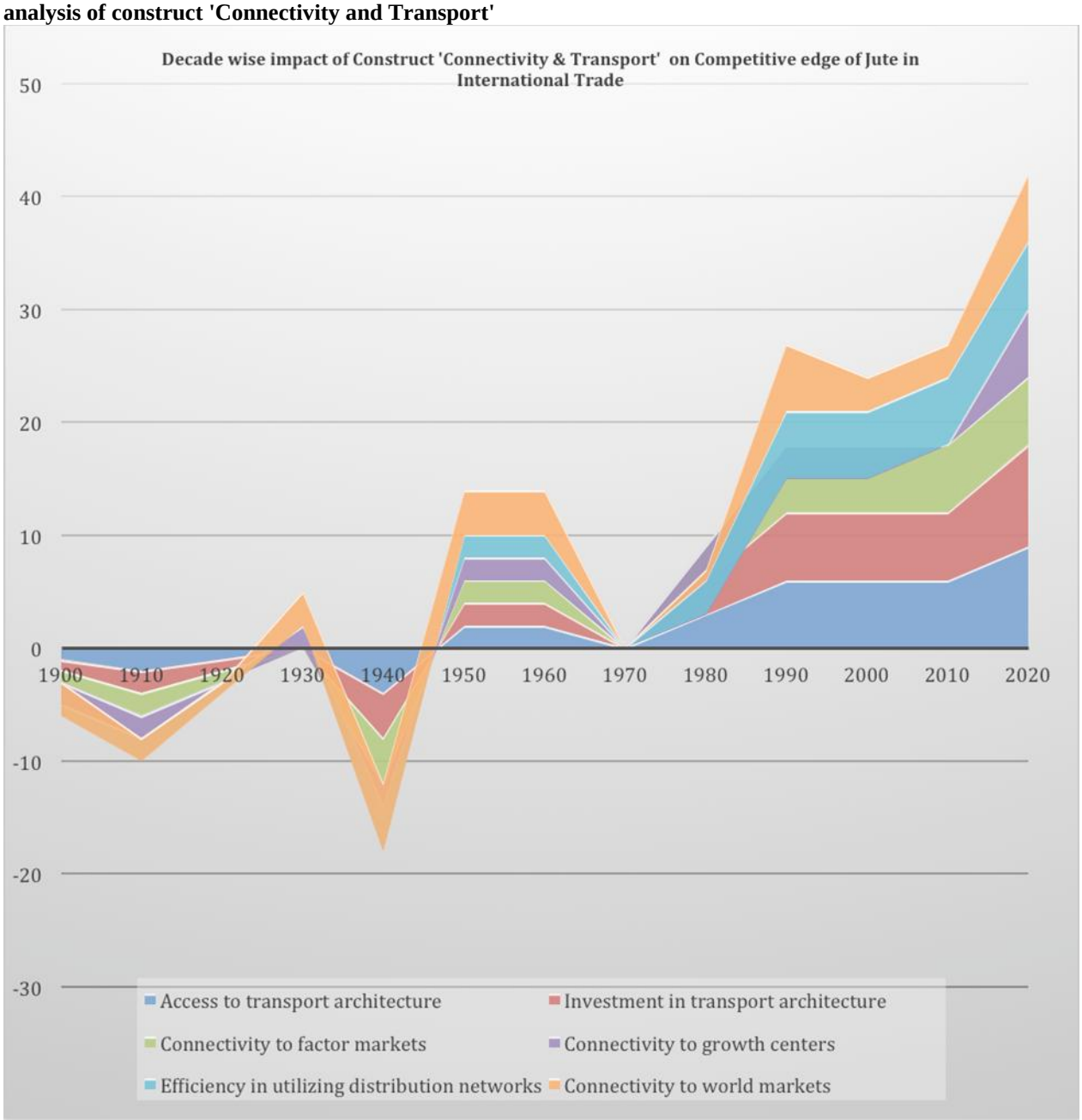
Research and Development has had a low positive impact, followed by high positive impact since the 1940s and a relatively very high positive impact since the 1960s. The need and importance of this parameter has been rising overtime due to higher levels of education, awareness, greater demand, technological innovation etc.

Product Variety has had a low positive impact, followed by high positive impact since the 1930s and a relatively very high positive impact since the 1960s. The need and importance of this parameter has been rising overtime due to higher product diversification as a result of improved farming methods, innovation, rising levels of education, , greater demand for diverse jute products, technological innovation etc.

Infusion of Advanced Technology in Manufacturing has had a low positive impact, followed by high positive impact since the 1940s and a relatively very high positive impact since the 1980s. The need and importance of this parameter has been rising overtime due to higher levels of education, awareness, skills, greater demand, technological innovation etc.

Position in the Learning Curve has had a low positive impact, followed by high positive impact since the 1930s and a relatively very high positive impact since the 1970s. The need and importance of this parameter has been rising overtime due to higher levels of education, awareness, skills, better production methods, technological innovation and application.

Figure 36: Decade wise SDS Value (Composite, from both primary and secondary survey) for impact analysis of construct 'Connectivity and Transport'



Since The 1900s-

Access to Transport Architecture has had a low positive impact, followed by high positive impact since the 1930s and a relatively very high positive impact since the 1970s. The need and importance of this parameter has been rising overtime due to higher demand levels, overall development in infrastructure, rising trade, and development of domestic and international markets.

Investment in Transport Architecture has had a low positive impact, followed by high positive impact since the 1930s and a relatively very high positive impact since the 1970s. The need and importance of this parameter has been rising overtime due to higher levels of, physical capital, rising trade and demand, development of domestic and international markets and overall investment in infrastructure. Since the 1900s, position in the learning curve has had a low positive impact, followed by high positive impact since the 1930s and a relatively very high positive impact since the

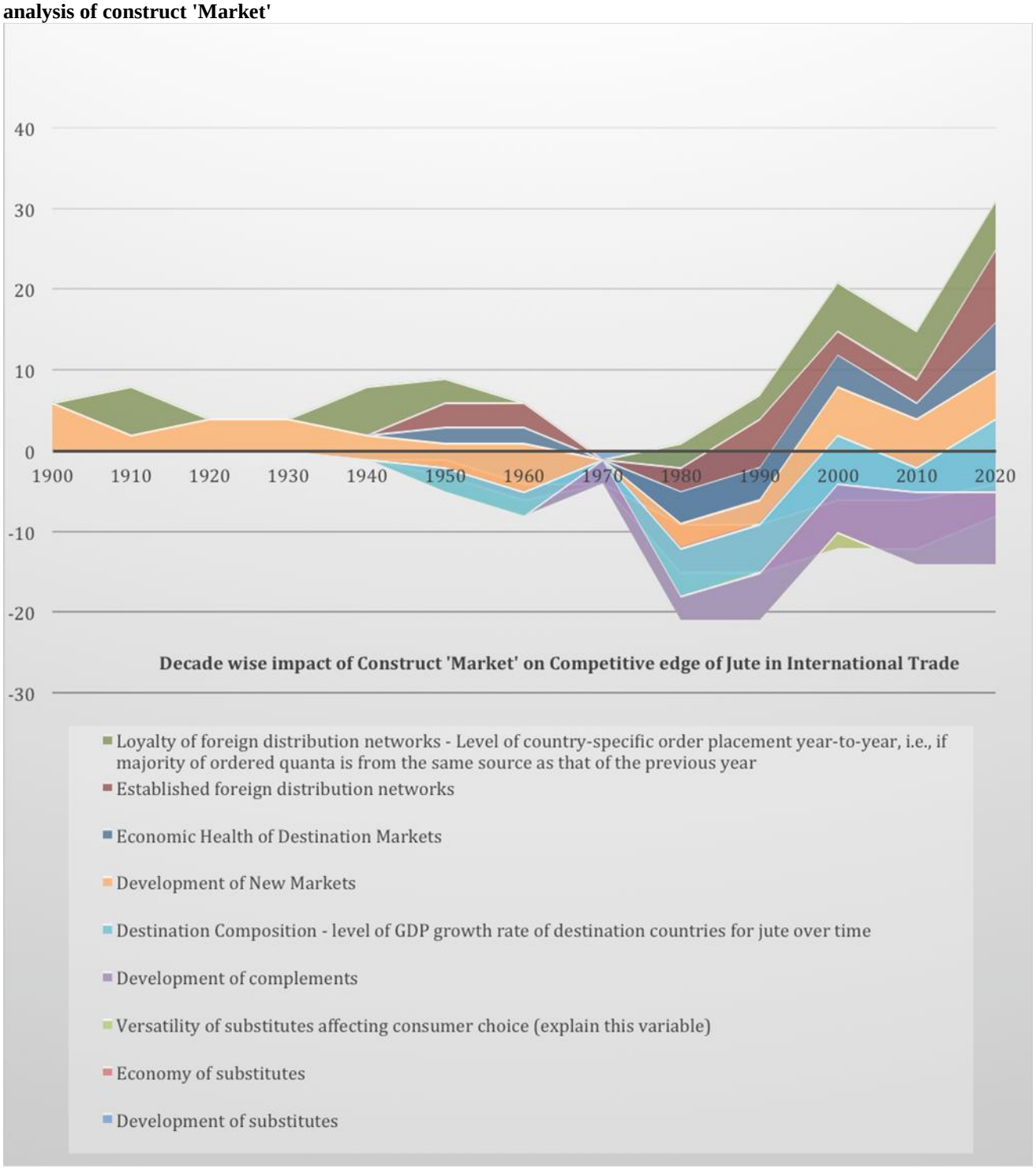
1970s. The need and importance of this parameter has been rising overtime due to higher levels of, physical capital, rising trade and demand, development of domestic and international markets and overall investment in infrastructure.

Connectivity to Growth Centres has had a high positive impact and a very high positive impact since the 1970s on jute production. With the rise in private property ownership, liberalization, increased mechanization induced by higher demand and greater domestic trade, this parameter has risen further in importance.

Efficiency in Utilizing Distribution Networks has had a low positive impact, followed by high positive impact since the 1930s and a relatively very high positive impact since the 1980s. The need and importance of this parameter has been rising overtime due to higher levels of, physical capital, rising trade and demand, development of domestic and international markets, overall investment in infrastructure.

Connectivity to World Markets has had a low positive impact, followed by high positive impact since the 1940s and a relatively very high positive impact since the 1980s. The need and importance of this parameter has been rising overtime due to higher levels of physical capital - like roads and transportation, rising world trade and demand, development international markets, overall investment in infrastructure.

Figure 37: Decade wise SDS Value (Composite, from both primary and secondary survey) for impact analysis of construct 'Market'



Since the 1900s-

Since *development of substitutes (like synthetic fibers)* did not take place, there was no impact, but by 1940s, it has a low negative impact on jute production with a relatively high negative impact since 1960s and further a very high negative impact since the 1980s due to development of

substitutes. However this importance relatively fell again due to rise in carbon footprint consciousness and environment friendliness, making jute more popular again.

The Economy of Substitutes did not take place, there was no impact, but by 1920s, it has a low negative impact on jute production with a relatively high negative impact since 1960s and further a very high negative impact since the 1980s due to development of substitutes. However this importance relatively fell again due to rise in carbon footprint consciousness and environment friendliness, making jute more popular again. Since the 1900s, development of complements has had a high positive impact and a very high positive impact since the 1940s on jute production. This is because, more the demand for complements, higher the demand for jute.

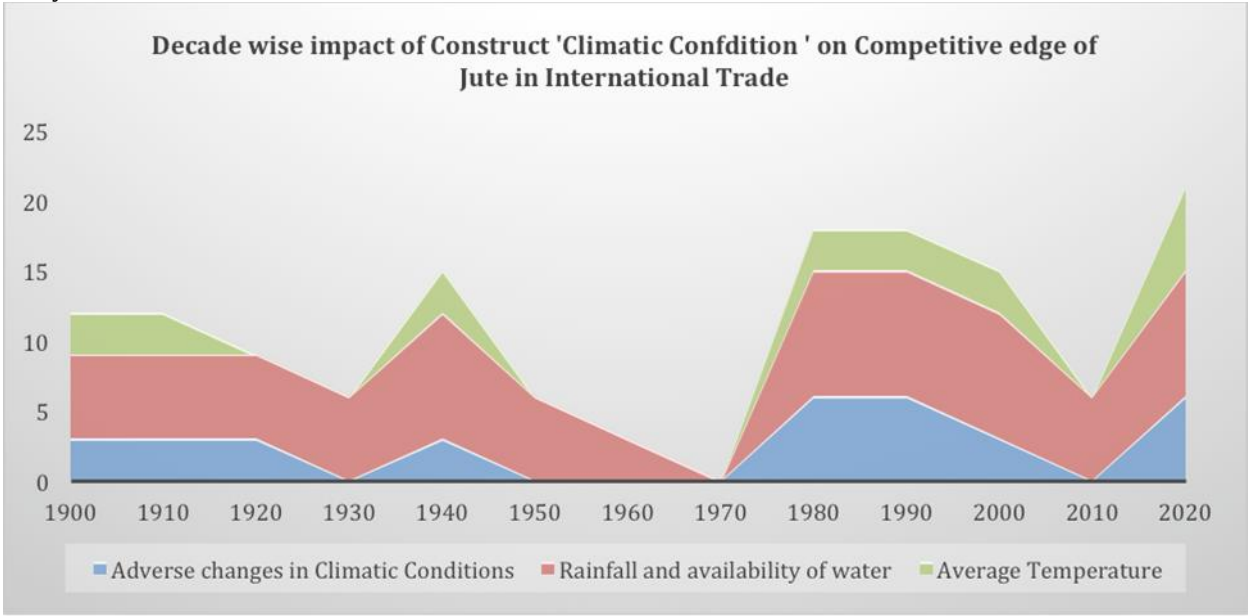
Destination Composition has had a high positive impact and a very high positive impact since the 1940s on jute production. Since the 1900s, development of complements has had a high positive impact and a very high positive impact since the 1940s on jute production, rising domestic and world trade and demand, development international markets, overall investment in infrastructure.

Economic Health of the World Markets has had a low positive impact, followed by high positive impact since the 1940s. The importance of this parameter has risen overtime due to higher rising GDP of the destination countries, higher demand for jute and allied products there inducing greater import volumes, overall rise in world trade and demand, development of international markets, investment in infrastructure etc.

Foreign Distribution Networks has had a high positive impact and a very high positive impact since the 1940s on jute production. With the rise liberalization, increased mechanization induced by higher demand and overall rise in world trade and demand, development of international markets, investment in infrastructure etc., this parameter has risen further in importance.

Loyalty of Foreign Distribution Networks has had a high positive impact and a very high positive impact since the 1940s on jute production. With the rise liberalization, increased mechanization induced by higher demand and overall rise in world trade and demand, development of international markets, investment in infrastructure, consistent product quality, favorable pricing and foreign relations among different countries; this parameter has risen further in importance.

Figure 38: Decade wise SDS value (Composite, from both primary and secondary survey) for impact analysis of construct 'Climatic Conditions'



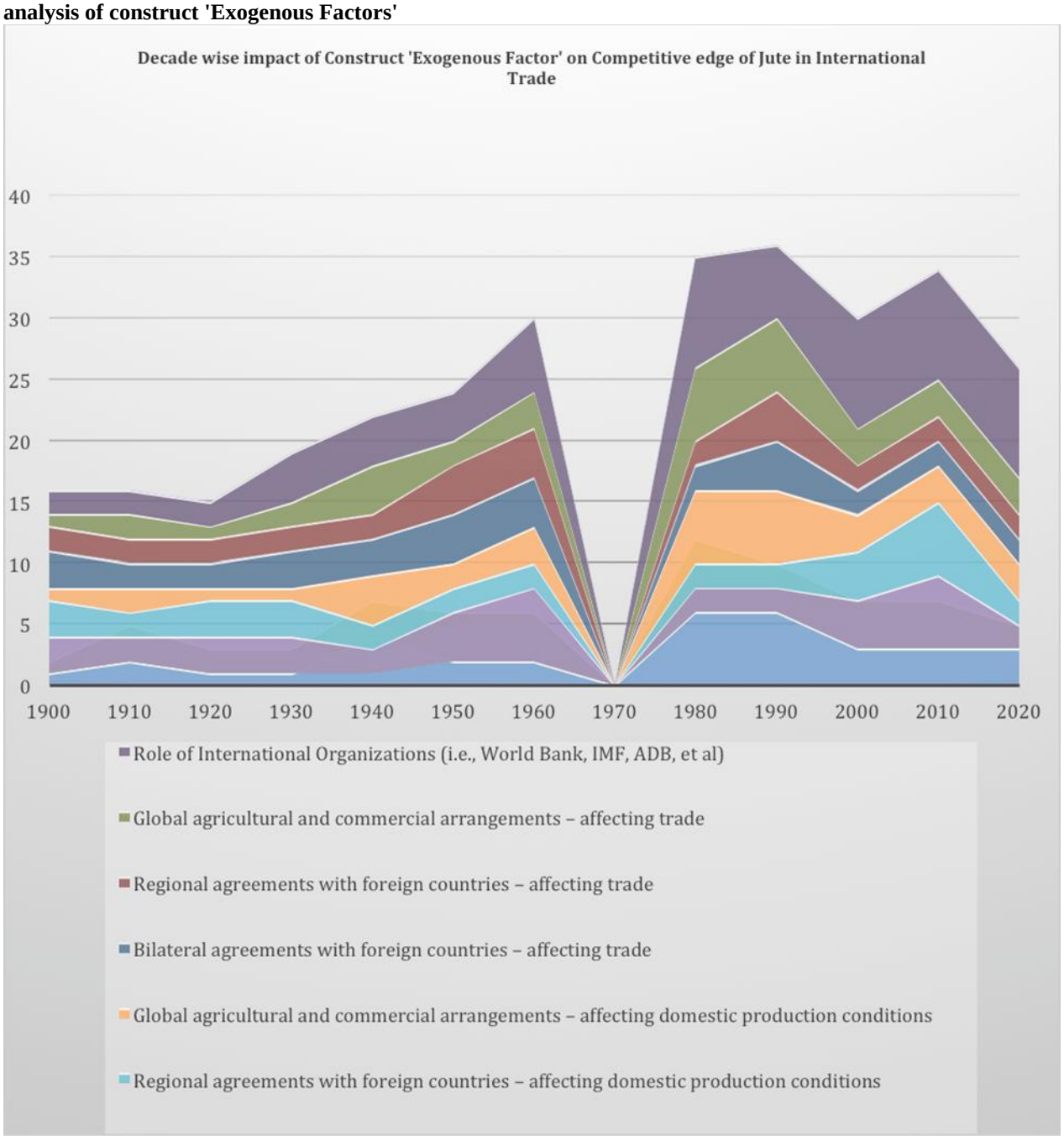
Since the 1900s –

Adverse Changes in Climatic Conditions has had a very high positive impact on jute production. The importance of this variable has been consistent and stable over the years owing to the rain fed cash crops, requiring fixed set of climatic conditions for a particular kind of product quality.

Rainfall and Water Availability has had a very high positive impact on jute production. The importance of this variable has been consistent and stable over the years owing to the rain fed cash crops, requiring fixed set of climatic conditions for a particular kind of product quality, fixed level of rain or water inputs through irrigation and other sources.

Average Temperature has had a very high positive impact on jute production. The importance of this variable has been consistent and stable over the years owing to the rain fed cash crops, requiring fixed set of climatic conditions and a set average temperature for a particular kind of product quality.

Figure 39: Decade wise SDS Value (composite, from both primary and secondary survey) for impact analysis of construct 'Exogenous Factors'



Since the 1900s-

Entrepreneurial Capability has had a low positive impact, followed by high positive impact since the 1940s and a relatively very high positive impact since the 1980s. The need and importance of this parameter has been rising overtime due to higher need for managerial efficiency, greater outputs and growth, liberalization and privatization in the sector and to avoid large losses and overhead costs incurred by national and private jute industries.

Social Stability has been fluctuating, but the importance of this variable has been of having a low positive impact on jute production. During the wars and the partition years, this impact has fallen further and then relatively increased to a high positive impact again.

Social Unrest has been fluctuating, but the importance of this variable has been of having a low negative impact on jute production. Since the partition of 1947 followed by the 1971 war of liberation, the jute industry, production, ownership and trade was majorly hit, followed by spurts of social instability till date.

Bilateral Agreements Affecting Domestic Production conditions has had a low positive impact, followed by high positive impact since the 1960s. The need and importance of this parameter has been risen overtime due to higher need for international negotiations, smoother bilateral trade relations with concerned countries and removing different barriers apart from maintaining reciprocity for favorable domestic production environment and exports led growth.

Regional Agreements Affecting Domestic Production conditions has had a low positive impact, followed by high positive impact since the 1960s. The need and importance of this parameter has been rising overtime due to higher need for international negotiations, smoother regional trade relations with concerned countries within a region to establish FTAs, and removing different barriers apart from maintaining reciprocity for favorable domestic production environment and exports led growth.

Global Agricultural and Commercial Arrangements Affecting Domestic Production conditions has had a low positive impact, followed by high positive impact since the 1940s. The need and importance of this parameter has been rising overtime due to higher need for international negotiations, smoother international trade with concerned countries across the globe, establish FTAs, removing different barrier, conflict resolutions apart from maintaining reciprocity for favorable domestic production environment and exports led growth.

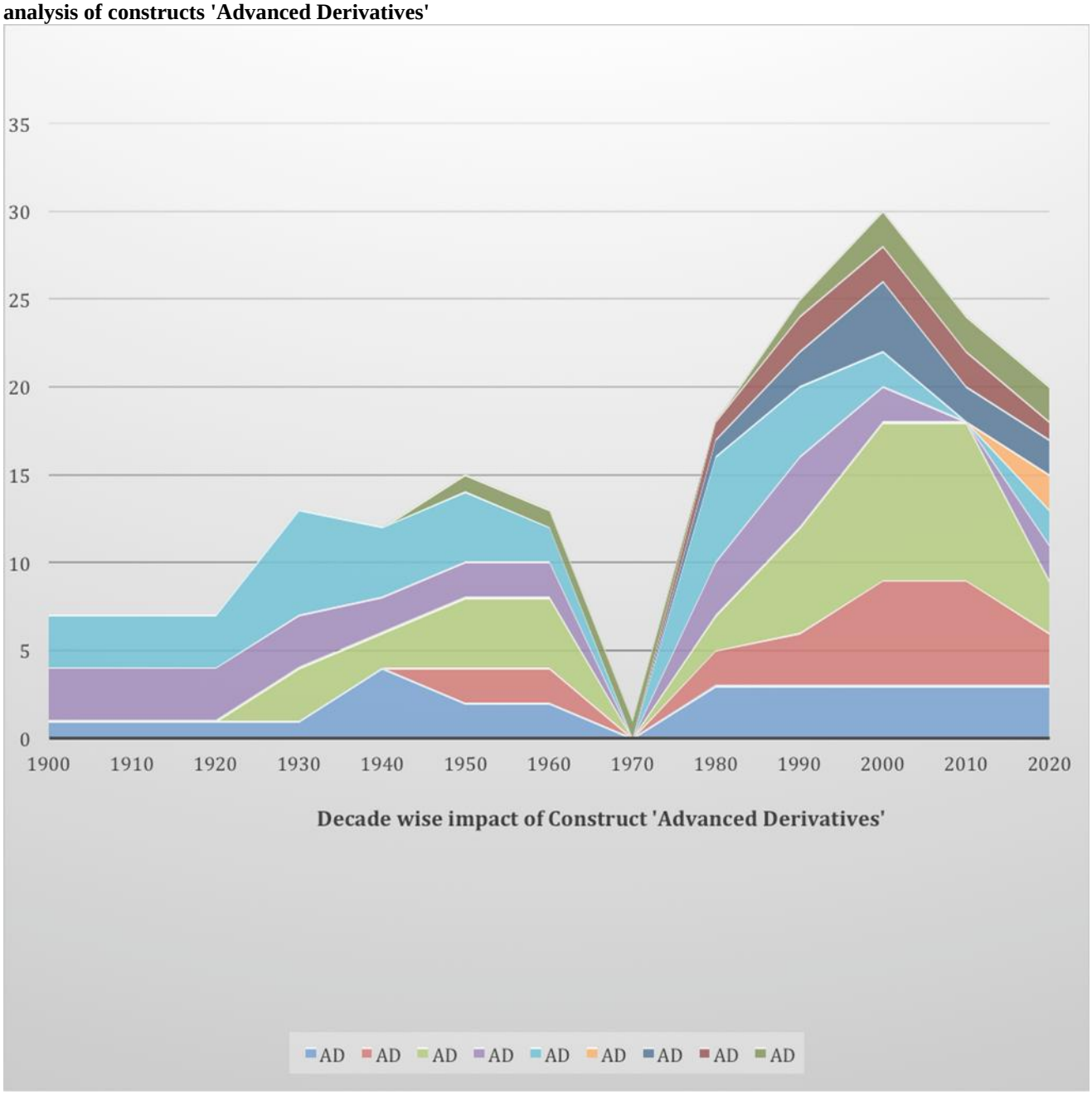
Bilateral Agreements Affecting Trade Conditions has had a low positive impact, followed by high positive impact since the 1950s. The need and importance of this parameter has been risen overtime due to higher need for international negotiations, smoother bilateral trade relations with concerned countries and removing different barriers apart from maintaining reciprocity to ensure favorable international bilateral trade environment.

Regional Agreements Affecting Trade Conditions has had a low positive impact, followed by high positive impact since the 1930s. The need and importance of this parameter has been rising overtime due to higher need for international negotiations, smoother regional trade relations with concerned countries within a region to establish FTAs, and removing different barriers apart from maintaining reciprocity for favorable regional trade environment.

Global Agricultural and Commercial Arrangements Affecting Trade Conditions has had a low positive impact, followed by high positive impact since the 1930s and very high positive impact since the 1960s. The need and importance of this parameter has been rising overtime due to higher need for international negotiations, smoother international trade with concerned countries across the globe, establish FTAs, removing different barrier, conflict resolutions apart from maintaining reciprocity for favorable trade environment.

Role of IOS Affecting Trade Conditions has had a low positive impact, followed by high positive impact since the 1930s and a very high positive impact since the 1960s. The need and importance of this parameter has been rising overtime due to higher need for international negotiations, smoother international trade with concerned countries across the globe, establish FTAs, removing different barrier, conflict resolutions apart from maintaining reciprocity for favorable trade environment.

Figure 40: Decade wise SDS Value (Composite, from both Primary and Secondary Survey) for impact analysis of constructs 'Advanced Derivatives'



Since the 1900s-

Product diversification has had a low positive impact, followed by high positive impact since the 1940s and a very high positive impact since the 1980s. The need and importance of this parameter has been rising overtime due to greater mechanization, need for new and diversified jute productions, development in R&D, technological innovation, greater world and domestic demand and lately due to the consciousness about carbon footprints.

New Usages of Existing Products have had a low positive impact, followed by high positive impact since the 1940s and a very high positive impact since the 1980s. The need and importance of this parameter has been rising overtime due to greater mechanization, need for new and diversified jute productions, development in R&D, technological innovation, greater world and domestic demand and lately due to the consciousness about carbon footprints.

Branding was negligible and therefore had no impact on the jute sector. Since the 1930s, with minimalist development of jute branding, it had a low positive impact on Bangladeshi jute, had a high positive impact since the 1950s and a very high positive impact since the 1990s. The need and importance for this parameter has been rising overtime due to differential product varieties and qualities, international competition, rising competition with synthetic fibers, rise in marketing of products and need to raise exports and revenue for the sector.
Composite Farming was almost negligible in jute production, having a low positive impact followed by high positive impact since the 1960s. The importance of this parameter has been rising overtime due to greater mechanization, need for new and diversified jute productions, and lack of land availability overtime, greater world and domestic demand.
Contract Farming had a low positive impact followed by high positive impact since the 1930s. The importance of this parameter has been rising overtime due to availability of cheap labor, higher profit making through hiring contractual and seasonal laborers, productions, lack of land availability overtime, greater world and domestic demand, need for greater supplies and product diversification.
Wholesale Farms began to have a low positive impact since the 1930s and a high positive impact since the 2000s due to increasing importance of jute as an environment friendly golden fiber, integration of factor markets etc.
Portfolio Investments in the jute sector with minimalist development since the 1940s lead to low positive impact on the sector, followed by a high positive impact since 2000s. The importance of this parameter has been rising overtime due greater indirect investments in all sectors, integration of factor markets and financial market.
Since the 1900s, there has been no *Total Value Chain* of ownership in the jute sector until late 1950s, after which there has been a low positive impact on the sector. The importance of this parameter has slightly risen lately due integration of jute production in the farms, to jute industry and trade and even with the marketing and branding of jute products. Greater securitization of assets, indirect financial investments, integration of factor markets and financial markets has also taken place since early 2000s. Finally a value chain ownership in terms of building regional networks in jute trade also carries huge potential for the sector.

4.2 Analyzing markets which could host (a) products, (b) services, and (c) farming solutions from Bangladesh in terms of (a) revenue generating capabilities, (b) revenue sustainability, and (c) employment generation capabilities – in the backdrop of major multilateral and regional trade negotiations

4.2.1 Secondary Reasoning: Multilateral Trading Regime, Scenarios for Bangladesh

One study has shown very disheartening results for Bangladesh across different cases and scenarios for economic integration and free-trading arrangements[551]. Like many other developing countries, Bangladesh is facing the issue whether to engage in bilateral trade agreements with industrialized countries, whether to engage in regional trade agreements with neighboring countries and what position develop in the WTO Doha round. We analyze several trade liberalization scenarios for Bangladesh. Multilateral agreements in the framework of the WTO are compared with regional agreements in the framework of SAFTA. The paper argues that the imminent completion of the Agreement on Textile and Clothing (ATC) leads to a welfare loss for Bangladesh. Bangladesh's textile and wearing apparel industries have by now free access to the EU, its most important export market. A further multilateral trade liberalization of trade in these products erodes the Bangladeshi position vis-à-vis its competitors. A simulation of the WTO proposals tabled by the EU and the USA shows that there is little reason to expect that the Doha Round will mitigate the situation for the Bangladesh garment industry. However, in terms of prospects for the garment sector, the EU proposal compares favourably to the USA proposal because it entails zero tariffs from imports from LDCs and it allows Bangladesh to protect its own industry.

Due to unbalanced trade relations to its neighbour's countries also the regional trade liberalization of the South Asian Free Trade Association (SAFTA) is not favourable. For the analysis we introduced economies of scale into the general equilibrium model of the Global Trade Analysis Project (GTAP).

A special feature of Bangladesh's foreign trade is its heavy bias towards trade in wearing apparel. Around two third of Bangladesh's exports are generated in the trade of textile and wearing apparel. Bangladeshi exporters are confronted with export quotas, due to the Multifibre Agreement (MFA), and with considerable import tariffs in industrialized countries. An exception is the EU market, which provides tariff- and quota free access. A change in export quota or in tariffs directly affects the Bangladesh economy[552].

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[551] Section drawn on article, titled, "Multilateral and Regional Trade Agreements: Options for Bangladesh
6th Conference on Global Economic", The Hague, The Netherlands, June 12 – 14, 2003, 29th April 2003, by Markus Lips, Andrzej Tabeau and Frank van Tongeren; Agricultural Economics Research Institute (LEI), Burgemeester Patijnlaan 19, PO box 29703, 2502

[552] The presence of economies of scale potentially leads to an expansion of industries at a faster rate than the expansion of inputs. The degree of scale economies is typically measured by the Cost Disadvantage Ratio (CDR):

CDR = AC/ MC

Clearly, CDR > 1 if the firm is on the downward sloping part of the Average cost curve, AC. That is, average cost exceed marginal cost, MC. Following Francois (1998), we introduce (external) scale economies into the standard GTAP model by introducing a relation between the change in aggregate inputs, qva(i,r), and the scale of output, using a technology shifter in the production function, aoall(i,r):

aoall(i, r) = SCALE(i, r) * qva(i, r)

Where:
SCALE = (AC – MC) / MC

The paper which has been quoted in this part of the research[553] analyzed several trade policy changes under presence of economies of scale[554]. In all of them Bangladesh suffers a welfare decrease. Multilateral agreements in the framework of the WTO are compared with regional agreements in the framework of SAFTA. The paper argues that the imminent completion of the Agreement on Textile and Clothing (ATC) leads to a welfare loss for Bangladesh. Bangladesh's textile and wearing apparel industries have by now free access to the EU, its most important export market. A further multilateral trade liberalization of trade in these products erodes the preferential position vis-à-vis its competitors[555]. A simulation of the WTO proposals tabled by the EU and the USA shows

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[553] Ibid

[554] Ibid

[555] The ATC was decided in the Uruguay Round and has replaced the Multi Fiber Agreement (MFA). It includes a complete phase out of quantitative restriction for textiles and wearing apparel. Although there are some doubts that the ATC will really go into place as planned (Reinert 2000, p.29) it has ben assumed that it will be the case. The quota rents, which result from the export quotas, are included as tariff equivalents in the GTAP 5 database (Francois and Spinanger, 2002). Eliminating export quotas in the simulation means that the tariff equivalents are completely dismissed. Export quota for Bangladeshi exports to the EU do not exist anymore since 1997, and imports into the EU face no import tariffs. For imports, it has also been assumed that the rule of origin for textiles as well as the export licenses for textile and clothing products, which are falling under the surveillance system, have just an administrative nature and do not represent a barrier to exports.

Since the EU is the most important importer of Bangladeshi textile and wearing apparel both matters of fact have a huge impact. If a trade liberalization like the ATC is analyzed in the presence of economies of scale, a strong specialisation process take place. Accordingly, in the base scenario worldwide production of wearing apparel is reallocated. The largest effect shows India with an increase of 161%. Like India, export quotas also heavily restrict China. The removal of them leads to an increase of 40% of the wearing apparel production. Due to free access to the EU, the CEEC and Turkey are also largely expanding their production. Decreases take place in importing regions (EU, USA, Canada). Central America faces also a strong reduction of its wearing apparel productions. The exports to its most important importer the USA are mostly replaced by Indian and Chinese wearing apparels. The effect on Bangladesh is similar.

A comparison with a similar application without economies of scale (Lips et al. 2003) shows that the specialisation process is much stronger in the presence of economies of scale. Without them, the Indian and Chinese wearing apparel sectors are increasing less.

Looking at the results of the related sectors it turns out that the textiles and fibres production in most regions show a modest impacts of the ATC. There are two reasons for that. First, in most regions the textile sector is larger than the wearing apparel industry. Accordingly, a large increase of wearing apparels leads to just a small effect in the textile sector as it is the case for India. Second, in most regions the sector fibres is delivering an important part of its output to other users than the textile sector (for example rAGR and Food).

The ATC improves the worldwide welfare with about $ 14 billion. The EU and the USA, both net importers of textiles and wearing apparel, exhibit the largest welfare gains. Two effects are contributing. First, the removal of export quotas reduces the price of wearing apparel imports through a removal of quota rents. This is an improvement of the Terms of Trade. Second, reducing the domestic production of wearing apparel, the factors are allocated to more efficient industries, which results in a positive allocation effect. While India can benefit from the ATC, the free access to the EU market brings also a remarkable welfare improvement to the CEEC and
Turkey.

The elimination of the export quotas leads to a decrease of the Bangladeshi wearing apparel production of 20% (Table 4). The reason is that other wearing apparel exporters especially India and China are relatively more restricted by the ATC. They have larger quota rents to reduce and consequently larger price decreases in the importing countries. In addition, since Bangladesh has free access to the EU its exports become relatively more expensive compared to the imports from the CEEC and Turkey, which get also free access. Due to an increase of exports the sector leather products shows an output change of 30%. Leather products are not affected by the ATC. The impact on the Bangladesh economy is modest since the sector leather production is rather small. Altogether, production and hence factor prices are decreasing. The values of exports as well as imports decline. An import substitution process is going on. The decomposition of the Equivalent Variation shows that Bangladesh's welfare change is dominated by a negative Terms of Trade effect of $ 340 million. A negative Terms of Trade effect can be caused by a decrease of export prices, or an increase of import prices. Both effects

that there is little reason to expect that the Doha round will mitigate the situation for the Bangladesh garment industry.

Nevertheless, it makes an important difference for Bangladesh whether the EU or the USA proposal is adopted in the Doha Round. The EU proposal is clearly more favorable[556].

The introduction of a regional free trade agreement (SAFTA) is neither a possibility for Bangladesh from an economic point of view, since also a welfare reduction results. The reason here is the unbalanced trade relations to the neighbor countries, especially India. While regional trade agreements unusually enable the smaller partners to gain access to a larger market, and hence experience gains from trade creation, which are larger than the losses from trade diversion, this is perhaps not the case in SAFTA. Bangladesh's exports are biased towards destinations outside the SATA region, and it depends heavily on imports from India[557].

Although economies of scale was introduced, in none of the analyzed scenarios a significant specialization of the Bangladesh economy takes place. Only one sector (leather products) shows a tremendous increase of production. The impact on the whole economy is negligible since this sector is very small.

The Systematic Sensitivity Analysis shows that the leather production and wearing apparel sector reacts quite sensitive on the size of the CDR coefficient. Latter is necessary for the introduction of economies of scale[558].

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are present here. Through the elimination of export quota rents the Bangladeshi exports become cheaper. At the same time imports from India show an increase in prices.

[556] In the Swiss Formula, the new tariff (t_1), is calculated with this formula:

$$t_1 = \frac{25 * t_0}{25 + t_0}$$

where t_0 is the old tariff. Both tariffs (t_0 and t_1) are measured in percent.

While the EU wants to reduce bound tariffs the USA claims a reduction of applied tariffs. The bounded tariffs can exceed the applied tariffs dramatically.

[557] The introduction of the SAFTA has a rather modest impact on its member countries. The stimulation of the regional trade increases welfare in all SAFTA countries except Bangladesh. India benefits most of the agreement and faces an improvement of $ 319 million compared with the first scenario. The welfare changes relative to the base scenario are minimal for all non-SAFTA regions. They are not affected.

The tariff elimination within the SAFTA stimulates trade between the member countries. Bangladesh imports more food and manufacturing goods from its neighbors. At the same time more Bangladeshi wearing apparels can be exported, which is partly neutralizing the output decrease from the ATC. Both exports and imports are relatively increasing. Nevertheless, it results a welfare loss for Bangladesh, which is larger than those of the first scenario. The reason is the unbalanced trade relation between Bangladesh and the others member countries of the SAFTA. The most extreme example is India, which has exported in 1997 roughly 20 times more (in value terms) to Bangladesh than the other way round. When Bangladesh reduces its tariffs, more imports from India, an increase of the Indian production and finally an increase of Indian factor prices result. Measured at the cost insurance freight (CIF) price level, the Bangladeshi imports from India become more expensive. Due to the unbalanced trade relation, the Terms of Trade are worsening.

[558] Ibid;

Both Doha Round scenarios (3 and 4) illustrate very clearly, that a worldwide trade liberalization results in large welfare gains. While the US proposal is more profitable for the industrialized countries (hASIA, EU, USA and Canada) the EU proposal is more balanced.

The impact of the EU and the US proposal of the Doha Round are quite different on Bangladesh. In the EU proposal all developed countries eliminate their import tariffs for developing countries. In contrast, the developing countries can keep

4.2.2 Jute and Hard Fibres Group – a Primer

Jute (Corchorus capsularis & Corchorus olitorius), Kenaf (Hibiscus cannabinus) and Roselle (H. sabdariffa var (Altissima) are vegetable bast fibre plants next to cotton in importance. In the trade there are usually two names of jute, White and Tossa. Corchorus capsularis is called White Jute and Corchorus olitorius is called Tossa Jute. . In general usually in India both kenaf and mesta designated as mesta. Jute fibres are finer and stronger than Mesta and are, therefore, better in quality.

Depending on demand, price and climate, the annual production of jute and allied fibres in the world remains around 3.5 million tonnes.

The fibre finds its use in the producing as well as in consuming countries in the agricultural, industrial, commercial and domestic fields. Sacking and Hessians (Burlap) constitute the bulk of the manufactured products. Sacking is commonly used as packaging material for various agricultural commodities viz., rice, wheat, vegetables, corn, coffee beans etc. Sacking and Hessian Cloth are also used as packing materials in the cement and fertilizer manufacturing industries (New J.H. 1993). Fine Hessian is used as carpet backing and often made into big bags for packaging other fibres viz. cotton and wool.

Jute ranks next to cotton as a natural fibre. Jute is a bast fibre crop along with a family of few other natural fibres together generally called as Jute & Allied Fibre Crops (JAF). They mainly occur in the equatorial, the tropical and the sub-tropical zones. The main species of jute and kenaf, which are the major components of JAF, under cultivation include tossa jute (Corchorus olitorius), white jute (C. capsularis), kenaf (Hibiscus cannabinus) and roselle/ mesta (H. sabdariffa)

The preference for cultivation of one species or the other varies from country to country. Jute is preferred by Bangladesh, India and Nepal; and kenaf is mainly grown in China and Indonesia, while roselle/ mesta is preferred in Thailand. The cultural and other aspects of JAF crops are more or less the same while the fibre characteristics differ. The fibres of jute are relatively finer than those of kenaf and roselle; together these are called 'raw jute' because of vast similarity in majority of the characteristics and their use. Of the two jute contributes the major share of production.

The prominent genera in this group of JAF are Corchorus and Hibiscus. In fact, Corchorus, a genus of the family Tiliaceae and Hibiscus of Malvaceae, share more or less the same pattern of geographical distribution as they are related phylogenetically. Both belong to the same sub-order Malvineae of

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their tariffs. Bangladesh can increase its exports especially processed food to the EU and the US. Compared to the first scenario the production is increasing with more than 10%. The demand for factors is larger, a factor price raise of 5% results. Compared to the Base scenario, welfare is improving by more than $ 300 million.

The US proposal suggests the same treatment for all countries. The tariff reduction enables more Bangladeshi exports of wearing apparel. The production of wearing apparel increases by nearly 21% compared with the first scenario. There are two reasons, which explain the difference of the Bangladeshi wearing apparel sector in scenarios 3 and 4. First, the tariff cuts under the US proposal are deeper and this enables more exports to the US and Canada. Second, in the WTO-USA scenario factor prices are reduced and this leads to a decrease of production costs in all sectors. At the same time the textile sector reduces its output quantity by almost 8%. The Bangladeshi textile sector is protected by a remarkable import tariff. Unlike the EU proposal the US proposal schedule also tariff reductions for developing countries. Hence, in scenario 4 textile imports are increasing while domestic production is reduced. Since this sector is quite important for the whole economy a reduction of factor prices is the consequence. Cheaper factor prices are reflected in all output prices, which leads also to a price decrease of exports and finally a worsening of Terms of Trade of more than $ 220 million. Since the allocation efficiency exceeds $ 300 million, the Equivalent Variation is about $ 83 million higher than in the first scenario. The reduction of import tax of the textile sector plays an important role and makes the Bangladesh economy vulnerable. Compared to that, the remarkable increase of the sector leather products, which is driven by lower factor prices and economies of scale, has a minor influence.

the order Malvales. The number of Corchorus species is probably around 50–60, but over 170 Corchorus names are given in the Index Kewensis. The genus is extremely variable, but all species are apparently highly fibrous.

Corchorus species are found in warm regions throughout the world, on all continents and on numerous tropical and sub-tropical islands. However, the centre of diversity and origin of the genus appears to be Africa, where the largest number of Corchorus species, around 30 has been found with highest concentration reported from East and South Africa. Of the cultivated species C. capsularis is omnipresent in Indo-Mynamar and South China, from where it migrated into India and Bangladesh. In contrast, C. olitorius originated from North Australia and Africa. Though many workers earlier held the view about this species being native to Sri Lanka, India and Kenya, it is now generally agreed to have originated in Africa and migrated to India and China via Egypt and Syria.

The jute and hard fibres (JHF) group encompasses a range of natural fibres, which are produced from different plants grown almost exclusively in the developing world. According to the inherent characteristics and the prevailing end-use of the fibre, the whole group can further be subdivided into two major groups, namely: (a) jute, kenaf and allied fibres, belonging to soft fibres; and (b) sisal and henequen, plus two minor fibres, coir and abaca, which are hard fibres. The main traditional use of jute and kenaf (called also hard jute) has been in the packaging market as cloth and sacks. Bags made of these fibres are widely used for the transport and storage of agricultural products, fertilizers, cement and some chemicals. The bulk of sisal and henequen production, both of which are produced from plants belonging to the agave family, goes into the harvest twine. For abaca, it goes into specialty papers and ropes, for white coir (coir being a coconut fibre) into floor coverings and for brown coir into rubberized pads and mattresses. Applications of these fibres overlap only at the margins, with jute and sisal also being used in the production of paper, sisal and coir in floor coverings and abaca and coir in ropes. In no case, however, does any of these fibres share a major end-use with another one.

The jute group holds a dominant position among the fibres in terms of its share in the world output of raw fibre (82 per cent in 1992/93) and in the world trade in raw and processed fibre products (72.6 per cent in 1992/93), followed by sisal and henequen (8.7 and 12.8 per cent, respectively), coir (7.4 and 5.6 per cent) and abaca (1.9 and 9.0 per cent). JHF are relatively unimportant in terms of value in international trade if compared to many other commodities - their combined share in all developing country merchandise exports in 1992 only slightly exceeded O.1 per cent, totaling US$ 837 million. Despite this fact, the production and trade in these fibres have an important positive impact on a number of developing countries. First, they represent one of the rare commodities that are not only almost exclusively cultivated in developing countries, but for which also a great part of processing takes place in this part of the world. This trend has even been increasing over time. Secondly, JHF continue to contribute significantly to export earnings of some countries, such as Bangladesh where exports of jute and jute products accounted for 7.4 per cent of the country's export earnings in 1990/91. Thirdly, the cultivation and processing of JHF are relatively labour intensive and, hence, job creating. As a result, they provide significant economic support to the population in certain most impoverished and least developed areas of a number of producing countries. Growing JHF is at times the only source of cash income for large populations of subsistence farmers. For example, more than 12 million farm families are engaged in the cultivation ofjute in the Asia-Pacific region[559]. In India alone, about 4 million farmers obtain their livelihood from growing jute and an additional 250,000 workers are employed in the jute industry[560].

[559] International Jute Organization: Jute and the IJO, Dhaka 1994, p.9.

[560] B.L. Sharma: Trade barriers to diversified jute products from India, ESC: JU/IC 93/18, FAO, Rome 1993, p.3

These are only glimpses of a much wider network of information and assumptions which define this magnificent trading commodity – whose value-chain transcends boundaries of production, manufacturing, trading and logistics.

Jute processing forms one of the core pillars of this research. Therefore, the next couple of paragraphs will debrief the reader about the intricacies of the processing features associate with jute.

4.2.2.1 Varieties of Jute

A number of jute varieties have been developed and released in different countries[561] [562].

Bangladesh

A number of white and tossa jute varieties has been released in Bangladesh since the beginning of research in the first decade of twentieth century. These include 21 white and 10 tossa jute varieties and are as follows:

White jute: Kakya Bombai, R-85, D-154, D-386, Funduk, C-212, C-13, C-321, C-412, C-1, C-2, C-3, C-4, C-5, C-6, CVE-3, CVL-1, CC-45, BJC-83, BJC-7370, & C-38

[561] Reproduced from http://jute.org/variety.htm

[562]

Jute and Allied Fibres (JAF) are produced in many countries. India, Bangladesh, China, Thailand, Myanmar & Nepal are the major producir produce about 95% of the global production of JAF. India and Bangladesh produce mostly jute, China produces mostly kenaf while Thailar roselle.

In Nepal, Jute is grown in about 11000 ha in Tarai belt of Eastern part of Nepal. In Thailand JAF are cultivated in about 20,000 ha. In India about 1,000,000 hectares. Most of the production comes from the States of West Bengal, Bihar, Assam, Orissa, Andhra Pradesh & Tripura

Bangladesh grows mainly jute, only about 10% kenaf and roselle in 500,000 hectares. China grows mainly kenaf and only about 10% jute i Indonesia JAF are grown in 10,000-20,000 hectares.

Area and yield of jute and allied fibre production in major producing countries.

Country	Area (2011/2012) ('000 ha)	Yield (2011/2012) (Ton/ha)
Bangladesh	620.2	2.13
China	19.0	3.68
India	790.0	2.51
Myanmar	8.2	0.46
Nepal	10.6	1.42
Thailand	1.4	0.93

Tossa jute: R-26, R-27, CG, O-2, O-3, O-4, O-5, O-9897, 0M-1 & O-72

China

In China, about 90% of the area is sown to kenaf (Hibiscus cannabinus) and about 10% to jute. The major area under jute is covered by white jute and relatively smaller area is under tossa jute.

White jute: Yue Yuan No. 5, 71–10, Capsularis No. 2, Mei-Feng No. 4

Tossa jute: Kuan Ye Xiang, Jute No. 1,2, Guangang, Guangfeng

India

A number of varieties has been released in India for both the species. These include 13 tossa and 12 white jute varieties.

White jute: JRC-321, JRC-212, JRC-7447, JRC-4444, UPC-94, Padma, KTC-1, JRC-698, Bidhan Pat 1,Bidhan Pat 2, Bidhan Pat 3, JRC-80

Tossa jute: JRO-632, JRO-878, JRO-7835, JRO-524, TJ-40, JRO-3690, KOM-62, JRO-66, JRO-8432, JRO-128, S-19 (Subala), Bidhan Rupali tossa, JRO-204 (Suren).

It is important to note that JRO-204 is recommended for sowing as early as in the first week of March in the Indian sub-continent.

Indonesia

In Indonesia, about 80% of the area is sown to kenaf (Hibiscus cannabinus), 15% to roselle (Hibiscus sabdariffa), while 5% is under white jute.

White jute: CC 15, CC 22

Nepal

In Nepal, about 63 percent of the area is sown to tossa jute and 37 percent to white jute as per record up to the end of the last century. The major varieties in use are however of Indian origin. These are as follows.

White jute: JRC – 321, JRC – 212, JRC – 7447

Tossa jute: JRO – 632, JRO – 524, JRO – 7835, JRO – 878

Thailand

In Thailand, about 80% of the area is sown to roselle (Hibiscus sabdariffa), 10% to kenaf (H. cannabinus) and 10% to tossa jute.

Tossa jute: Non Soong 1, Khon Kaen 1 (JRO-878)

4.2.2.2 Ecological Variables

Jute is a natural fibre with numerous environmental advantages. It is an annually renewable resource with a high biomass production per unit land area, and jute products being biodegradable decompose in the soil at the end of product life-cycle. Towards global warming, a concern of much importance in the present world, while the synthetic materials are being considered as the root of many problems, the natural fibre products are proven to be absolutely harmless.

4.2.2.2.1 Environmental Impact of Jute Agriculture

Jute has a high carbon dioxide (CO2) assimilation power. Atmospheric CO2 is the most important of the greenhouse gases responsible for global warming. Like all plants, jute uses CO2 as a way of making sugars. In the 100 days of the jute-growing period, one hectare of jute plants can absorb about 15 MT of CO2 from atmosphere and liberate about 11 MT of oxygen, the life-supporting agent. Studies also reveal that the CO2 assimilation rate of jute is several times higher than that of trees.

4.2.2.2.2 Jute cultivation

The environmental impacts of jute production are much less harmful as compared to the production of synthetic fibers. Jute growers use fairly small amount of chemical fertilisers and herbicides. Jute yields 5 -10 MT of dry matter per acre of land. About 1 MT of dry matter is put back to the soil in the form of leaves. About 3 MT of roots remain in the soil. Jute cropping system enhances soil organic matter through leaf shedding during the growing season and improves nutrient availability in the soil. Jute is commonly rotated with other food crops like rice and other cereals, vegetables, oilseeds or pulses, all of which are moderately or heavy feeders of nutrients from the native source, but do not normally return them to soil, except in case of legumes, as jute does. Jute-based multiple cropping thus not only increases agricultural production, but may also sustain the fertility level of soil mainly through leaf fall and organic waste decomposition under jute, if the inputs throughout the rotation are used judiciously.

4.2.2.2.3 Biological efficiency of jute

Jute is predominantly a rainfed annual crop harvested at least once a year. Jute as a fibre crop is a fast-growing one that takes only 4 to 5 months to mature. Unlike jute, the production of the fastest growing wood plant necessitates at least 10 to 14 years from plantation to harvest, and yields only 8 to 12 MT per hectare per annum. This means the biological efficiency of jute or kenaf is much higher than that of wood plants, and hence the usage of jute in place of wood to make paper pulp will reduce the cost of production to a large extent. It will also reduce the necessity of cutting down of trees, i.e. deforestation.

4.2.2.2.4 Agricultural practice

In jute agriculture, use of fertilisers, pesticides and weedicides/ fungicides is scanty. The extent of chemical fertilisers for jute growing varies between 7-53 kg nutrient per hectare. The quantity of fertiliser applied is so small that the effect may be considered as insignificant. It should be noted that jute plant sheds about 5-6 tons of green leaves per hectare (i.e. ~14% of the crop) in the field. These green leaves left out after harvesting are rich in macro- and micro-nutrients, and act as manure for the subsequent crop in the field.

4.2.2.2.5 Gas emissions to the atmosphere

Jute cultivation processes generate organic acids including acetone, ethyl alcohol, butyl alcohol, and various gases like methane, carbon dioxide (CO2) and hydrogen sulphide. Substances that contribute to global warming in case of jute are CO2 and methane. The latter one is released mainly during retting under the traditional practice. Methane emitted during retting has been estimated to be 1-2 m3 kg-1 of solid material, which on computation gives an average of 1.428 kg methane per kg of jute fibre. It is known that the global warming potential of methane is much higher than that of CO2 and methane is more detrimental as ozone depleting agent than CO2. Though the contribution of methane under traditional retting towards global warming is insignificant the improved method, say, ribbon retting offers a significant advantage from this point of view.

4.2.2.3 Cultivation

4.2.2.3.1 Soil

Jute is grown in wide range of soil types, mainly alluviums, latrerite, and calcareous with soil texture varying from sandy loam to clay loam. Basically, the soil should be well-drained, and its pH should preferably be in the range of 5.5–6.5. White jute is relatively more tolerant to waterlogging especially at later stages of crop growth, therefore, this species may be preferred in areas prone to late flooding. Conversely, tossa jute does not tolerate waterlogging and is usually grown on higher lands. In general, both the species is more sensitive to waterlogging during early stage of crop growth. In India and Bangladesh, , which are major jute growing countries, 1976.9 and 1210.8 thousand acres areas were grown under jute and allied fibres during 2010/11 (as per FAO/ IJSG).

4.2.2.3.2 Land preparation

Land is prepared carefully in order to make a fine seed bed for emergence and establishment of a good plant stand. Bullock- or tractor-driven ploughs are generally used. It is necessary to plough 3 to 5 times for the fine tilth followed by removal of stubbles and weeds, and leveling the surface, using a leveler, in order to ensure uniform aeration and avoid water stagnation in pockets during the crop growth. This is also important to make the subsoil free of compact region in order to enable the tap root of jute to grow vertically downwards and also deep lateral roots to grow fast enough without hindrance.

4.2.2.3.3 Sowing

Jute is an annual herbaceous dicotyledonous plant that grows to a height of 1.5–4.5 m. The stems are about 1–2 cm in diameter with few branching habits. It is a short-day plant and in tropical areas flowers three to four months after sowing towards the end of the monsoon. It grows well in a hot and humid climate with temperature in the range of 24˚C-37˚C or even higher and day-length in excess of 12 hours. It requires a rainfall in the range of 1000 to 1500 mm, depending on soil characteristics and ground water status, spread evenly over four months of the growing season. Because of its thermosensitive property it requires an appropriate time for sowing matching with the temperature and day-length required for optimum growth and development. Soil temperature needs to be 15˚C or above for favourable seedling growth. Under favourable hydro-thermal condition of soils emergence of seedlings may take place 3–6 days after sowing.

There is an optimum time of sowing for each location depending upon the onset of pre-monsoon rain and the varieties to be grown. Taking the major areas of production into account in Bangladesh, India, Myanmar and Nepal, sowing of jute ranges from late February to May. Sowing should be done preferably in lines (with the help of Multi-row manually operated Seed Drill, developed recently by CRIJAF. If broadcast, which is still in vogue, the thinning of plants may be done at a later stage.

4.2.2.3.4 Nutrients and fertilizers

As with most high biomass crops, jute has a high demand for plant nutrients, especially of the macronutrients, like nitrogen, phosphorus and potassium.

A good crop of tossa jute yielding 3.1 t ha-1 of dry fibre takes on an average of 65 kg N, 52 kg P2O5 , 163 kg K2O, 128 kg CaO, and 33 kg MgO ha-1.

White jute, on the other hand, yielding 2.0 t ha-1 of dry fibre takes on an average 84 kg nitrogen, 37 kg P2O5, 117 kg K2O, 120 kg CaO, and 49 kg MgO ha-1 during growth period.

The critical limits for soil available P, S and Zn were worked out as 24 kg P2O5 ha-1, 8.5 ppm SO4-S and 0.5 ppm Zn, respectively. Nitrogen, however, remains as the main cotributing nutrient to boost fibre yield. Nearly 18-21 kg extra jute fibre may be obtained by the application of 1 kg ha-1of S in S-deficient soils as worked out in India. It has been found that, on an average, 15 tonnes of green jute leaves per hectare are added to the soil enriching its fertility level during the growing period.

Integrated nutrient management is a strategy that incorporates both organic and inorganic sources to achieve higher yield, and what is more important, for sustainability in production for the entire cropping system. Jute is generally succeeded by exhaustive crops like rice and vegetables often causing gradual process of decline in soil organic matter content if not appropppriately supplemented through organics in the form of FYM/ crop residues/ biofertilisers, and/ or by inclusion of legume in the cropping system.

4.2.2.3.5 Interculture

Raking, thinning and weeding are generally practised in all jute fields, which should be best practised under optimum soil moisture conditions.

Raking helps uprooting the weeds and thinning for removing excess jute plants to bring down the population to 30-45 per sq m. Raking is followed by hand weeding. Small hand-held wheel hoes or scrappers may also be used for weeding. Usually one raking between two to three weeks following sowing followed by two to three weedings at an interval of fifteen to twenty days is done. With subsequent crop growth and canopy development weed growth is checked.

4.2.2.3.6 Irrigation

One pre-sowing irrigation (if necessary) + 2 to 3 additional irrigations at later stages are recommended for better crop growth and higher yield.

4.2.2.3.7 Drainage

Appropriate drainage facility may be arranged in order to avoid stagnation of water in the event of high rainfall during the crop growth period.

4.2.2.3.8 Disease and pest management

Jute is subjected to attack by a number of diseases and pests at different stages of growth and development. Losses of 10 percent by plant diseases and 12 percent by insects are on record in Bangladesh, India and Nepal. Recommendations of pesticides and fungicides against diseases and pests are available. It is recommended to adopt need-based protection measures. Many farmers adopt crop rotation practices with a view to minimizing crop losses due to diseases and insect pests (Ghose, 1957).

4.2.2.3.9 Harvesting

Jute is generally harvested when the plants are at early pod stage. The harvest index remains more or less constant over 60–105 day period following sowing. However, it reaches its peak during 110-120 day period following sowing. The fibre remains weak if it is harvested before flowering. On the other hand, the fibre becomes coarse and lacks lustre if harvesting is delayed beyond 120-day age.

The plants are usually cut close to the ground by hand. A curved, sickle type knife is used to cut the plants. The plants are then sorted out according to height and diameter. The assorted plants are tied into bundles. Each bundle weighs 8-10 kg. The bundles are kept standing in the field for 3–4 days for defoliation.

4.2.2.3.10 Fibre Retting

4.2.2.3.10.1 Retting Practies

In general, the practice of retting jute plants in the jute growing regions is to immerse the jute bundles in clear slow flowing water, in canals, rivulets, tanks, ponds or ditches. The minimum ratio of plant material to water in stagnant water should be 1:20. The important conditions for good retting are:

I. The water should be non-saline and clear.

II. The volume of water should be enough to allow jute bundles to float.

III. Bundles, when immersed, should not touch the bottom.

IV. The same retting tank or ditch should not be used when water becomes dirtier.

Retting has been used for a long time in case of extraction of fibres from jute and allied vegetable fibre plants. Since the fibres are contained in the bark or the outer skins of stems, either stems or the outer skins called ribbons are retted for extracting the fibres. If the stems are retted, it is called stem retting. If ribbons are retted it is called ribbon retting. Retting is an important step in the production of good quality fibre. The existing practices of retting in the major producing countries are described below.

4.2.2.3.10.2 Extraction Practices

After completion of retting of the plants/stems, the extraction of fibres from the retted plants, their washing and drying starts. If the stripping is delayed, biodegradation of the fibres takes place and the fibre quality is affected.

4.2.2.3.10.3 Single Stem Stripping

In this step bundles of retted plants are placed in front. Two to three plants are taken out of the bundles at a time. using fingers, the heavy non-fibrous matters of the basal areas are scraped off, some fibres of the area are peeled, the fibres of the basal areas are grabbed and the fibres of the whole plants are peeled off from the woody core called jute sticks.

4.2.2.3.10.4 Stripping and Washing or Wash-Jerk-Method

Stripper stands in 0.5 - 0.7 m deep water, picks up 8-10 stems at a time, mallets the butt ends till the fibre is loosened, separates the fibres, wraps it around the fingers, and jerks the remaining portion horizontally on the water surface. As fibre is separated further, it is wrapped around the palm / wrist and the process is continued till the fibre has been completely separated. After this, the fibre is lashed on the water surface 2-3 times completing the washing. The washed fibre is folded, wrangled and kept on the bank of the retting place.

4.2.2.4 Fibre Quality

4.2.2.4.1 Quality of Fibre and Economic Significance

The quality of jute fibre is judged by its suitability for the production of various types of yarn and its behaviour in the manufacturing process. The fibre which spins into the finest yarn is considered to be of very good quality.

Jute fibre is marketed in bundles of fibre hanks. A fibre hank is composed of about 10-15 fibre reeds obtained from 10-15 plants. Each fibre reed is composed of thousands of fibre strands made of ultimate fibres with lignin and pectic substances, the cementing materials. Commercially fibre quality is assessed by taking a hank out of a lot, spreading the individual reeds on the ground and then assessing the different characteristics by `look & touch' method.

4.2.2.4.2 Fibre Characteristics

The different characteristics of the fibre which are usually taken into consideration for the assessment of quality usually include root content, colour, lustre, strength, defects etc. They are described below.

4.2.2.4.3 Root Content

These are hardy incompletely decomposed basal or root areas of the fibre. It occurs more in white jute than in tossa jute. For processing in the factories and before export, these, constituting about 12.5 to 39.0 cm, are cut away and separately sold at a much cheaper price.

4.2.2.5 Fibre Grading System

The existing jute and allied fibre grading systems and the names of the different grades of fibres, as being practiced in the different major producing countries, are given below.

4.2.2.5.1 Bangladesh

Grading is done after the barky ends are cut off. There are six grades both for White and Tossa jute. The characteristics specified for various grades are given below.
Characteristics of different grades of White Jute include:

Grade	Characteristics
BW special	White/creamy white. Fibre of the finest texture. Very strong and very good lustre. Completely free from any defect, clean cut, well hackled and entirely free from red ends.
BWA	White to light cream. Fibre of fine texture. Strong and very good lustre. Completely free from any blemish. Clean cut, well hackled and entirely free from red ends.
BWB	Light cream to straw colour. Fibre of good texture, strong and good lustre, free from blemish. Clean cut and well hackled excluding red ends.
BWC	Light grey/light reddish to straw colour. Clean fibre of sound strength and average lustre. Free from hard specks and croppy, hard gummy tops. Well-cut, well hackled, free from black roots, red soft ends permissible.
BWD	Any colour, average strength, occasional bark and specks. Slightly croppy and gummy tops. Well-cut and well hackled, red ends permissible.
BWE	Any colour, any strength but free from perished fibre. Free from any unretted jute & sticks but bark and hard center permissible. Rough cut and well hackled.

Characteristics of different grades of Tossa Jute:

Grade	Characteristics
BT special	Uniform colour, golden/red fibre of the finest texture. Very strong and very good lustre. Completely free from any defect. Clean-cut and well hackled.
BTA	Uniform colour, slight grey to golden fibre of' fine texture, strong and good lustre. Completely free from any blemish, clean-cut and well hackled.
BTB	Light to medium grey/coppery grey. Clean, sound fibre of good texture and good average lustre from blemish, clean-cut and well hackled.
BTC	Mixed colour, average strength, occasional bark and soft speck but free from runners. Slightly croppy and gummy tops permissible. Free from any black hard tops, well cut and free from black root ends.
BTD	Mixed colour, average strength, occasional bark and speck, but free from runners; croppy and gummy tops permissible. Rough cut and well hackled, but free from black root end.
BTE	Any colour, any strength but free from perished fibre. Free from unretted jute and stick but bark and hard centre permissible. Rough cut and hackled.

4.2.2.5.2 India

In India with object of enabling the cultivators to get proper price for their fibre, Bureau of Indian Standards (BIS) introduced a standard for grading of raw jute on the basis of its quality. Both white and tossa jute fibres are classified into eight grades, W1-W8, and TD1-TD8. Each grade is assessed by scoring six characters - strength, fineness, defects, root contents, colour and density.

Grades and grading of White Jute (W) and Tossa Jute (TD) in India:

Grade	Characteristics
W1/TD1	Very good strength and colour, very fine heavy bodied fibre, free from major and minor defects. Maximum root content: W1-10%, TD1-5%.
W2/TD2	Good strength and colour, fine heavy bodied fibre, free from major and minor defects. Maximum root content: W2-15%, TD2-10%.
W3/TD3	Fairly good colour and strength well separated medium bodied fibre; free from major and minor defects except a few specks. Maximum root content: W3-20%, TD3-15%.
W4/TD4	Fair, average strength and colour, well separated medium bodied fibre; free from major defects and substantially free from specks and loose sticks. Maximum root content: W4-26 % , TD4-20 % .
W5/TD5	Average strength and colour, fine from major defects. Maximum root content: W5-36%, TD5-26%.
W6/TD6	Average strength, free from centre root and dazed/over-retted fibre and reasonably free from entangled sticks. Maximum root content: W6-46%, TD6 - 35%.
W7/TD7	Weak mixed fibre with maximum root content :W7-57%. TD7-35%.
W8/TD8	Entangled or any other jute not suitable for any of the above grade but of commercial value.

4.2.2.5.3 China

In China, quality of jute and kenaf fibre is classified into four grades viz., Grade 1,2,3 and 4. While formulating the specifications of these grades, some consideration has been given to make them easy, faster and practical in operation. The grading of fibre is usually done according to its colour, appearance and feeling by hand and touch.

4.2.2.5.4 Indonesia

There are three grades of jute and allied fibres in Indonesia, namely Quality A, B, and C determined on the basis of fibre cleanliness, colour, dryness, tensile strength and fibre length. The characteristics of the different fibre grades are presented below:

Characteristics	Quality A (High class)	Quality B (Medium class)	Quality C (Low class)
Colour	White shining	Brownish white	Brown shining
Cleanliness	Free from any filth		
Dryness	Dry, water content 13% Tolerance 16% on refraction of 3%	Dry, water content 13% Tolerance 16% on refraction of 3%	Dry, water content 13% Tolerance 16% on refraction of 3%
Tensile strength	Strong and flexible	Strong and flexible	Strong & Slightly Flexible
Fibre length	Minimum 150 cm	Minimum 125 cm	Minimum 100 cm

4.2.2.5.5 Nepal

In Nepal there are two sets of grading for each of White jute (C. capsularis) and Tossa jute (C. olitorius). One is called Domestic Grade and the other is called Export Grade. The Domestic Grades for both white and tossa jute are called Top, Middle, Bottom and Rejection. The Export Grades for

White jute are called Export First, Export Lightning, Export Hearts and Cuttings. The Export Grades for Tossa jute are called Dundee Tossa-4, Outport Tossa - 2/3, Outport Tossa-4 and cutting.

4.2.3 Market Composition and Sensitivity for Jute

The jute market, inherently and traditionally, is composed of a couple of constituent components. The following figure, copied from a CFC paper highlights the major indicators documenting the Jute sector in the country[563].

The jute industry in Bangladesh is primarily export oriented[564]. Raw fibre is exported as well as jute manufactured goods. The range of products produced is similar to India but the structure of the industry is different[565]. On the one hand there is the Government owned BJMC with 22 or so mills, running the bulk of the operational looms and the semi-privately owned BJMA with 12 operating mills. On the other hand there is the BJSA with over 40 mills. This is an association of private sector yarn producers. In statistical terms the BJMC and the BJMA output all of which are composite fabric mills) are here shown together.

• Bangladesh provides over 90% of the world's raw jute and allied fibre exports. Raw jute exported each year ranges between 300,000 and about 350,000 tons. India, Pakistan and China between them take about 250,000 tons with India accounting for half[566].

• Jute fibre availability in Bangladesh is generally in the range 750,000 to 850,000 tons in recent years. As noted earlier about 300,000 tons is exported and about 45,000 tons is consumed in village consumption, which leaves about 500,000 tons for use in the national mills.

• Depending on availability of finance and thus how many mills are operating, the BJMC and BJMA mills now use an estimated 250,000 tons of the national crop of raw material. The BJSA mills (which year on year continue to increase output), will soon use about a similar amount for yarn production.

• During the early 1990s the combined output of the BJMC & BJMA was around 450,000 tons and the BJSA (Yarn mills) was less than 100,000 tons. In effect during the last decade the manufacture

[563] Ibid;
From "A Road Map for Jute", Common Fund for Commodities, Technical Paper No. 44, In association with International Jute Study Group (IJSG), Dhaka, Bangladesh and International Trade Centre UNCTAD/WTO (ITC), Geneva, Switzerland

[564] Ibid

[565] Ibid; The Indian production scheme appears somewhat like the following:
Sacking bags for agricultural produce: average total 900,000 to 1,000,000 tons of which government purchases represent about 625,000 tons or 66%.
Hessian cloth Annual output 300,000 tons. Internal consumption is 250,000 tons. Exports range from 50,000 tons to over 100,000 tons.
Major export markets are USA: +/- 30,000 tons. Europe: +/- 25,000 tons.
In second rank are Africa, Australia, Latin America and Middle East each taking between 5,000 and 10,000 tons a year. Yarns and twines. Annual output averaging 200,000 tons. Indian internal consumption is about 140,000 tons and exports between 60,000 and 70,000 tons.
Other products include: primarily canvas, decorative fabrics and soil saver. Output ranges from 80,000 to 90,000 tons a year. Internal consumption +- 60,000 or 70,000 tons and exports some 15,000 to 20,000 tons.

[566] Ibid; Bangladesh yarn supplies account for about 75% of world imports. India supplies the bulk of the remaining 25%. The world import market for jute, the Report strongly supports continuation of the Indian mandatory packaging order and its possible extension to other jute yarn imports can be expected to reach 400,000 tons. Subject to jute yarn prices remaining at or near their 2005 price relationship to Polypropylene yarns, there is not expected to be any significant loss of potential share for jute yarns used in the woven carpet industry.

and export of yarn has largely substituted for the decline in the production and export of Sacking[567], Hessian, and Carpet Backing Cloth.

• The internal consumption of jute goods in Bangladesh is about half the amount per capita compared to that of India[568].

• The amount of jute goods consumed internally in Bangladesh is in the range 100,000 tons per year. There has been a slow build up of internal consumption over the years, in 1970 – 30,000 tons, 1980 – 40,000 tons, 1990 – 50,000 tons and in 2000 – 80,000 tons. It would be reasonable to anticipate a little over 120,000 tons by the year 2010. In contrast to India, and including fibre exports, Bangladesh exports 80% of its jute production[569].

[567] A recent trend in sacking is observed across the Indian media though: http://www.thehindu.com/business/Industry/gunny-bag-imports-add-to-woes-of-jute-industry/article6163812.ece

Selected portions of the news articles reads as follows:
"When contacted, the Indian Jute Mills' Association Chairman, Raghavendra Gupta, told The Hindu that it was unlikely that any jute mill was involved in jute goods import. "This is mainly resorted to by jute traders. Jute bags import is estimated at 15,000 tonnes per month and accounts for the output of seven mills on an average." Imported jute bags are cheaper as they are duty-free and they enjoy various cash subsidies in the countries of origin. Enquiries revealed that there were several mills which were actually using imported bags. These mills had been identified and investigations would be held, it was learnt. Concerned over the state of the industry where thousands are now out of work following lock-outs in their respective mills, the government took a series of measures, including the setting up of an inter-ministerial committee which will examine the industry's status and move the Centre for redress."

[568] Ibid; one estimate puts the current annual Bangladesh jute market profile as:

Local consumption of fibre at village level: 45,000 tons.
Local consumption of mill manufactured jute goods: 90,000 tons

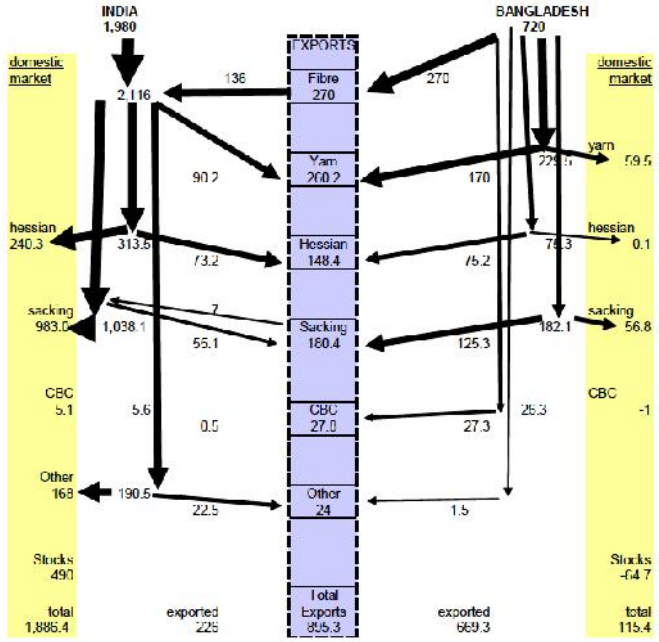
Total local/internal consumption: 135,000 tons
Export of Jute in baled fibre form: 300,000 tons.
BJMC&BJMA exports of Sacking: 100,000 tons
Hessian: 50,000 tons
Carpet Backing: 20,000 tons
BJSA Export of yarns 230,000 tons (Includes BJMC yarn shipments)

Total export of jute goods in manufactured form 400,000 tons

Total raw Jute & jute goods export 700,000 tons.

[569] Contrast this to India, where, the balance of markets for India's production of jute goods is heavily slanted towards home demand, which consumes about 80% of output.

Figure 41: Composition of the Jute Sector across Bangladesh and India



4.2.3.1 Pakistan

Pakistan imports most of its raw jute needs from Bangladesh and occasionally some from Myanmar. Over the last few years' production has been relatively stable at 50,000 to 60,000 tons a year of Sacking. 10,000 to 14,000 tons of Hessians, and 10,000 to 14,000 tons of yarn and twine. The overall output of the Pakistani mills has remained for many years in the range 75,000 to 85,000 tons despite very keen competition from Polypropylene woven bags[570]. The vast bulk of production is sold to markets within Pakistan but some yarn and Hessian is exported to Afghanistan, Iran and Middle East markets. Pressure from competition in the domestic market is necessitating a change in orientation towards export markets[571].

4.2.3.2 China

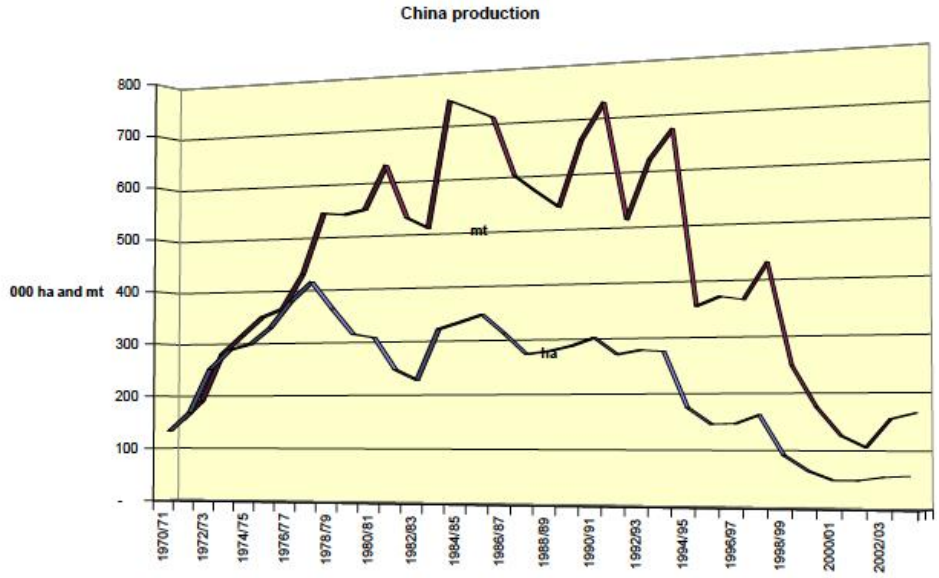
The Chinese jute growing and manufacturing industry reached its zenith in 1985 when output was over a million tons. By 2000 FAO figures suggest a production of 126,000 tons with some recovery by 2003 to around 165,000 tons and the number of mills remaining in active production had fallen dramatically. The process machinery from several of these closed down mills was sold to Indian jute mills. The reason for the collapse of the Chinese industry was the widespread use of locally woven sacks made from Polypropylene and High-density polyethylene. Formal statistics on the number of woven plastic bags currently being made and used each year in China do not exist, but a conservative estimate would be about five billion bags or half a million tons of polymer. (Equivalent to five million tons of jute sacks). Reliable information on the jute industry in China is not easily available but in recent years the jute and kenaf crop has continued to decline. In 1999 the harvest was 260,000 tons taken from 100,000 hectares and in 2003 according to FAO and the Chinese agricultural statistics, about 150,000 tons from 60,000 hectares. The crop is predominantly grown in Hunan, Sichuan, Hubei, Henan, and Anhui provinces with an average yield of 2,500 kilos per hectare. Since 2003 China appears to be importing about 30,000 or 40,000 tons a year of raw jute primarily from Bangladesh. China also imports a little jute yarn from Bangladesh (in addition to raw jute) but

[570] Ibid

[571] Ibid

volumes are small, of the order of 1,000 tons a year. Together with a slight recovery in production since 2000, it appears that there is still some significant demand for jute sacks in China although nowhere near the levels of the mid 1980s[572].

Figure 42: Jute Production Pattern in China



Source: FAO

The majority of the Chinese mills are in the fibre producing regions and manufacture sacking. The jute mills production profile is not published but an educated guess would be: Sacking to represent 75% of output or 110,000 tons. Hessian cloth accounts for 10% of output, or circa 15,000 tons. Finally yarns and twines probably comprise15% of output or 25,000 tons. Almost all the Chinese output of jute products is consumed within China and Although China did export jute sacking in the 1990s, exports since 2000 have been less than 10,000 tons a year.

4.2.3.3 Other Countries with Jute Industry

Thailand, Myanmar, Nepal and Brazil continue to grow and produce jute and or kenaf products, as do Vietnam, Indonesia and Cambodia. With the exception of Thailand and Myanmar, which also export some fibre, these countries consume most of their locally grown fibre internally. The aggregate amount of fibre processed in these countries can be estimated at between 100,000 tons and 120,000 tons a year. The end product profile is probably similar to that in China with sacking being the predominant item.

A few remaining countries retain a traditional jute goods manufacturing capability based wholly or partially on imported fibre; the most notable examples being the Ivory Coast, Brazil, Egypt and Cuba. These countries in aggregate use about 50,000 tons of fibre. End products are primarily sacks and bags for internal use. As the world market for jute goods shrinks and consolidates, the experience of the past has been that the jute industries outside the main competitive producers in the Indian subcontinent drop out and close down. Jute manufacturing is consolidating into its heartlands of India, Bangladesh, Pakistan, Myanmar and Nepal. How long the jute textile industry will continue to be viable in the 'Other' counties is a matter of debate, but they will probable continue to survive in some countries, especially south East Asia for another ten or twenty years[573].

[572] Ibid

[573] Ibid

The jute industry is primarily based on the manufacture and supply of sacks and bags for agricultural produce. About 1.5 million tons worldwide out of a total output of 2.8 million tons or some 53% of production flow into this application. Of this world textile packaging market using jute India accounts for 1 million tons. What happens in the Indian market will crucially affect the rest of the world jute industry.

China encouraged substitution of jute packaging by cheaper oil based woven olefin plastics. The result was that the Chinese jute industry all but collapsed. India has about a million hectares under jute; it provides a cash income and jobs for 4 million farmers. The mandatory packaging of agricultural products in jute sacks and the Indian government sack purchasing policy has provided stability and continuity to the industry and to the millions of poor jute growers. This remains the rock to which the industry is anchored. A collapse in the internal Indian jute use of sacking would put huge pressures not only on growers but also on export markets.

The price differential in favour of woven plastic sacks has narrowed as crude oil prices have climbed and, given enough time, is likely to narrow further substantially. The main competing products are a plastic sack weighing 80/90 grams versus a 1000-gram jute bag. Both can contain fifty kilos of contents, such as grain. Before the recent price increases for PP resin a jute bag was generally priced at about 40 US$ cents and plastic at +/- 15 cents.

The current position has a jute bag at about 45 cents and plastic at around 20 cents. In the case that crude oil climbs in price to US$ 100 per barrel and olefin resins climb in response to the same degree that they have in the past, one can anticipate the sale of plastic bags at almost 30 cents each versus jute at say 50 cents. The price ratio will have changed from around 3.3 to 1 to about 1.7 to 1. This would be favourable for jute but not yet favourable enough. A table in the Geneva workshop annex describes the present and likely future relationship of crude oil prices and woven PP sack prices in India during the next two decades.

Another important factor in the reduction of market possibilities for jute has been the growth in favour of bulk handling. Sacks can also be made from kraft paper, widely used for animal feeds, and from blown film plastic which are commonly used for chemicals and fertiliser. Underdeveloped economies with a weak transport infrastructure and large populations provide market opportunities for jute bags. Despite the ‘green’ or ecology friendly arguments which favour jute, and the fact that jute sacking will outwear and outlast woven plastic by on average 7/8 transport uses as compared to 3/4 for plastic these have not been factors which have had a significant impact in favour of jute. More important has been stack-ability where jute holds the advantage in terms of stability and ease of handling.

In contrast to the discouraging situation for jute in packaging the future use of jute yarns in the world carpet manufacturing industry has a growth profile. The problem is that growth in this area cannot remotely make up for the declining international market for jute in packaging.

Other diversified textile products which represent new applications for jute can be exploited, however to grow jute for pulp and paper seems unlikely to be economic except on a small and specialist scale such as is being done in Myanmar to supply the eco-market for pulp in Japan.

A prospect, which has the potential to use large volumes of jute fibre, is in the replacement of glass fibres for plastics reinforcement. This opening exists both for compression moulding and for injection moulding. The replacement of even ten percent of the glass fibre used in plastic reinforcement would open up a potential market for several hundred thousand tons of fibre. The problem with this market is that it provides little or no value added for existing jute mills.

4.2.4 Augmented Gravity Core

Our empirical approach requires data on bilateral trade as well as on various gravity variables. Bilateral trade data are obtained from the BACI dataset from CEPII (Gaulier and Zignago, 2010).This dataset includes bilateral trade values between any two countries from 1998 onwards. The data is complete up to 2009 at the time of writing, so we have a panel of 12 years. The BACI dataset is based on data from the UN Comtrade dataset, but enhanced through inclusion of 'missing trade values'. These trade data are used as dependent variable as well as to calculate the network indicators using the open source network analysis program Gephi (Bastian, Heymann and Jacomy, 2009). Data on bilateral distance and geographic indicators are also collected from CEPII. Country characteristics such as GDP are collected from the World Bank (2012). Data on regional trade agreements (RTA) are collected from the website of de Sousa (2012). They consist of dummy variables equal to one if any RTA was active between any two countries at the given time. WTO membership data has been downloaded from the WTO site[574].

Empirical specification: We estimate the following augmented gravity model for Jute Trade-

$$\ln x_{ijt} = \beta_0 + \beta_1 \ln y_{it} + \beta_2 \ln y_{jt} - \beta_3 \ln t_{ijt} + \beta_4 \ln k_{it}^{out} + \beta_5 \ln k_{jt}^{in} + \beta_6 C_{it} + \beta_7 C_{jt}$$

$$+\eta_i + \zeta_j + \upsilon_t + \epsilon_{ijt}$$

Exports from country i to country j at time t (x_{ijt}) is given by a constant β_0 (including world income y_w), the log of the GDPs of both exporter and importer, y_{it} and y_{jt} respectively, the bilateral trade cost function t_{ijt} assumed to be linear in its arguments (with $t_{ijt} = \gamma_1 lndist_{ij} + \gamma_2 contig + \gamma_3 language + \gamma_4 colonizer + \gamma_5 colonial + \gamma_6 WTO_i + \gamma_7 WTO_j + \gamma_8 RTA$), the out-degree of the exporter k_{it}^{out}, the in-degree of the importer k_{jt}^{in}, and the clustering coefficients of exporter and importer, C_{it} and C_{jt} respectively. We will discuss each of these variables in the next paragraph. η_i, ζ_j and υ_t are exporter, importer and time dummies which capture the remaining theoretically specified MTR factors (cfr. supra). ϵ_{ijt} is the idiosyncratic error term. Note that the estimated coefficients for bilateral and multilateral trade impediments depend, theoretically speaking, on the elasticity of substitution.

OLS Gravity Panel Estimates				
	1	2	3	4
ln(GDP exporter	0.57209	0.06404		
ln(GDP importer **India***)*	0.47840	0.55249		
ln(distance)				

[574] The data on the explanatory variables was collected from the datasets provided on the website of CEPII and World Bank. Data cleaning and matching was done in Microsoft excel and using basic functions of the software R. During the process of fitting the gravity model the paper titled Revealed Multilateral Trade Resistance in Gravity Models: A network approach was referred and the gravity model was fitted using the method explained in the paper. The actual model fitting was done using the software R and its packages lme4 and robustlmm.
The results are given in the table. Most of the results are quite intuitive. One thing which can be pointed out is the large coefficient of common colonizer and colonial ties. This could be because of high correlation between the 2 variables and a model using only one of the 2 variables can also be fit.

Contiguity	0.01871	0.06847		
official common language	-0.84720	-0.80211		
common colonizer > 1945	0.89017	0.89017		
colonial ties	0.97468	0.97468		
WTO membership exporter				
WTO membership importer				
regional trade agreements	1.03995	1.12451		
ln(weighted out-degree		0.23974		
ln(weighted in-degree		-0.14926		
clustering coefficient exporter				
clustering coefficient				
Constant	-16.74219	-6.70531		
R-squared				
Number of observations				

* Robust Standard Error needs to be put below each value in parenthesis

4.2.5 Methodology For OLS Table Panel Data In Augmented Gravity Model

In a nutshell, OLS Table gives the coefficients for the panel data, using OLS and importer, exporter and year dummies. Column (1) is a benchmark column, estimating a standard gravity model without the addition of the network measures. This ensures us to compare the stability of the model when the network statistics are added. The variables included in each model as control variables, are standard gravity variables that have shown to be significant in the gravity model.
GDP is measured in the natural log of current us dollars. Bilateral distance is in kilometers between the trading partners. Contiguity is expressed as a dummy: 1 if both countries share a common border, 0 otherwise. Here 0 can be used as [nlog0] will have a value and it's a integer.
Official common language is also a dummy, with value 1 as both countries share a common official language. Common colonizer/ History between 'Both Country' is a dummy with value 1 as both country shared a common colonizer or positive History. Colony is also a dummy, with value 1 as both country had a colonial relationship.
WTO membership exporter is a dummy with value 1 if the exporter is a WTO member, and similarly for the importer. The regional trade agreements dummy has value 1 when both countries have some regional trade agreement signed between them and zero otherwise.
They so far in my limited knowledge will remain (estimated parameters) well within the traditional range of gravity estimates.
In the OLS setting, we used robust standard errors [Not Given the Limit Here] to cope with possible heteroscedasticity, and clustered standard errors to counter-act the assumption of independent errors in the model.
Regarding fixed effects, we followed the HMR specification, and capture unobserved heterogeneity at the country level and over time using the importer, exporter and year dummies. MTR (Multilateral Trade Resistance) is taken into account in this approach only as far as these fixed effects capture the unobserved third country dependence.
Since the network indicators reveal various aspects of MTR, we opt to add them both separately and jointly to the specification. As such we are able, firstly, to estimate the impact of each indicator separately. Secondly, we also assess whether and to what extent these factors strengthen or cancel each other out.
Note that in none of the specifications, multi-collinearity appears to influence the estimated coefficients. Column (2) includes the out-degrees of the exporters and the in-degrees of the importers, while column (3) includes the clustering coefficients of the importers and exporters respectively. Finally, in column (4), both network statistics are simultaneously included.
It is notable that the control variables remain stable; this will/can be the case for all commodity models considered. One key importance of this column is that only degrees have a positive highly significant impact on bilateral trade (qualitatively); an increase of 1 % in an exporter's weighted out degree increases bilateral trade with 0,12% per partner on average.[ref. CEI II website]
* Robust Standard Error needs to be put below each value in parenthesis

Figure 43: Gravity Graph 1

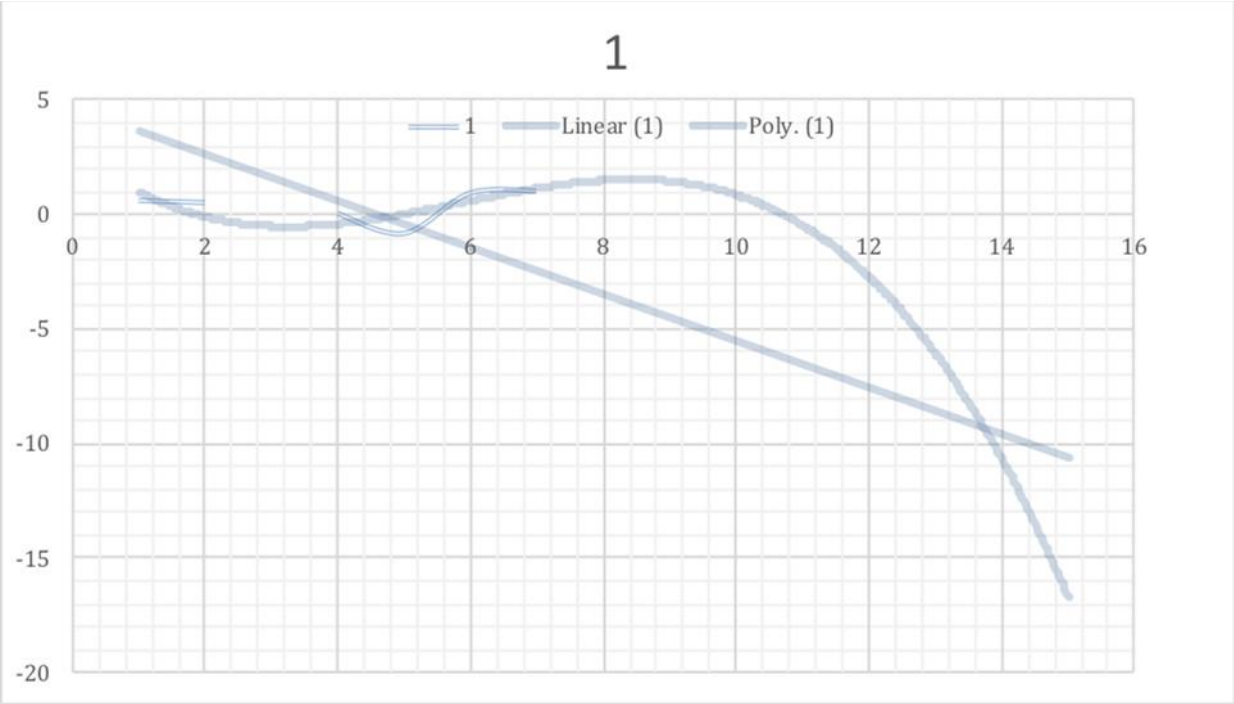
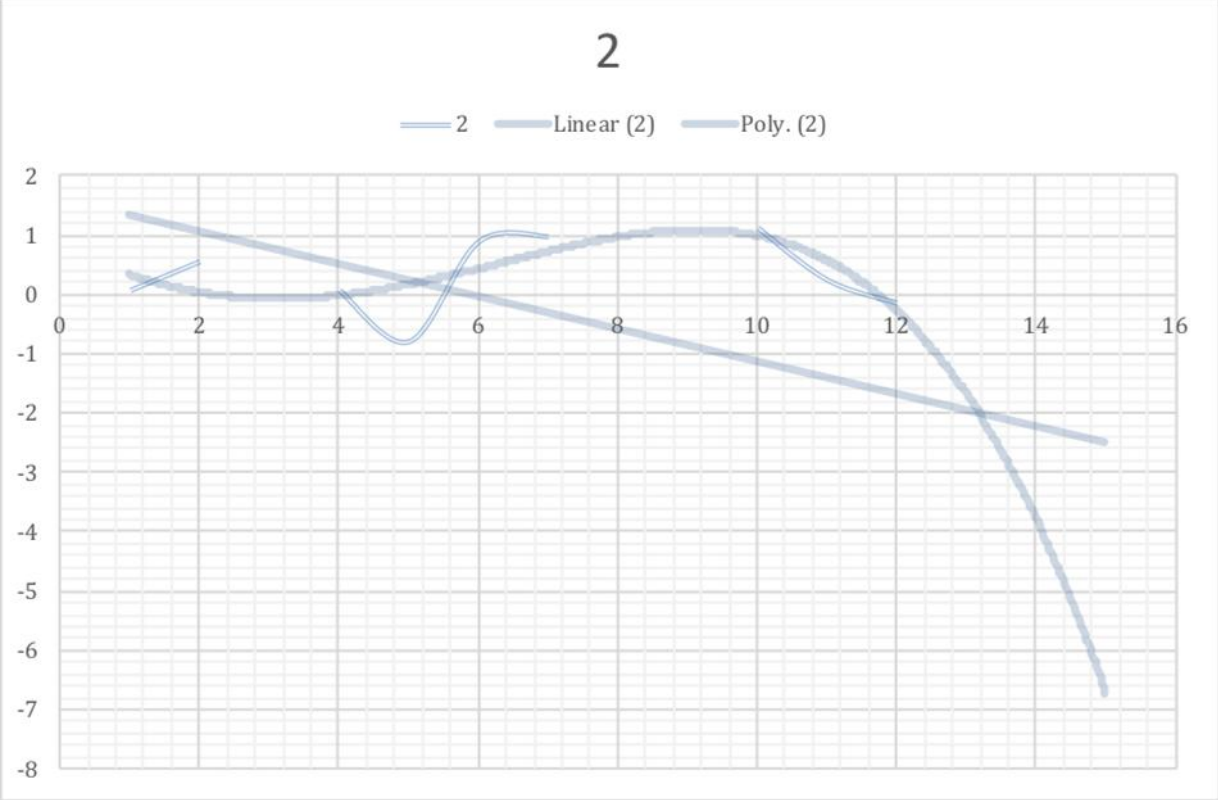


Figure 44: Gravity Graph 2



4.3 Analyzing (a) areas, (b) products, (c) services, and (d) operations/solutions which Bangladesh would be able to provide / complement the markets identified

4.3.1 Secondary Information

Jute is a valued natural fibre with unique characteristics and long standing end-use applications. It played an even stronger role in the post second world war recovery and growth with traditional end-uses such as sacking, hessian and carpet backing requiring larger volumes. Increasing production was, in fact, unable to meet the needs of rapidly expanding demand, resulting shortages in and for which manufacturers of synthetic substitutes were able to compete with a far larger potential capacity, budgets for promotion and lower prices[575].

The demand for jute in export markets for the traditional products declined in the face of this competition with carpet backing the first to suffer in the United States, followed by sacking, loss of markets due to the collapse of the former USSR and most recently a sharp decline in Europe. There have been positive developments in the form of a growing market for yarn used in woven carpets and end-user preference for food grade sacks for carrying some commodities. Use of mineral oil is incompatible with the eco-friendly characteristics of jute and needs to be phased out as far as possible. The decline in world markets and falling real values led to a substantial reduction in production in China[576] and Thailand and a gradual reduction in hectarages and volumes in Bangladesh. These factors were, however, more than compensated by the increase in consumption of jute sacking in India, where it enjoys a measure of regulatory support and in production due mainly to higher yield rates, but not in hectarages devoted to jute. Indian production of jute has not kept pace with increasing demand and India is now a major fibre importer from Bangladesh.

Global production and consumption of jute has therefore become and is increasingly concentrated in India. This is not considered as being healthy by the industry or the Government and both would like to see an export led pro-poor vertical diversification. Diversified or non-traditional jute products production has been growing in India in addition to that of yarn. The same trend can now be noted in Bangladesh[577].

The jute sector was a significant source of foreign exchange earnings with higher value additions for Bangladesh. The sector provided employment opportunity to a large number of people in different regions of the country and in some rural areas where employment opportunities in the

[575] A ROAD MAP FOR JUTE, Common Fund for Commodities, Technical Paper No. 44, In association with International Jute Study Group (IJSG), Dhaka, Bangladesh and International Trade Centre UNCTAD/WTO (ITC)
Geneva, Switzerland

[576] Which, we have found to be contested in recent data analysis – where export from China increased to a significant degree.

[577] Ibid.

A general consensus was expressed at the workshops (which CFC/IJSG conducted) that jute could once again compete for export markets provided that action were taken to increase productivity of higher quality fibre together with a decrease in costs of conversion. This was based on the facts that:

(a) Synthetic substitute prices were rising due to higher oil costs and were likely to continue to do so;
(b) That technology allowed production today of higher quality yarn and fabrics; and
(c) That the scope for increased competitiveness was substantial.

manufacturing sector were limited[578]. A number of large-scale industrial units including the jute mills were established in the region during 1950-1970 (Islam, 1982[579]). All of the jute mills of the region were taken over by the government of Bangladesh after independence (Bari and Latiful, 1978[580]). A total of 17 nationalized jute mills were operating in the south-west region of Bangladesh in 1970s (Rupayon, 2007). Jute is a very important agro product of Bangladesh which is eco-friendly and it takes only 4 years for getting substantial return in jute industry, where as, other industrial sectors take 6 to 10 years for getting return from investment (Cherunilam, 1993[581]). An earning of US$ 4 from the readymade garment sector is equivalent to the earning of US$ 1 from the jute sector (World Bank, 2006[582]). Among the countries India, Bangladesh, Thailand, China, Myanmar, Nepal and Pakistan, Bangladesh holds the second position in term of production volume (Sadi, 2007[583]). Once upon a time jute was the 17th export item for India in 1970s according to importance, where as, in Bangladesh its position was in the top (Mohammad, 2007). However, the position of jute has been upgrading in India and downgrading in Bangladesh. And it was found that a huge amount of excess and unskilled labors were appointed in the public jute mills of Bangladesh in the post liberation period causing low productivity and high production cost (Haider, 2006[584]). The initiative of implementing World Bank and IMF's prescription has worsened the performance of the jute sector of Bangladesh (Billah, 2007[585]). A lower domestic usage of jute goods for Bangladesh in comparison to India and other jute dominating economies (US Census Bureau, 2006[586]). Majority of the available literatures investigate the industry from the national perspective.

A firm specific and a region specific study on jute industry of Bangladesh are hardly available. The main question to answer is: Having various facilities, why the jute manufacturing industry of the south-west region and the huge number of employees related with the industry are in vulnerable condition. In addition, to have a complete understanding on the factors responsible for shutting down the jute mills in this region and to plan the future strategies of the industry, the following questions need to be addressed. What are the facilities available in this region for continuation and expansion of the industry? What are the factors hindering smooth production of jute in the region? What is the overall performance of Bangladesh jute industry in exporting to international markets as compared to the others like India? In this study, an attempt is made to answer the above raised questions through analyzing the sourcing, production and distribution channels of the jute industry in the south-west region of Bangladesh.

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[578] Section draws heavily from "Why the performance of the jute industry in Bangladesh has been declining gradually?", by M. H. A. Miah; J. Socio. Res. Dev. 7(1):761-767, February 2010, website: www.gscience.net or www.gurpukur.com

[579] Islam, M. N. 1982. The news paper "The weekly Khulna", 12 (4): 05-09. Khulna, Bangladesh.

[580] Bari, K. L. 1978. Bangladesh District Gazetteers: Khulna. Dhaka: Bangladesh Government Press

[581] Cherunilam, F. 1993. Industrial Economics: Indian Perspective. Himalaya Publishing House, Delhi, India

[582] World Bank, 2006. Challenges of Development: World Development Report. Oxford University Press, Washington, USA

[583] Sadi, S. 2007. Pat Hotter Nepotthe (Factors Behind the Destruction of Jute) (Vol. 1). Dhaka Printers, Dhaka, Bangladesh

[584] Haider A. K. 2006. Iniyog Babosthapona Uthpadon O Biponno Bostro Shilpo: Prekkhit Bangladesh (Investment Arrangement, Production and Marketing in Textile and Garment Industry: Bangladesh Perspective). Bangla Academy, Dhaka.

[585] Billah, M. 2007. Jute the Enigma. Working paper, Jibika Sector, Action Aid Bangladesh. Unnoyon Porishad (BUP), Dhaka: Bangladesh.

[586] US Census Bureau, 2006. International data base, Updated on 08.24.2006, USA.

The available infrastructures and factor endowments support the expansion of the jute industry in the south-west region of Bangladesh over the time period. For example, the second largest seaport (The Mongla Seaport) of Bangladesh and many rivers are located in this region, which could facilitate the transportation of jute and jute goods at the lowest cost both locally and internationally. The region is blessed with road and rail networks to facilitate intra and inter-region transportation as well as cheap labour for economies of scale of jute and jute goods. The Crescent Jute Mills, Platinum Jubilee Jute Mills and Akiz Jute Mills limited provided direct employment opportunity to 10,532 people in year 2008, as stated in the official database of the three mills. Another 50 thousand people are indirectly related to these three mills. A rough estimation indicates that a full-scale operation of the 17 mills located in this region could provide direct employment opportunities to approximately 50 thousand people and indirect support to another 250 thousand people (Rupayon, 2007[587]). This study explains the problems associated with the jute industry in the south-west region of Bangladesh from three dimensions: (a) sourcing[588], (b) production[589] and (c) distribution[590].

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[587] Rupayon, 2007. Songkotmoy Patshilpo (Jute Manufacturing Industry in Stake). CDP, Khulna, Bangladesh.

[588] Ibid; The analyses find a severe inconsistency between target and actual purchase of raw jute by the public sector jute mills. The target fulfillment rate in jute collection is 52.69% for Crescent Jute Mills and 48.36% for Platinum Jute Mills during 2002-2008, where as, the rate is 100% for Akiz Jute Mills Ltd. The jute procurement process of the public sector jute mills is mostly liable for the situation. The public firms have to go through the BJMC for getting fund and buying raw jute. Moreover, the fund provided by the government is not sufficient. The records of the surveyed firms indicate that they often got the allocation in delay time period from BJMC and eventually failed to buy raw jute in peak season. It hampers the mills in three ways which are:

i. They have to buy jute at comparatively high price from the agencies who collect jute in the peak season;
ii. They have to buy jute at the price fixed by the BJMC which is lower than the market price that eventually bound them to buy lower grade jute
iii. They failed to get access in better quality jute which is purchased by the private mills at the peak season

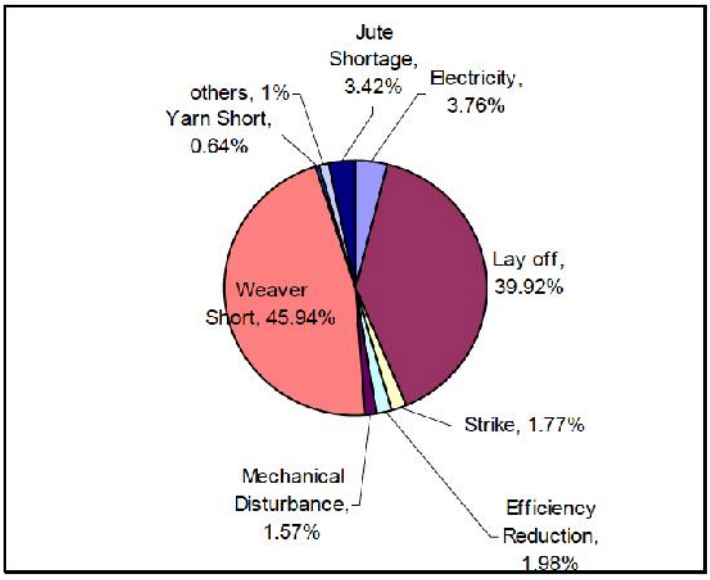
[589] Ibid; Production process includes loom capacity, production volume, losses, labor issues, working environment and such other issues related to the jute industry of the south-west region of Bangladesh.

Loom capacity: The total installed looms in Bangladesh Jute Industry (BJMC and BJMA) were 23,441 in 1981-1982 and the number was decreased to 21,864 in 2005-2006, among which, only 9,749 looms were in operation (GOB, 2007). The statistics indicate that only 45% of the installed capacity was utilized in 2005-2006. The capacity utilization rate in BJMC mills was 62.8% and it was 27% in BJMA member mills in 2005-2006. The database reveals that the rate has further decreased to 43% (i.e. only 9,500 looms) for BJMC and BJMA jute mills in year 2007 (Billah, 2007). According to the field survey, the obsoleteness of the looms is the main reason behind the poor performance in capacity utilization.

Production volume: The production of jute goods by the public sector mills of the south-west region of Bangladesh has decreased significantly over the time period (Table 3). However, the production of Akij Jute Mills was not decreased rather increased over the time period though the mill authority refused to provide the numerical data of production. According to the field survey, the back dated machineries and labor unrest are mainly responsible for the poor performance in production of the public sector mills.

Production loss: Research shows that the public sector jute firms of Bangladesh have been incurring both operating and net profit losses every year. Considering the role of the industry in domestic employment generation and export earnings, the government of Bangladesh tried to cushion the sector by providing subsidies. For example, a sum of 850 million taka has been provided as subsidy in the budget of 2002-2003. As a result, total sales revenue increased by 15 percent during 2002-2003 as compared with that of 1996-1997 while the cost of sales fell by 5 percent in the same period. The operating loss decreased from 1994.5 million taka in 1996-1997 to 880 million taka in 2003-2004. The net loss during the same period decreased from 2517.1 million taka to 1,545 million taka. However, the subsidy program failed to turn the business profitable and providing long-run subsidies to the sector is an extra burden for the economy.

The following figure, adopted from the same research by Miah, M. H. A., demonstrates that the major shares of losses were due to weaver shortage (2716.5 metric ton; 45.94% of total) followed by lay off (2,361 metric ton; 39.92%), electricity disturbances (222.45 metric ton; 3.76%) and for jute shortage (202.12 metric ton; 3.42%) Crescent Jute Mills (2008).



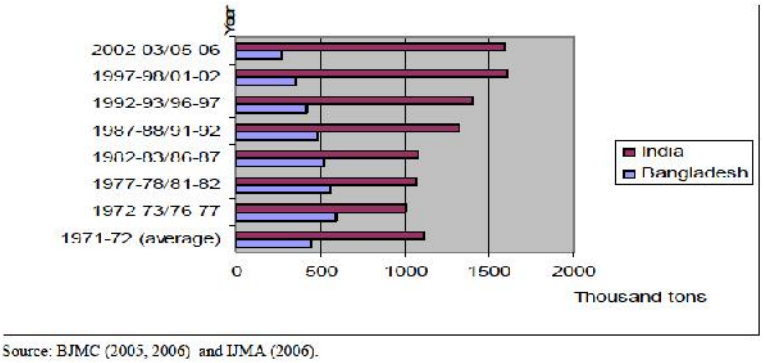
Labor, working environment and miscellaneous issues

The survey respondents said that the demand for assurance of regular works for the daily basis workers, wage increase and improvement of working environment are the main causes of labor movement in the public sector mills. A huge amount of interest payment for taken loans, reduction of export subsidy by the government, corruption and inefficiency of the management are some other factors are mostly responsible for the slowdown of the industry in the region. The field survey in the study area also finds that crime, corruption, terrorism and anti-education activities are relatively higher in the areas where jute mills have been closing as compared to the other areas, which is a very heart-rending reality of this region.

[590] **Ibid; Distribution channel**

The two following figures show the production and export trend of jute and jute goods by Bangladesh and India over the time period. The production of India has been increasing while Bangladesh has been declining. In contrast, the export of India has declined and that of Bangladesh didn't decline so rapidly, rather it increased slowly in last 15 years.

Production of Jute Goods Comparison between Bangladesh and India



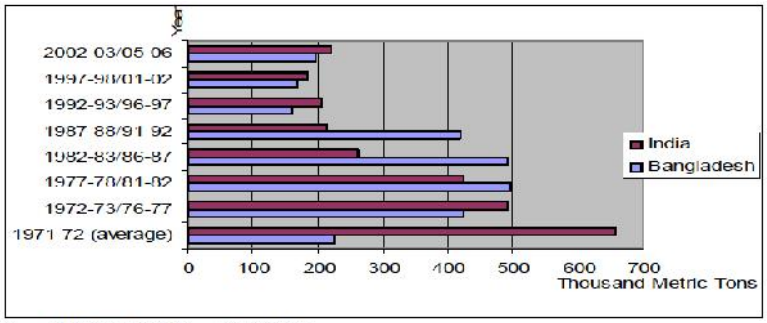
Source: BJMC (2005, 2006) and IJMA (2006).

Comparison of Export of Jute Good from Bangladesh and India

A large number of people of the region directly or indirectly related to the industry have been passing a miserable time and causing social unrest[591]. The irregularity in raw jute collection, a large number of outdated looms, insufficient funds and mismatch in timing of getting funds by the public sector jute mills have been hampering the production, productivity and growth of the industry. The problems associated with sourcing, production, distribution and policy issues hamper the development of the jute industry in the south-west region of Bangladesh. Procurement of lower quality raw jute, failing to collect jute in the peak season and high cost incurred due to procuring raw jute at higher prices from the agencies are the main problems faced by the jute industry of the south-west region of Bangladesh originated from its backward linkage sections. The outdated looms, lower capacity utilization, excess workforce, workers' movement, high interest burden of loans, corruption and managerial inefficiency cause low productivity, decrease in production and increase in losses year after year. Absence of proper marketing policy, absence of trading companies to introduce the product in the world market and failure to introduce mass consumption of jute products domestically are the main constraints associated to the forward section of the industry that also constrain the production and sales of the industry. Similarly, the role of government in financing, privatization, hiring and firing, research and development and people's conscious development to use jute goods and the role of World Bank and other organization in the restructuring of the industry are questionable. All these problems related to sourcing, production, distribution and policy issues contribute in slowing down and gradual worsening the performance of the jute industry in the south-west region.

4.3.2 Jute and its Markets[592]

As is known, jute was the single most important export item of Bangladesh till the end of the 1980s. With the ascendancy of export-oriented readymade garments (RMG), and later on of shrimp, jute lost its pre-eminent position. It presently occupies the third position in the export basket of Bangladesh. Agro-climatic environment made Bangladesh a natural home for producing the best quality jute in the world – Bangladesh has continued to remain world's largest grower of quality jute. Indeed, jute production is concentrated mainly in and around South and South East Asian region. Other major producing countries are India, China, Thailand, and Myanmar. Bangladesh is the leading



Source: BJMC (2005-2006) and IJMA (2006).

The scenario clearly demonstrates that the domestic consumption of jute goods in India has increased significantly over time, but in Bangladesh it remained stagnant. The government of India has undertaken rules and regulations regarding use of jute for packaging. Bangladesh mostly produces the average quality traditional products like Hessian, Sacking and C.B.C and depends on foreign buyers for selling its products in most cases. The jute marketing policy of Bangladesh needs to be revised for increasing and diversifying sales. The ministry of jute of the country needs to come forward and play the lead role in this regard.

[591] Ibid

[592] Section is drawn on the paper titled, "Global Market Opportunities in Export of Jute", Occasional Paper: 93, by Mustafizur Rahman and Nafisa Khaled, ISSN 1818-1570 (Print), ISSN 1818-1597 (Online); April 2011, © Centre for Policy Dialogue

exporter of raw jute globally, whilst India is the largest producer as well as consumer of jute products in the world.

Bangladesh's jute sector started to face a critical time particularly since the 1990s, as jute started to face increasing competitive pressure from synthetic substitutes, with technological developments leading to progressive replacement of natural raw materials. Lack of significant efforts and required investments towards product development and diversification as also an inability to undertake the technological transformation undermined jute's prospects as a fibre. Failure to follow modern marketing procedures and international trade practices led to the demise of jute as an important globally-traded commodity. All these had adverse impact on production, consumption and export performance of jute.

Owing to environmental conditions, scarcity of land for cultivation, high input cost, high profitability of high-yielding variety (HYV) and hybrid crops, and an unfavourable jute-rice price ratio, jute at present tends to be cultivated in less productive land. The consequence of lower productivity and low profit thus gave rise to a vicious cycle. Low output prices, and inadequate marketing support and extension services had a significant negative impact on jute cultivation and export earnings (BJRI 2008). Governments and private sectors in jute growing countries only lately have started to undertake initiatives to address the attendant concerns. This renewed emphasis has been spurred due to the resurgence of global demand for jute as an environment-friendly commodity. A number of technological breakthroughs favouring diversified uses of jute fibre have also helped.

4.3.2.1 Export Performance

As the data indicate, export-oriented jute sector of Bangladesh used to contribute USD 313.1 million of export revenue in FY1972-73, which was about 90 per cent of the total export from Bangladesh at that time[593]. This had come down to 23 per cent by FY1990-91, whilst in FY2000-01 the share came down to 4.6 per cent, which declined further to 2.7 per cent in FY2008-09. It is notable, however, that share began to rise over the next year to reach 4.5 per cent in FY2009-10. Phenomenal growth of Bangladesh's export oriented garments sector in the 1990s was the major reason for the decline in the share of jute; however, fact remains that the picture also did not improve much in terms of absolute value. It is interesting to note that, in FY2009-10 total export of Bangladesh was USD 16.2 billion, which was higher than the total amount (USD 15.3 billion) earned from raw jute and jute goods export between FY1972-73 to FY2009-10. Total export of raw jute and jute goods did not increase significantly; it rose from USD 313.1 million in FY1972-73 to USD 736.4 million in FY2009-10 (Table 1), whilst total export of Bangladesh rose from USD 348.4 million to USD 16.2 billion in FY2009-10. However, Bangladesh continued to remain the leading exporter globally with the country accounting for over 90 per cent of the world's raw jute and allied fibre export. It is important to mention here that, raw jute and jute goods export increased significantly and almost doubled in FY2009-10 compared to FY2008-09 (by about 98.5 per cent), to reach USD 736.4 million. In FY2009-10, Bangladesh exported 4,471 thousand bells of raw jute and 906 thousand tonnes of jute goods. Major jute items that were exported included – raw jute, jute yarn and twine, jute carpet, jute ropes, and other jute items.

[593] Ibid

Table 48: Share of Jute in Bangladesh Export-Basket

Year	Value (Million USD)	Share (%)
FY1972-73	313.1	89.9
FY1980-81	487.3	68.6
FY1990-91	394.6	23.0
FY2000-01	297.5	4.6
FY2004-05	334.9	4.0
FY2007-08	483.4	3.4
FY2008-09	417.0	2.7
FY2009-10	736.4	4.5

Source: Export Promotion Bureau (EPB) Year Book, various years.

The next Table provides relative growth rates of raw jute and jute goods export over the last four decades, since independence[594]. This growth dynamics indicates three clearly discernible phases. As was noted earlier, at independence, raw jute and jute goods used to be the dominant export items of Bangladesh. During the 1970s export growth of jute and jute items was 6.8 per cent. Following this, in the 1980s and 1990s, export under these items fell down sharply, with negative growths of (-) 1.4 per cent and (-) 1.4 per cent respectively. It was a time when the RMG sector emerged as the major player in Bangladesh's export scenario, registering remarkable growth performance and posting increasingly rising share in the total export basket. Over the last decade, between FY2000-01 and FY2009-10, export growth of raw jute and jute goods were 13.3 per cent and 6.4 per cent respectively. This reemergence of the jute sector as an important export commodity now reinforces the reason for renewed attention to design the appropriate policies for this sector by taking cognisance of the new developments. It is interesting to note that during the financial crisis year of FY2008-09, export of raw jute and jute goods suffered significantly and posted negative growth rates of (-) 10.5 per cent and (-) 15.4 per cent respectively. However, in FY2009-10 both the items were able to regain positive and high growth rates, and attained 32.5 per cent and 100.6 per cent growth rates respectively. For FY2010-11 export target for raw jute and jute goods have been set at USD 255.2 million and USD 860.2, which were 30 per cent and 59.3 per cent higher than the actual export in FY2009-10.

Table 49: Growth Performance of Jute and Jute Goods from Bangladesh

(in Per cent)

Item	FY1973 – FY1981	FY1981 – FY1991	FY1991 – FY2001	FY2001 – FY2010	FY1973 – FY2010
Raw jute	1.0	-1.2	-1.2	13.3	-0.4
Jute goods	9.7	-1.5	-1.4	6.4	0.7
Total raw jute and jute goods	6.8	-1.4	-1.4	8.3	0.4
Total export from Bangladesh	10.3	9.9	13.6	12.4	10.9

Source: Estimated from the Export Promotion Bureau (EPB) data.

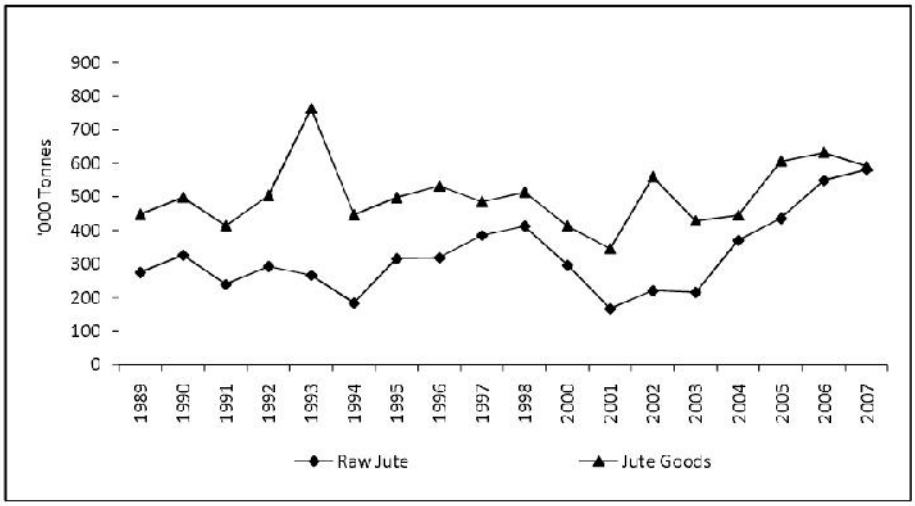
Global jute production was estimated to be at approximately 2.67 million tonnes in FY2007-08, marginally lower by 38,500 tonnes when compared to the production in FY2006-07[595]. India topped the list of major producers, accounting for an impressive 61.6 per cent of the world production in FY2007-08. Her production was 1.64 million tonnes in that year. India was followed by Bangladesh with a share of nearly 37.1 per cent; Myanmar was a distant third with 0.7 per cent of the global jute fibre production. In FY2008-09, Bangladesh produced 0.8 million metric tonnes (MT) of jute compared to 1.4 million MT in India (FAO 2009). Thailand, Nepal and Brazil also grow and produce jute and/or jute goods, along with Vietnam, Indonesia and Cambodia, while Thailand and Myanmar are among the jute fibre exporting countries. Other producers consume most of their grown jute. Some countries (e.g. Ivory Coast, Brazil, Egypt and Cuba) have developed traditional jute goods

[594] ibid
[595] ibid

manufacturing industry at small-scale capacity, based entirely or partially on imported raw fibre. The end products are sacks and bags produced mainly for their domestic use.

The jute sector of Bangladesh has experienced important changes since the 1990s. Export volume o f raw jute was below 0.3 million tonnes during late 1980s and continued to fall till 1994. Export trend saw some turnaround since then, but again experienced a trough during 2001 (severe than the previous deep of 1994). 2004 onwards export of raw jute and jute goods have continued to post an increasing trend. It is important to note here that export volume of jute goods was significantly higher than raw jute throughout any time period.

Figure 45: Export of Raw Jute and Jute Goods in Quantity Terms



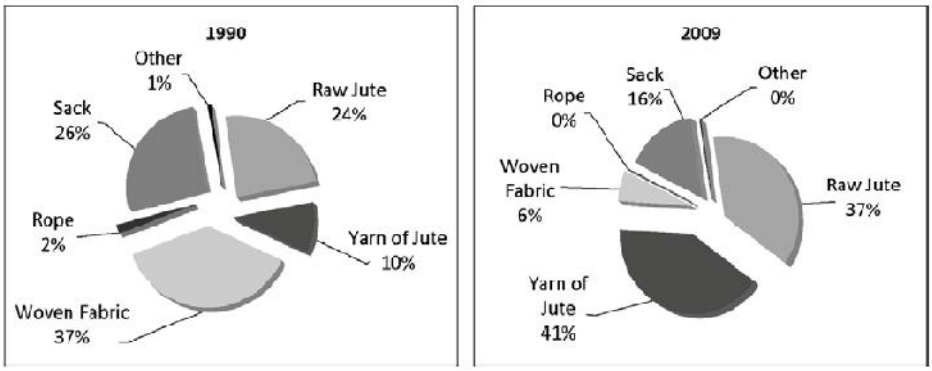
Source: UN Comtrace Database (2010).

During FY2009-10, Bangladesh exported raw jute worth USD 196.3 million and jute goods worth USD 540.2 million (to compare, raw jute export in FY1984-85 was USD 150.8 million whilst that of jute goods was USD 389.8 million). Raw jute and jute goods accounted for 4.5 per cent of the total export, of which the respective share of raw jute and jute goods were 1.2 per cent and 3.3 per cent. Export of jute goods in FY2009-10 was 905.9 thousand MT, accounting for USD 540.2 million, which was a notable rise by 143.5 per cent in quantity terms, and 134.1 per cent rise in value terms over the corresponding figures of FY2000-01. Raw jute export during the period FY2009-10 was 4,470.8 thousand bales against 1,500.2 thousand bales in FY2000-01, which accounted for an increase of 198 per cent. In value terms, the growth was 192.5 per cent, from USD 67.2 million to USD 196.3 million.

It needs to be pointed out here that as the structure of jute export indicates, the base of exportable jute items has continued to remain rather shallow and undiversified. Bangladesh's export basket is concentrated in only about eight products other than the raw jute item (530310: Jute and other textile bast fibres, raw or retted; 530390: Jute and other bast fibres, not spun, nes, tow, waste). These include: 530710: Yarn of jute or textile bast fibres nes, single; 530720: Yarn of jute, textile bast fibre nes, multiple, cable; 531010: Woven fabric of jute/bast fibres, unbleached/bleached; 531090: Woven fabric of jute/bast fibre, not unbleached/bleached; 560710: Twine, cordage, ropes and cables, of jute, bast fibre; 570500: Carpets and textile floor coverings, nes; 630510: Sacks and bags, for package of goods, of jute or of other textile bast fibres; 640590: Footwear, nes. Among these items highest export share was recorded for yarn in 2009. The following graph indicates that, contribution of jute yarn has increased from 10 per cent in 1990 to 41 per cent in 2009. In 1990, the highest exported item was woven fabrics of jute, whose share had come down to 6 per cent in 2009 from 37 per cent in 1990. Raw jute and sacks accounted for 37 per cent and 16 per cent of the total

export in 2009 respectively. Other three export items – ropes, carpets and textile floor coverings and footwear registered low export earnings during the period under review[596].

Figure 46: Share of Jute Export Items



Source: UN Comtrade Database (2010).

4.3.3 Sources and Destination of Raw Jute and Jute Goods

Interest in jute fibre, as was noted above, has resurrected recently in view of environment-friendliness of the product. It is now reckoned to be a good alternative to the use of synthetic fibres such as carbon or ceramic fibres which are subject to environmental concerns. Jute is an environment-friendly product since the fossil fuel content is lower compared to other fibres; jute is also an economically profitable crop as it uses 10 per cent less energy. At the same time jute absorbs a large amount of carbon dioxide from the atmosphere. Reduction of world demand for jute since 1980s was one of the primary reasons for the gradual decline that the jute sector of Bangladesh has experienced over the past years. The increasing global awareness about the advantage of using natural fibres has now resulted in a rise in global demand for jute goods. Globally, demand for diversified jute products has been growing particularly in developed country markets such as USA, Canada, Australia and Japan, where consumer groups are becoming increasingly conscious about carbon footprint of consumer goods. Bangladesh is in a unique situation to take advantage of this growing consumer concern and the resultant interest[597].

From 2005 to 2009, export of raw jute in the world market has increased by 39.5 per cent, and export of jute products has increased by 57.6 per cent. In 2009, Bangladesh was the largest raw jute exporter with a share of about 85.7 per cent of the total global export. On the other hand, China occupied the topmost position among the exporters of jute goods accounting for 58.1 per cent of the total global export. India accounted for 8.5 per cent and Bangladesh for 6 per cent of export of jute products in the world market. Between 2005 and 2009, China's export of jute goods increased by 181.1 percent, whilst that of Bangladesh declined by 11.1 per cent, although the benchmark figures for the two countries were significantly different.

[596] ibid
[597] Ibid

Table 50: Top Exporters of Jute and Jute Goods of the World

(Million USD)

Exporter	2005		2009		Change in 2009 over 2005 (%)
	Value	Share of World Export (%)	Value	Share of World Export (%)	
Raw Jute					
World	139.5	-	194.5	-	39.5
Bangladesh	121.9	87.4	166.7	85.7	36.7
India	2.9	2.1	7.1	3.6	139.4
Tanzania	0.3	0.2	8.6	4.4	3333.7
Jute Goods					
World	2979.9	-	4695.5	-	57.6
China	970.9	32.6	2729.6	58.1	181.1
India	398.2	13.4	398.3	8.5	0.0
Bangladesh	318.9	10.7	283.7	6.0	-11.1

Source: Trade Map Database (2010).

According to the annual statistical report of the Bangladesh Jute Mills Corporation (BJMC), among the major exported jute products export of such items as hessian, sacking and carpet backing cloth (CBC) accounted for 82.6 per cent of total jute goods exports from Bangladesh in FY2007-08. The following table presents the composition of export of jute products in FY2007-08: 42.8 thousand MT for hessian (100.1 per cent lower than in FY1999-00); sacking 114 thousand MT (7.7 per cent lower than in FY1999-00); and CBC 18.53 thousand MT (91.5 per cent lower than in FY1999-00). Export of all jute products was 212.2 thousand MT (94.8 per cent lower than in FY1999-00). Major destinations of Bangladesh's jute goods export were Middle East, North Africa, European Economic Community (EEC) countries, South East Asia, Australia, USA and East Africa in FY2007-08, which accounted for 94.3 per cent of total export of jute goods in FY2006-07 compared to 93.5 per cent in FY1999-00[598].

Table 51: Export (Volume) of Jute Goods

('000 MT)

Period	Hessian	Sacking	CBC	Others	Total
FY1999-00	85.7	122.8	35.5	169.6	413.5
FY2004-05	44.6	91.2	15.7	268.8	420.3
FY2005-06	56.2	118.1	21.1	280.7	476.0
FY2006-07	37.8	104.5	18.6	318.0	478.9
FY2007-08	42.8	114.0	18.5	36.9	212.2

Source: BJMC (2009).

In 2009, Bangladesh exported 322.6 thousand tonnes of raw jute worth USD 166.7 million. Her export was concentrated in two major markets, both of which were in Asia, Pakistan (32.2 per cent) and China (28.6 per cent). These two together accounted for more than 60 per cent of the raw jute exported by Bangladesh in 2009. Raw jute export to Pakistan was USD 52.1 million (96.1 thousand tonnes), and to China USD 46.2 million (94.9 thousand tonnes). It is to be noted that, Bangladesh does not face any tariff on her export of raw jute to these two countries. Export of raw jute has posted a growth of 9 percent for China and declined by (-) 12 per cent for Pakistan in 2009 compared to 2008. For jute yarn, Bangladesh's major markets were Turkey, Belgium and India. In 2009, export of yarn has decreased for Belgium by (-) 18 per cent; and for Turkey by (-) 1 per cent and (-) 4 per cent for two HS categories. In contrast, in India the growth was significant (79 per cent). Export of jute woven fabric registered very high growth in the markets of India, New Zealand and Korea, with 24 per cent, 120 per cent and 23 per cent respectively in 2009 compared to 2008. Indonesia was the largest market for ropes; however, export was 58 per cent lower compared to 2008. Sacks and bags had to face 4 per cent and 5 per cent ad valorem tariffs in India and Indonesia. Exports of these items to India has declined considerably by (-) 31 percent in 2009 when compared to 2008. Sacks

[598] Ibid

and bags export to Indonesia has increased in 2009 compared to 2008 by 15 per cent. Bangladesh also exports an insignificant amount of footwear to United Kingdom (UK) and Italy. Global import of raw jute increased by 5 percent in 2009 compared to 2008. However, yarn, woven fabric, ropes, and sacks and bags import had faced a decline during this period.

Bangladesh accounted for the major share, 87.8 per cent and 47.5 per cent of the export of two major types of jute fibres in 2009; the growth rates for these (for 530310 and 530390) were 15 per cent and 27 per cent respectively compared to 2005 (Data Table follows suite). Tanzania and Greece, which are the two major exporters of jute fibre, accounted for 4.6 per cent and 13.2 per cent share of global exports in these two items in 2009. Estimates for the year 2009 reveal that the world market for raw jute increased by nearly 16 per cent and 4 per cent respectively over last five years; Bangladesh's export growth was 15 per cent and 27 per cent in this period. Volume-wise global export of Bangladeshi raw jute declined from 328 thousand MT to 314 thousand MT between 2005 to 2009, with a negative growth of (-) 4.3 per cent[599].

Product-wise export performance, revealed that Bangladesh is the second highest exporter of jute products after China. Traditional products, such as jute yarn, woven fabric, ropes and jute carpet collectively constituted 64.5 per cent of the total traditional exports of Bangladesh in FY2009-10. The top traditional items, except ropes witnessed an increase in 2009 compared to 2008. Jute handbags, knitted fabrics, power loom fabrics, non-woven cloths, handicrafts and jute clothing bags formed a major part of jute earnings[600].

Major Asian destinations of raw jute and jute goods export were India, Turkey, Pakistan, China, Russia, Indonesia and Malaysia. Major exported items in these countries were raw jute, yarn and fabric. Two South East Asian countries, Indonesia and Malaysia imported primarily ropes and sacks and bags from Bangladesh. Region-wise distribution of jute goods export revealed that Middle East was the major destination (21.6 per cent) of exported jute items from Bangladesh. North Africa, the second most important destination, imports about 11.9 per cent of Bangladeshi jute items. Other major importers were – EEC countries, South East Asia and Australia. Hessians were mainly exported to Middle East, EEC countries, America and North Africa. Sackings were exported to North Africa, South East Asia, Middle East, East Africa, West and South Africa and Australia. CBC is generally exported to Australia, EEC countries, Middle East, rest of America, rest of Europe and USA.

Table 52: Region-wise Export of Jute items from Bangladesh (BJMC and BJMA), FY 2006-2007

(Million USD)

Destination	Hessian	Sacking	CBC	Others	Total
Total	37.8	104.5	18.6	32.5	193.4
Rest of the world	5.9	34.4	2.9	0.2	43.3
Middle East	11.8	14.4	0.2	15.4	41.8
North Africa	3.0	17.1	0.0	3.0	23.0
EEC countries	8.1	2.1	4.7	5.5	20.3
South East Asia	0.6	16.0	0.0	1.4	18.0
Australia	0.8	2.9	10.6	0.9	15.1
USA	5.5	1.3	0.0	3.8	10.7
East Africa	0.1	10.1	0.0	0.0	10.2
West and South Africa	0.1	4.2	0.0	0.4	4.6
Rest of America	1.8	2.1	0.1	0.4	4.4
Russia	0.0	0.0	0.0	1.3	1.3
Rest of Europe	0.2	0.1	0.1	0.3	0.7

Source: BJMC (2009).

[599] Ibid

[600] Ibid

Market analysis shows that, Bangladesh's top export destinations (country-wise), in the year 2009 were Pakistan, China, Turkey, India, Belgium, Australia and Indonesia. Exports to majority of these countries had declined during 2009 compared to 2008. Imports of raw jute by Pakistan in 2009 stood at USD 53.8 million. Pakistan imported almost the entire quantity of its jute fibre requirements from Bangladesh (96.6 per cent of her total import). China and India obtained 99.8 per cent and 100 per cent of their total raw jute import from Bangladesh. Yarn export of Bangladesh to Turkey, India and USA covers 96.7 per cent, 98.9 per cent and 89.5 per cent of their total market demand respectively. Fabric export to Australia meets 79.5 per cent and sacks export to India meets 69.1 per cent of the respective total market volume. Turkey and Belgium primarily imported multiple jute yarn from Bangladesh, which accounted for 91.3 per cent and 65.1 per cent of their total jute yarn import.

India was the largest exporter of jute fabrics. India met 54.9 per cent of the world's total demand which was followed by Bangladesh with 27.2 per cent of the global export share. In case of jute fabric (531010), India's major markets were USA (15.1 per cent), Netherlands (11.6 per cent), Germany (11.4 per cent), Egypt (8.6 per cent), and Iran (6.7 per cent). These are also the potential export markets for Bangladesh. For woven fabric (531090), China was the largest exporter in 2009, whose exports to Thailand and USA markets covered 42.4 per cent and 4.7 per cent of the respective total global markets. China is also a major exporter for carpets. Her market for this product is mainly concentrated to Germany, Japan, USA and Italy which could be potential markets for Bangladesh. India is the nearest competitor of Bangladesh for sacks and bags. With a view to expand her global market, Bangladesh should design a strategy to gain additional market share away from countries which have in recent years eaten into her market, particularly in Thailand, Ghana, USA and UK.

There are good prospects and possibilities for export of jute and jute products by Bangladesh in the North America, particularly in the USA market. It may be recalled here that, due to environmental concerns, San Francisco has banned polythene bags and replaced these with paper bags, compostable plastic and reusable canvas sacks. The ban on plastic bags was passed in March 2007. Other US cities are also considering similar bans. England and Australia have also promised to join the fight against plastic bags. Plastic sacks are also taxed in Italy and Belgium. Spain and Norway are now considering a ban or tax. These concerns are likely to create significant possibilities for export of jute bags from Bangladesh.

European Union (EU) could also be a more significant market for Bangladesh than what it is now. UK, Belgium, Germany, Netherlands and a number of other EU countries have good demand for jute products in their home market. Bangladesh's export to EU market have also benefited from preferential treatment. Bangladesh, thus, should strategise to further expand her market share in the EU countries. As the quality of jute produced in Bangladesh is best among those available in the world, she could leverage on this advantage in view of renewed emphasis on and interest in quality in the major jute markets. It has been found that jute also possesses excellent properties for packaging of food items. From this perspective, this could potentially create new markets which could be targeted by Bangladesh. Egypt is one of the major importers of jute goods.

Table 53: List of Potential Markets for Jute from Bangladesh (2009)

HS Code	Description	Potential Markets
530710	Yarn of jute or textile bast fibres nes, single	Egypt (India)
530720	Yarn of jute, textile bast fibre nes, multiple, cable	Egypt (India, USA), Uzbekistan (Turkey)
531010	Woven fabric of jute/bast fibres, unbleeched/bleached	Egypt (India), Malawi (India), Saudi Arab (India), Syria (India), Tanzania (India)
531090	Woven fabric of jute/bast fibre, not unbleached/bleached	Iran (Pakistan), UK (India)
630510	Sacks and bags, for packg of goods, of jute or of other textile bast fibres	Algeria (China), Denmark (Turkey), Saudi Arab (India), Sudan (Pakistan), Tanzania (India), Zimbabwe (India)

Source: Trade Map Database.
Note: Countries in parentheses indicate major source countries.

The above table depicts some potential markets which have imports of more than USD 1 million of jute, but currently are not importing from Bangladesh in 2009. It is to be noted that, exports of such items as shopping bags and food grade jute clothing bags are on the rise in Asia in recent times. Price competitiveness of some of the Bangladeshi jute export to East Asian market is also found to be significantly strong, and should serve as a contributing factor in raising her market share in this growing market.

Table 54: Major Markets of Raw Jute and Jute Goods Exported from Bangladesh (2009)

Product	Importer	Export Value (Million USD)	Share in Bangladesh's Export (%)	Export Quantity ('000 Tonnes)	Unit value (USD/Unit)	Export Growth between 2008-2009 (%)
530310: Jute and other textile bast fibres, raw or retted	Total	161.7	100.0	314.6	514.0	5.0
	Pakistan	52.1	32.2	96.1	542.0	-12.0
	China	46.2	28.6	94.9	487.0	9.0
530390: Jute and other tex bast fib, not spun, nes; tow and waste of these fibres	Total	5.0	100.0	8.0	618.0	5.0
	Malaysia	1.9	38.9	4.1	466.0	30.0
	UK	1.0	20.4	0.9	1139.0	-14.0
530710: Yarn of jute or of other textile bast fibres, single	Total	83.7	100.0	111.0	754.0	-5.0
	Turkey	44.0	52.5	58.2	755.0	-1.0
	India	18.0	21.6	27.4	658.0	79.0
530720: Yarn of jute or of other textile bast fibres, multiple (folded) or cabled	Total	101.2	100.0	118.8	852.0	-13.0
	Turkey	53.6	52.9	66.5	805.0	-4.0
	Belgium	17.3	17.1	20.6	842.0	-18.0
531010: Woven fabrics of jute or of other textile bast fibres, unbleached	Total	25.3	100.0	20.3	1249.0	-28.0
	Australia	5.6	22.0	4.0	1391.0	-12.0
	India	3.3	13.1	2.4	1391.0	24.0
531090: Woven fabrics of jute or of other textile bast fibres, o/t unbleached	Total	2.3	100.0	1.6		33.0
	New Zealand	0.7	29.0	0.5	1369.0	120.0
	Republic of Korea	0.7	28.6	0.6	1179.0	23.0
560710: Twine, cordage, ropes and cables, of jute or other textile bast fibres	Total	0.3	100.0	0.4	666.0	-69.0
	Indonesia	0.3	100.0	0.4	666.0	-58.0
630510: Sacks & bags, for packg of goods, of jute or of other textile bast fibres	Total	70.2	100.0	78.6		-17.0
	India	34.4	49.0	44.3	778.0	-31.0
	Indonesia	10.1	14.3	12.7	794.0	15.0
640590: Footwear, nes	Total	0.5	100.0	0.0	n.a.	285.0
	UK	0.3	70.9	0.0	9471.0	n.a.
	Italy	0.1	11.0	0.0	12500.0	19.0

Source: Trade Map Database.

Table 55: Competitiveness of Bangladesh's Jute items in the world market (2009)

Item	Exporter	Export in 2009 (Million USD)	Share in World Exports (%)	Quantity Exported in 2009 ('000 Tonnes)	Unit Value (USD/Unit)	Annual Growth in Value between 2005-2009 (%)
530310: Jute and other textile bast fibres, raw or retted	World	184.1	100.0	367.2	501.0	16.0
	Bangladesh	161.7	87.8	314.6	514.0	15.0
	Tanzania	8.4	4.6	10.4	810.0	67.0
530390: Jute and other tex bast fib, not spun, nes; tow and waste of these fibres	World	10.4	100.0	n.a.		4.0
	Bangladesh	5.0	47.5	8.0	618.0	27.0
	Greece	1.4	13.2	0.2	7840.0	371.0
530710: Yarn of jute or of other textile bast fibres, single	World	89.7	100.0	117.0	767.0	9.0
	Bangladesh	83.7	93.3	111.0	754.0	15.0
	India	3.5	3.9	4.4	797.0	-18.0
530720: Yarn of jute or of other textile bast fibres, multiple (folded) or cabled	World	141.3	164.2	100.0	860.0	0.0
	Bangladesh	101.2	118.8	71.7	852.0	7.0
	India	27.0	32.7	19.1	826.0	-14.0
531010: Woven fabrics of jute or of other textile bast fibres, unbleached	World	93.2	100.0	64.4	1446.0	-6.0
	India	51.1	54.9	11.8	4351.0	-7.0
	Bangladesh	25.4	27.2	20.3	1249.0	-1.0
531090: Woven fabrics of jute or of other textile bast fibres, o/t unbleached	World	30.6	100.0	0.0	n.a.	4.0
	China	11.9	39.0	n.a.	n.a.	36.0
	Bangladesh	2.3	7.5	0.0	n.a.	3.0
560710: Twine, cordage, ropes and cables, of jute or other textile bast fibres	World	0.5	100.0	0.5	1052.0	-65.0
	Bangladesh	0.3	57.3	0.4	666.0	-58.0
	Indonesia	0.2	41.9	0.0	4744.0	179.0
570500: Carpets and other textile floor coverings, nes	World	1240.0	100.0	0.0	n.a.	13.0
	China	515.8	41.6	184.3	2798.0	31.0
	Bangladesh	0.1	0.0	0.0	3594.0	-3.0
630510: Sacks & bags, for packg of goods, of jute or of other textile bast fibres	World	216.1	100.0	0.0	n.a.	12.0
	Bangladesh	70.2	32.5	0.0	n.a.	21.0
	India	56.8	26.3	62.4	909.0	-1.0
640590: Footwear, nes	World	2884.0	100.0	0.0	n.a.	27.0
	China	2193.7	76.1	342.5	6406.0	39.0
	Bangladesh	0.5	0.0	0.0	n.a.	8.0

Source: Trade Map Database.

4.3.4 Market Access Issues

The term 'Market Access' denotes the degree of openness that countries face while exporting a commodity to another country[601]. Countries apply various measures to restrict imports to benefit local industries or favour particular countries. In the 1970s and 1980s, tariff was the major instrument to enhance or limit market access. Average tariff on manufacturing import came down

[601] Ibid

significantly in recent years, from about 40 per cent to 4.7 per cent (Kumar et al. 2007). However, NTBs still remain on a large number of tradables. Traditionally, such measures included – quota restrictions, price control measures, financial measures, automatic licensing, quality control measures, monopolistic measures and technical measures. Apart from the technological changes and competitiveness factors, which have contributed to reduce tier of use of jute and jute goods globally, another reason for this had been the limits imposed by the prevailing market access conditions.

4.3.4.1 Tariff Measures

The tariff barriers faced by Bangladesh in case of jute products vary widely from country to country (export destination), and also from item to item. In UK, Japan and Australia duty rates are zero for all the jute items under the Most Favoured Nation (MFN) status, while Kenya and Iran impose the very high tariffs of 73.4 per cent and 50 per cent respectively. Bangladesh faces highest tariff rate for raw jute in Singapore, Colombia and Vietnam with 10 percent, and Brazil with 8 per cent. Twine and ropes have highest duty in the range of 15 percent in Venezuela, 10 per cent in Philippines and Barbados. For fabric, highest duties are levied by Algeria (30 per cent), Tanzania and Kenya (25 per cent), Brazil and Iran (20 percent). Bangladesh has to face high tariff for exporting sacks and bags of jute in Iran (65 percent), Kenya (59 per cent) and Vietnam (40 per cent). Brazil imposed very high anti-dumping duty (ADD) on sacks and bags of jute. These have limited Bangladesh's export opportunities in these countries.

4.3.4.2 Preferential Market Access

Bangladesh also receives preferential market access in various markets, which are reviewed below.

4.3.4.3 North America

USA is the largest importer of jute in North America. In USA, Bangladesh benefits from zero MFN tariffs on raw jute, yarn, woven fabric, ropes, carpets, and sacks and bags. MFN duty forfootwear was 8 .2 percent. However, Bangladesh enjoys GSP[602] facility in the USA market in footwear[603]. So, in practice, the operative tariff rates are zero. According to the Trade Act of 1974, enlisted categories of import-sensitive products – certain textile and apparel products, watches, electronic articles, steel products, footwear, glass products and some other items – are not eligible for GSP treatment. In addition to that, the Act also establishes 'competitive need limits,' which require that the GSP treatment be suspended when USA imports of a product from a single country reach a specified threshold value if 50 per cent of the total USA imports of the product comes from a single country. It should be mentioned that, Bangladesh's raw jute and yarn export to the USA market is above 50 per cent threshold limit of her total import of these products. Yarn, woven fabrics and ropes have been enjoying GSP facilities since 2003. Afterwards, as the export exceeded the competitive need limit, GSP treatment status was suspended for Bangladesh.

[602] Ibid

[603] Products which are grown, produced or manufactured in a beneficiary country and which meet the Rules of Origin (RoO) criteria are eligible for duty-free entry to USA under the GSP. "Eligible merchandises are entitled to duty-free treatment provided some conditions are made; such as, the merchandises must be destined to the United States without contingency for diversion at the time of exportation from the beneficiary developing country; the cost or value of materials produced in the beneficiary developing country and/or the direct cost of processing performed, there must represent at least 35 per cent of the appraised value of the goods; and the cost or value of the materials imported into the beneficiary developing country may be included in calculating the 35 per cent value-added requirement for an eligible article if the materials are first substantially transformed into new and different articles, and are then used as constituent materials in the production of the eligible articles" (CPD 2008).

Table 56: GSP Facilities in the USA Markets on Jute Items in 2009

HS Code	Description of Items	MFN Tariff	GSP Facility	Share of Bangladesh's Export in Total Import of US (%)
530310	Jute and other textile bast fibres (excludirg flax, true hemp and ramie), raw or retted	Zero	-	86.4
530390	Jute and other textile bast fibres (excludirg flax, true hemp and ramie), processed but not spun; tow and waste of these fibres	Zero	-	27.6
530710	Yarn of jute or other textile bast fibres (excludirg flax, true hemp, and ramie), single	Zero	-	89.3
530720	Yarn of jute or other textile bast fibres (excludirg flax, true hemp, and ramie), multiple (folded) or cabled	Zero	-	0.0
531010	Unbleached woven fabrics of jute or of other textile bast fibres of heading 5303	Zero	-	26.5
531090	Woven fabrics of jute or of other textile bast fibres of heading 5303, other than unbleached	Zero	-	3.1
570500	Carpets and textile floor coverings, nes	Zero	-	0.0
630510	Sacks and bags of a kind used for the packing of goods, of jute or of other textile bast fibres of heading 5303	Zero	-	0.0
640590	Disposable footwear, nes, designed for one-time use	8.15%	GSP	0.0

Source: United States International Trade Commission (USITC) Database.

However, this did not affect the trade since the MFN rate for these products were zero. Canada is not a very big market for Bangladesh's jute items. USA, India and China together met more than 60 per cent of the Canadian demand of jute products, whereas, Bangladesh accounted for only 3 per cent of her total demand. However, the revised Canadian GSP scheme of 2002 covered all products of export from Bangladesh with 25 per cent domestic value addition as Rules of Origin (RoO). Thus jute items enter the Canadian market with duty-free treatment. Bangladesh needs to strategise to raise her share in the Canadian market.

4.3.4.4 European Union

EU's share was 15.6 per cent of Bangladesh's global export of jute products (or worth USD 43.8 million) in 2000; this came down to 10.6 per cent (or USD 47.7 million) in 2009. Indeed, export of jute and jute products in the EU market increased by 8.8 per cent between 2000 to 2009; however, global export had increased by 60 per cent in 2009 compared to that of 2000. In the EU market, Bangladesh gets zero MFN duty in raw jute and yarn. Other products such as sacks and bags and fabrics received duty-free treatment under the Everything but Arms (EBA) initiative of the EU, which was put in place in 1995 (as EU-GSP), revised in 2000, and came into effect as EBA from January 2001. The EU-GSP treatment is subject to fulfilment of the relevant RoO. In 2000, Bangladesh exported 51.4 per cent of the jute goods under the GSP. This share declined to 39.3 per cent during 2009.

Table 57: GSP Utilisation in the EU Market

HS Code	Description	2000			2009		
		Total Export from Bangladesh	GSP Utilisation	Global Export from Bangladesh	Total Export from Bangladesh	GSP Utilisation	Global Export from Bangladesh
530310	Jute and other textile bast fibres, raw or retted (excl. flax, true hemp and ramie)	2.8	n.a.	66.6	2.4	n.a.	161.7
530390	Jute and other textile bast fibres, processed but not spun; tow and waste of such fibres, incl. yarn waste and garnetted stock	0.1	n.a.	3.0	1.7	n.a.	5.0
530710	Single yarn of jute or of other textile bast fibres of heading 5303	16.1	n.a.	52.8	3.7	n.a.	83.7
530720	Multiple 'folded' or cabled yarn of jute or of other textile bast fibres of heading 5303	1.7	n.a.	8.4	20.5	n.a.	101.2
531010	Woven fabrics of jute or of other textile bast fibres of heading 5303, unbleached	12.1	11.7	56.5	8.1	8.1	25.3
531090	Woven fabrics of jute or of other textile bast fibres of heading 5303, bleached, dyed, made of yarn of different colours, or printed	0.5	0.5	1.0	0.5	0.5	2.3
560710	Twine, cordage, ropes and cables, of jute or other textile bast fibres of heading 5303,	0.5	0.5	38.7	0.0	0.0	0.3
630510	Sacks and bags, for the packing of goods, of jute or other textile bast fibres of heading 5303	10.1	9.8	53.9	11.1	0.8	70.2

Source: Trade Map Database, Eurostat Database.
Note: n.a. indicates not traded under GSP.

The average GSP utilisation rate for woven jute fabrics was about 97 per cent in 2000, which had increased to almost 100 per cent in 2009. However, for sacks and bags, the utilisation rate had come down to 7.4 per cent in 2009 from 97.3 per cent in 2000 (calculated from the above table). As the demand for natural fibres is increasing in Europe, Bangladesh has potential to increase her export of jute items by taking advantage of the GSP facilities.

4.3.4.5 South Asia

In South Asia, India and Pakistan are the two major markets for Bangladesh's jute items. Pakistan is the largest importer of raw jute as well as one of the major exporters of jute goods. On the other hand, India is a major exporter and also major consumer of jute goods. In this context, there is a good opportunity to further strengthen Bangladesh's position in the South Asian market for raw jute and jute goods. Bangladesh is getting zero tariff in raw jute and carpet in the Indian market. For other products such as yarn, woven fabric and sacks and bags, applied tariff rate is 4 per cent. Under the South Asia Free Trade Area (SAFTA) agreement, India, Pakistan and Sri Lanka have brought down the custom duties from zero to 5 per cent by 1 January 2009. Bangladesh can now take the opportunity of zero and lower tariff to enter into the Indian market. SAARC (South Asian Association for Regional Cooperation) countries have provided sensitive list of products for which zero duty is not allowed. India and Bhutan have not included jute items in their respective sensitive lists. Pakistan included 6305.10 (sacks and bags of jute) in the sensitive list and imposed a 25 per cent MFN tariff. Nepal included 5310.10 (woven fabrics of jute or of other textile bast fibres) and 6305.10.00 (textile bast fibre of jute) with imposition of 15 per cent tariff. Sri Lanka included 5607.10.00 (twine and ropes of jute) and had a 25.4 per cent MFN tariff. Maldives included 6305.10.00 (textile bast fibre of jute) in their sensitive list with 25 per cent MFN tariff. Raw jute, yarn and woven fabrics are the major imported items of India and Pakistan from Bangladesh. Other than these, India imports sacks from Bangladesh. Because of high MFN rate of sacks and bags, export to Pakistan has declined during 2005 to 2009 by (-) 23 per cent rate. With the MFN rate at 4 per cent in India, the growth of jute yarn, woven fabric, and sacks and bags to the Indian market had been at high rates of 43 per cent, 25 per cent and 43 per cent respectively over during the same period. Bangladesh's jute and jute item exports are about 33.6 per cent of her total exports in South Asia (USD 149.3 million).

Over the past years India has emerged as an important trading partner of Bangladesh. In this backdrop, the offer made by the Indian Prime Minister at the Seventeenth SAARC Summit in Malé in November, 2011 to grant duty-free (and quota-free) market access for virtually all export products originating from the SAARC LDCs demands special attention, particularly from the perspective of Bangladesh. Since the other SAARC LDCs (barring Afghanistan) have already been enjoying preferential (duty-free) market access in India for virtually all products of export under various bilateral arrangements, it is Bangladesh (along with Afghanistan) which stands to gain the most from this new initiative. Indeed, the offer has opened a potential window of opportunity for Bangladesh to enter the fast-growing Indian market from a position of more competitive strength. As will be appreciated, Bangladesh's supply-side capacity and competitive strength make her prospects to take advantage of the duty-free market access by far the most promising among the five SAARC LDCs[604].

[604] The duty-free offer would mean that, of the more than 5050 items imported by India (at 6 digit level), Bangladesh will now be able to gain duty-free market access for all but 25 items (these relate to arms, tobacco and liquor).As is known, India is the second most important import source for Bangladesh (USD 4740.7 million in FY2012-13), conceding only to China (USD 6307.6 million). If informal bilateral trade is factored into the equation, India is likely to be Bangladesh's single most important trading partner. On the other hand, Bangladesh's ranking in terms of India's import sourcing was 62nd in FY2013. Bangladesh is yet to take advantage of the increasingly large Indian import market. It is true that, in recent years Bangladesh's export to India has experienced robust growth, rising from USD 144.7 million in FY2005 (as against import

However, Trade Facilitation has emerged as a "Major Concern".

About 90 percent of trade between Bangladesh and India are carried out through land ports. However, trade facilitation measures at the border have tended to remain mostly archaic inspite of the fact that bilateral trade has risen from USD 1.2 billion in FY2000 to USD 5.3 billion in FY2013. A number of studies have shown that, for Bangladesh to be able to exploit the full potential of the duty-free offer of India, a major thrust will need to be put on addressing issues related to trade facilitation so that the 33 land customs stations (LCSs) through which trade takes place are transformed from "checking points" to "crossing points". Whilst signing of transport connectivity agreements and motor vehicle agreements (MVAs) are perhaps issues of future that are key to putting in place seamless multi-modal movement of goods between the two countries, a number of studies have shown that at the moment there was an urgent need to give priority attention to issues of improving the state of trade facilitation at the border. From this vantage point intervention in four areas is reckoned to be of critical importance in terms of promoting trade and attracting Indian investment to Bangladesh targeting the Indian market: (a) Infrastructure Bottlenecks; (b) Limited capacity at the LCSs; (c) Non-Tariff Barriers (NTBs) and (d) Cumbersome Export Processing and Complex Documentation.

In view of the above, some of the measures that should command urgent attention of policymakers are: (a) Introduction of Single Window Facilities and establishment of automated systems for cargo processing and electronic data interchange on both sides; (b) Building of dedicated bypass roads to reduce congestion at LCS with designated clearance facilities for specified major items; (c) Expansion of areas at LCS, with appropriate parking and warehousing facilities and loading/unloading facilities in the NML area; (d) Establishment of testing facilities at major borders; (e) Standardisation and harmonization of customs procedures; (f) Signing of MRAs with commensurate strengthening of BSTI to address standards-laboratory testing-certification related NTBs; (g) Coordinate the developments of LCSs on both sides of the border; (h) Take advantage of the public private partnerships to develop LCSs.Both export facilitation and import facilitation should be given equal importance to advance the interests of exporters, producers and consumers in Bangladesh. There is also a need to coordinate trade facilitation measures on both sides of the border.

A number of trade facilitation measures have been put in motion in Bangladesh as part of the one billion USD line of credit (LoC) support extended by India.These included development of transport infrastructure and strengthening of Bangladesh Standards and Testing Institution (BSTI). Therecently established SAARC Regional StandardisationOrganisation (SARSO) in Dhaka should also be seen as a

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from India of USD 2026.0 million) to USD 563.9 million in FY2013 (import from India was USD 4740.7 million). Share of Bangladesh's export in the global import of India (490.7 billion in FY2013) was an insignificant 0.1 per cent (India's global import being USD 489 billion in 2013); to compare, Bangladesh's own import from India accounted for about 16.3 per cent of her total import (34.1 billion) in the same year.

Bangladesh's bilateral trade deficit with India has been on the rise over the corresponding period – between FY2005 and FY2013 the deficit, through formal channel, has more than doubled, from USD 1882.0 million to USD 4176.7 million. However, the issue of trade deficit needs to be treated with some nuance. In a globalised world it is the global trade deficit which should be of concern to countries, not bilateral trade deficit. Additionally, as is well-known, a large part of the Indian import included raw materials that go for export-oriented industries in Bangladesh. However, the issue of growing deficit merits special mention in the backdrop of Bangladesh's inability to access the growing Indian import market.

Whilst apparels constitutes about four-fifths of Bangladesh's global export, more than three-fourths of Bangladesh's export to India is accounted for by non-RMG products. These include traditional export items such as raw jute and jute goods, frozen-food items, dry-cell batteries, fertiliser, and chemicals, but also new goods such as plastic items, cement, ceramic and melamine products, leather and footwear, juice and accessories. As a result, higher exports to India should help Bangladesh not only in terms of market diversification (away from the traditional markets of the EU and North America) but also product diversification (beyond the RMG). This twin diversification possibility is of crucial importance to Bangladesh.

welcome development in this regard. In view of the above, issues related to trade facilitation ought to receive heightened attention on the part policymakers, both in Bangladesh and India, in order to realize the potential opportunities emanating from India's duty-free market access offer for the SAARC LDCs[605].

4.3.4.6 Non-tariff Barriers

Bangladesh faces a number of NTBs which inhibit her global export. Some of these have been notified to the World Trade Organization (WTO). NTBs faced by Bangladeshi exporters could be categorised in the following broad areas:

a. NTBs similar to sanitary and phytosanitary (SPS) measures

b. NTBs related to consular information

c. NTBs related to technical barriers to trade (TBT) measures

d. Quantitative restrictions including ban

e. Labelling requirement

f. Rules of Origin

g. Visa requirement

Apart from these, exporters also face obligatory compliance requirements with regard to various standards such as health, safety, child labour, working hours, wages and benefit, freedom of associations, environmental compliances, etc., which also control trade activities. With MFN tariffs coming down, NTBs are becoming more of a cause for concern than the tariff barriers. It is to be noted in this context that, Bangladesh faces NTBs with regard to yarn, twine and jute sacks in her exports to different countries.

4.3.4.7 Yarn and Twine

Bangladesh faces TBT (packaging requirement, labelling requirement, etc.), SPS, customs and administrative procedures, import licensing requirement on export of jute yarn and twine. The packaging conditions of yarn and twine require fumigation of the products by methyl bromide if wood or wooden substances are used for packing, while methyl bromide is banned in many countries (CUTS 2007). Thus packaging requirements work as barriers to export of jute yarn and twine. Requirement of SPS measures and certification requirements by some countries also curb export potentials due to additional formalities, time and cost.

Jute products were not live items, and consequently, it had been argued that, the products need to be excluded from SPS regulations (CUTS 2007). Moreover, the requirement for special Certificate of Origin, packaging requirement, phytosanitary measures, requirement of import licence by importers, additional documentation in the port of discharge for customs valuation and pre-shipment inspections (PSI) constrain Bangladesh's exports, and lead to cost escalation due to these various delays.

4.3.4.8 Jute Sacks and Woven Fabrics

Some countries have standards for jute bags, which are not technically achievable, and the details relating to the standards are not also often available in English. Similarly, the requirements on using certain specified packaging materials without providing any justified reasons often acts as trade

[605] http://cpd.org.bd/index.php/indias-market-access-offer-realising-potential-opportunities/

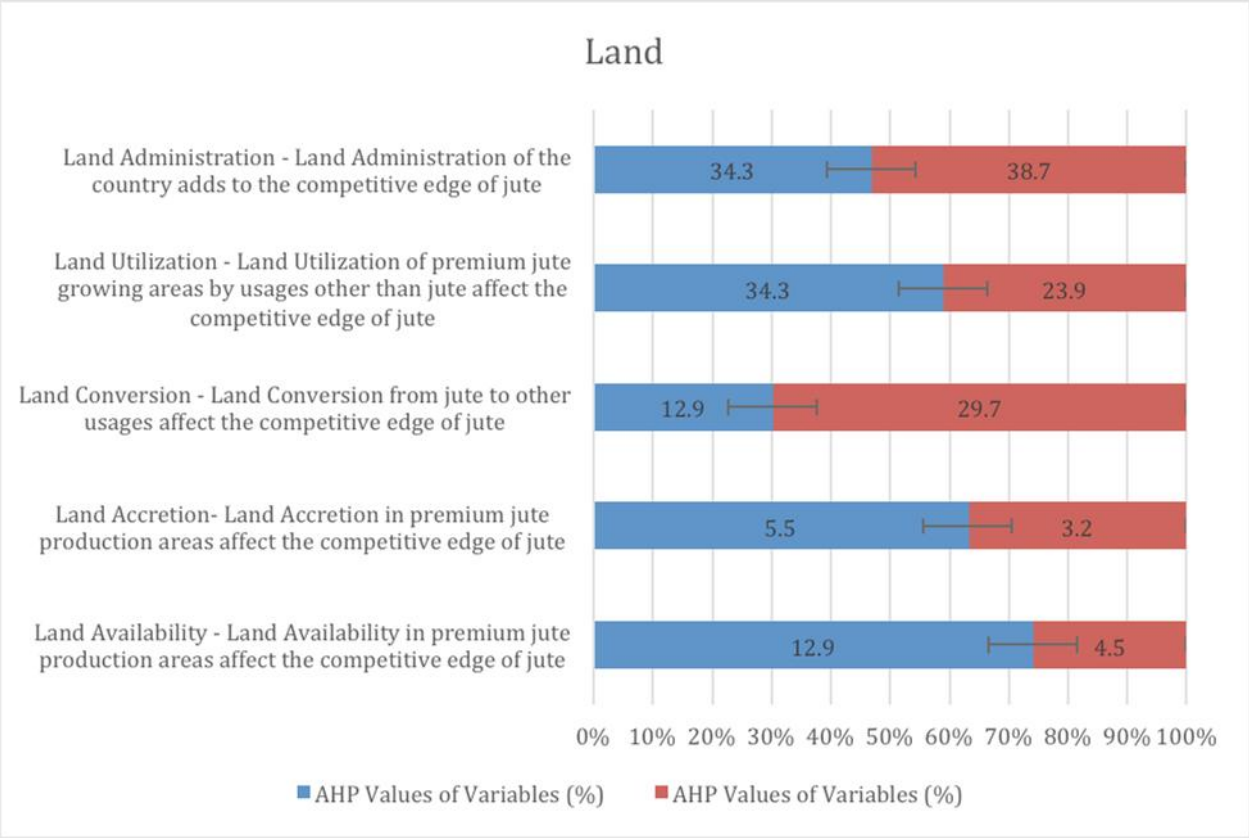
barriers. On 4 July 2010, India issued an order by which labeling or branding requirement of country of origin for jute bags was made mandatory for export to India. It also added that, labelling should be 10Å~8 cm machine stitched on four sides. Such labels should be fixed on both sides of the bags. This specification has caused Bangladeshi exporters to incur extra cost, and consequently will undermine her competitiveness in the Indian market. In the Cuban market, for exporting jute sacks and woven fabric of jute, sanitary authorities require certification that industrially processed jute has originated from a pest-free crop. Such testing and certification arrangements cause unnecessary hassles in accessing the Cuban market. Jute blended products require special certification depending on the percentage of jute in fabric. In Egypt, import of hessian bags must conform to the new Egyptian Standards. Import of jute-diversified products is restricted in the Iranian market. In Thailand, jute and kenaf remain subject to non-automatic import licensing.

Exports to ASEAN (Association of Southeast Asian Nations) countries also face some problems. Exporters to these countries need to undertake testing of products, and have to submit certificate during the trading process. This causes extra time and costs. Sometimes trade also suffers for complex customs clarification procedures. Very often classification of products is done without appropriate justification which poses as an NTB. Often, misclassification of jute products leads to higher duties and levies. For example, export of jute bags and jute shopping bags to Malaysia face duties that are not same for the two items, even though these products were of similar nature. Exporters often have to pay higher customs duties or have to pay bribes in order to get the item classified in a manner that would impose lower custom duties. Brazil has imposed 64.5 per cent ADD which have put significant restraint on exporters, and act as both tariff barrier and NTB. To address some of these issues, Bangladesh will simply need to enhance her domestic capability. In case of others mentioned above, she should continue to pursue various multilateral and bilateral negotiations for their withdrawal. Bangladesh will also need to address the root causes of imposition of ADD in Brazil which has been justified on the ground of prices charged by Bangladesh in Brazil, even though it is lower than Bangladesh's production cost.

Cost reduction through productivity enhancement should play the key role in this situation.

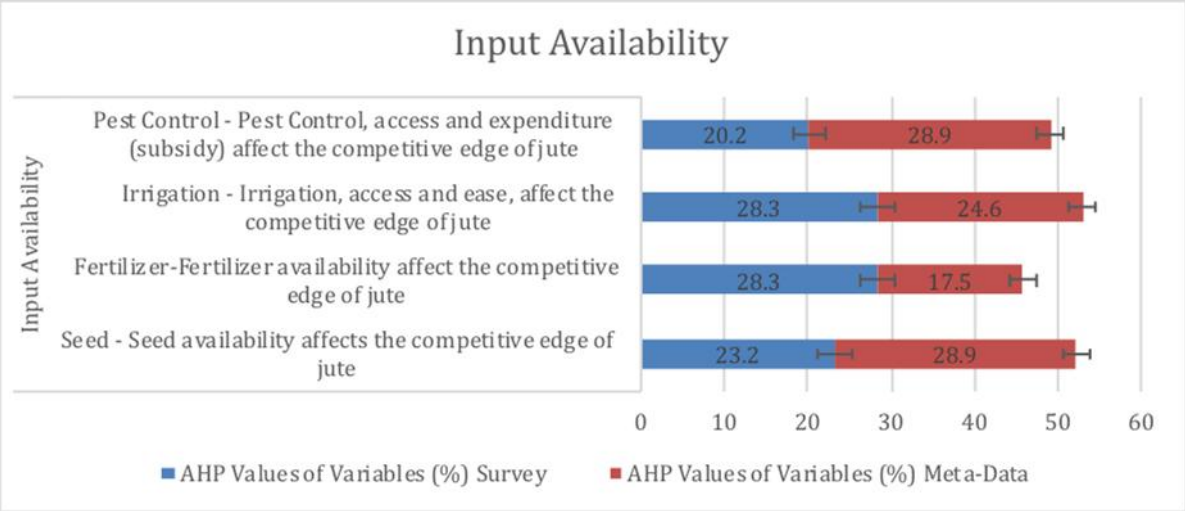
4.3.5 Primary Results

Figure 47: AHP Values for Land Variables



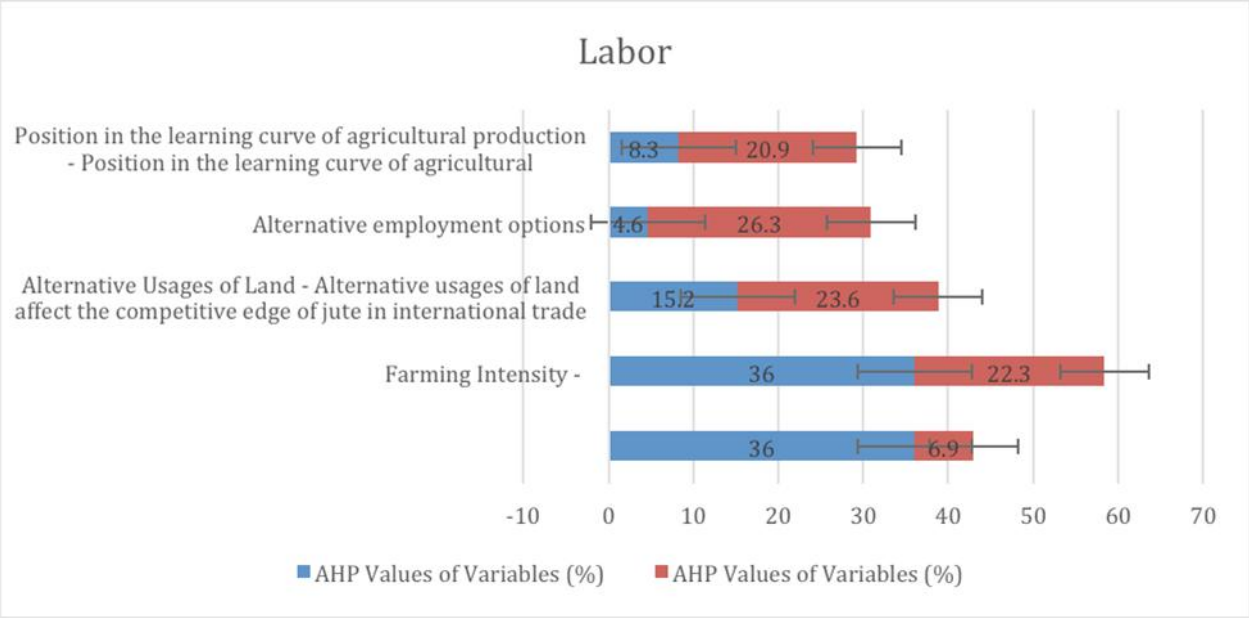
Constructs	Variables (impacting) premium jute production areas affect the competitive edge of jute	AHP Values of Variables (%)	
		Survey	Meta-Data
Land	Land Availability - Land Availability in premium jute production areas affect the competitive edge of jute	12.9	4.5
	Land Accretion- Land Accretion in premium jute production areas affect the competitive edge of jute	5.5	3.2
	Land Conversion - Land Conversion from jute to other usages affect the competitive edge of jute	12.9	29.7
	Land Utilization - Land Utilization of premium jute growing areas by usages other than jute affect the competitive edge of jute	34.3	23.9
	Land Administration - Land Administration of the country adds to the competitive edge of jute	34.3	38.7

Figure 48: AHP Value for Input Availability



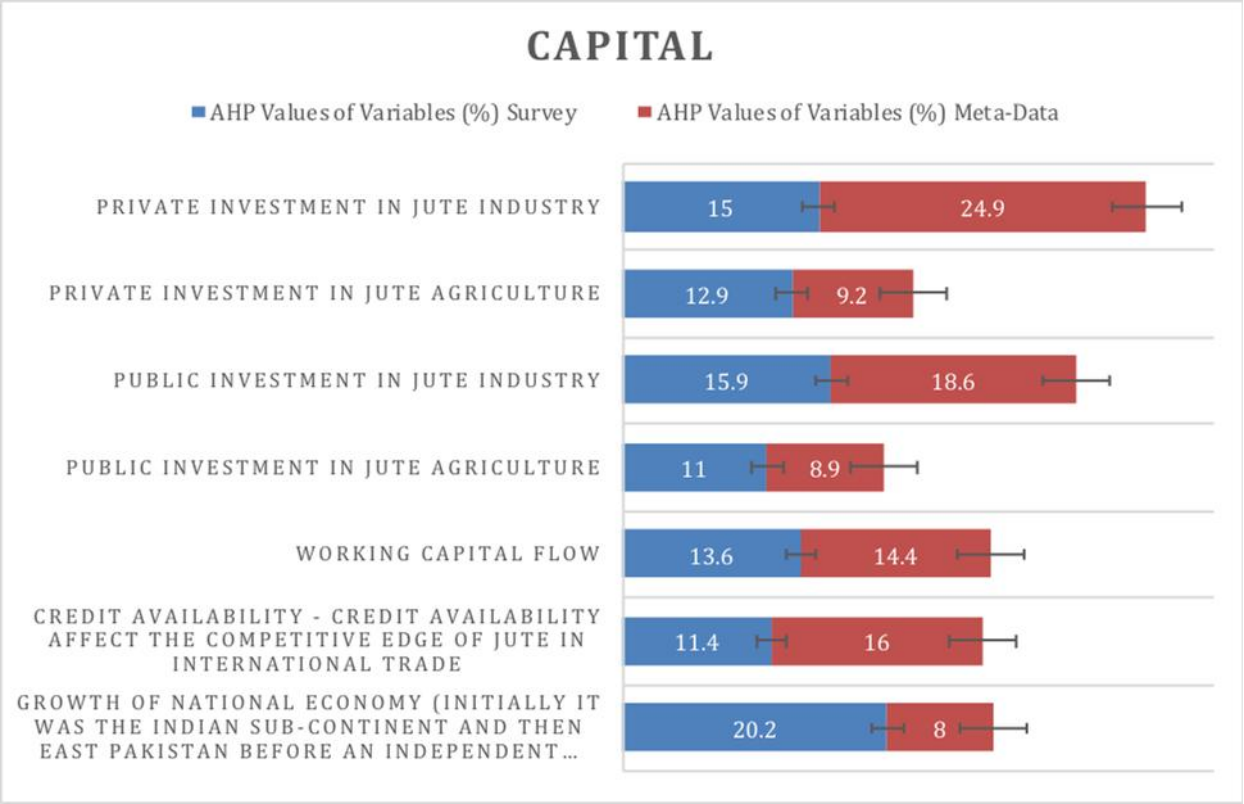
Constructs	**Variables (impacting)in premium jute production areas affect the competitive edge of jute**	**AHP Values of Variables (%)**	
		Survey	**Meta-Data**
Input Availability	Seed - Seed availability affects the competitive edge of jute	23.2	28.9
	Fertilizer-Fertilizer availability affect the competitive edge of jute	28.3	17.5
	Irrigation - Irrigation, access and ease, affect the competitive edge of jute	28.3	24.6
	Pest Control - Pest Control, access and expenditure (subsidy) affect the competitive edge of jute	20.2	28.9

Figure 49: AHP Values for Labour Variables



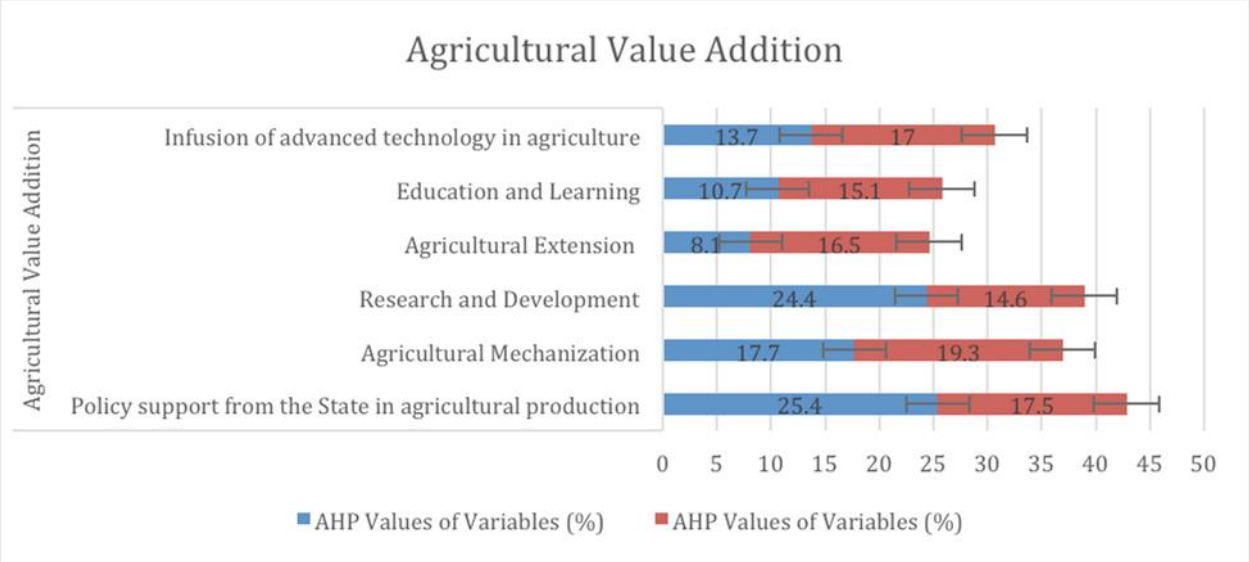
Constructs	Variables (impacting)in premium jute production areas affect the competitive edge of jute	AHP Values of Variables (%)	
		Survey	Meta-Data
Labor	Cropping Pattern - Cropping Pattern and its current structure in Bangladesh affect the competitive edge of jute	36	6.9
	Farming Intensity - affect the competitive edge of jute in international trade	35.9	22.3
	Alternative Usages of Land - Alternative usages of land affect the competitive edge of jute in international trade	15.2	23.6
	Alternative employment options affect the competitive edge of jute in international trade	4.6	26.3
	Position in the learning curve of agricultural production - Position in the learning curve of agricultural production curve of the jute grower affect the competitive edge of jute in international trade	8.3	20.9

Figure 50: AHP Values for Capital Variables



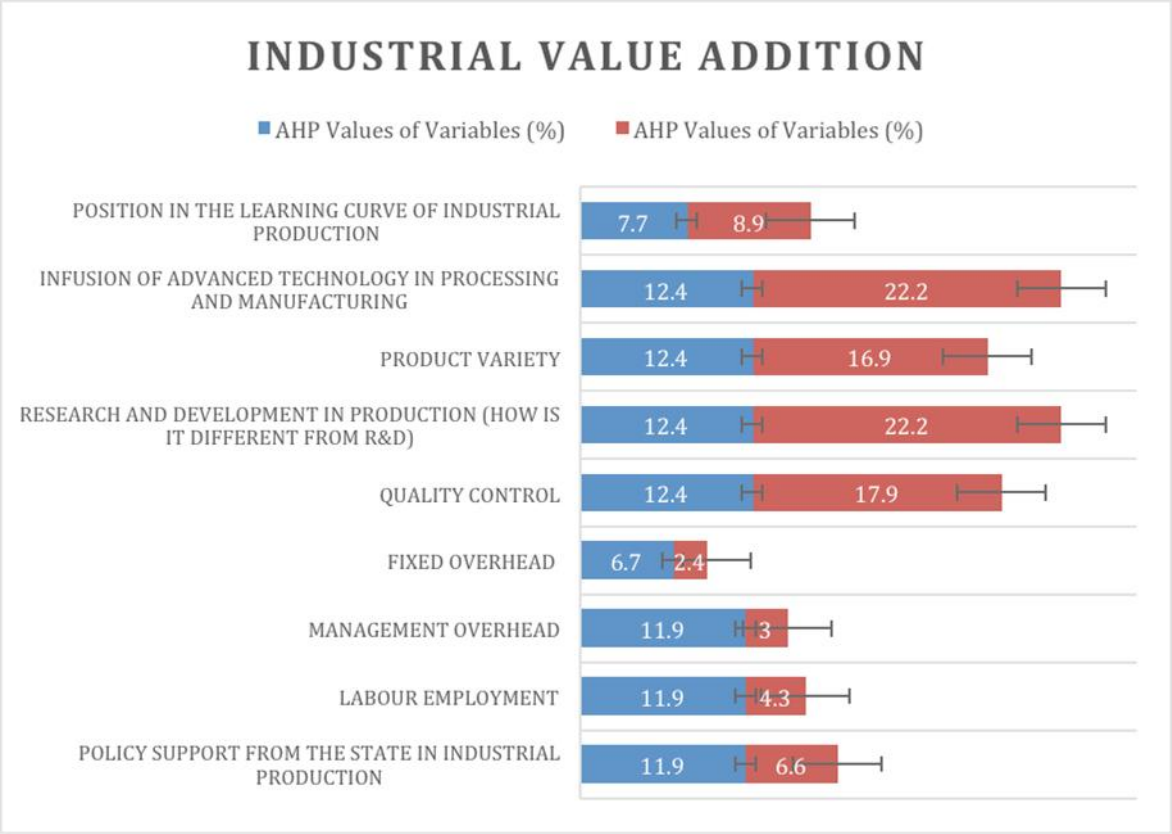
Constructs	Variables (impacting)in premium jute production areas affect the competitive edge of jute	AHP Values of Variables (%)	
		Survey	Meta-Data
Capital	Growth of National economy (initially it was the Indian sub-continent and then East Pakistan before an independent economy)- Growth of National economy affects the competitive edge of jute in international trade	20.2	8
	Credit Availability - Credit Availability affect the competitive edge of jute in international trade	11.4	16
	Working Capital Flow	13.6	14.4
	Public Investment in Jute Agriculture	11	8.9
	Public Investment in Jute Industry	15.9	18.6
	Private Investment in Jute Agriculture	12.9	9.2
	Private Investment in Jute Industry	15	24.9

Figure 51: AHP Values for Agricultural Value Addition



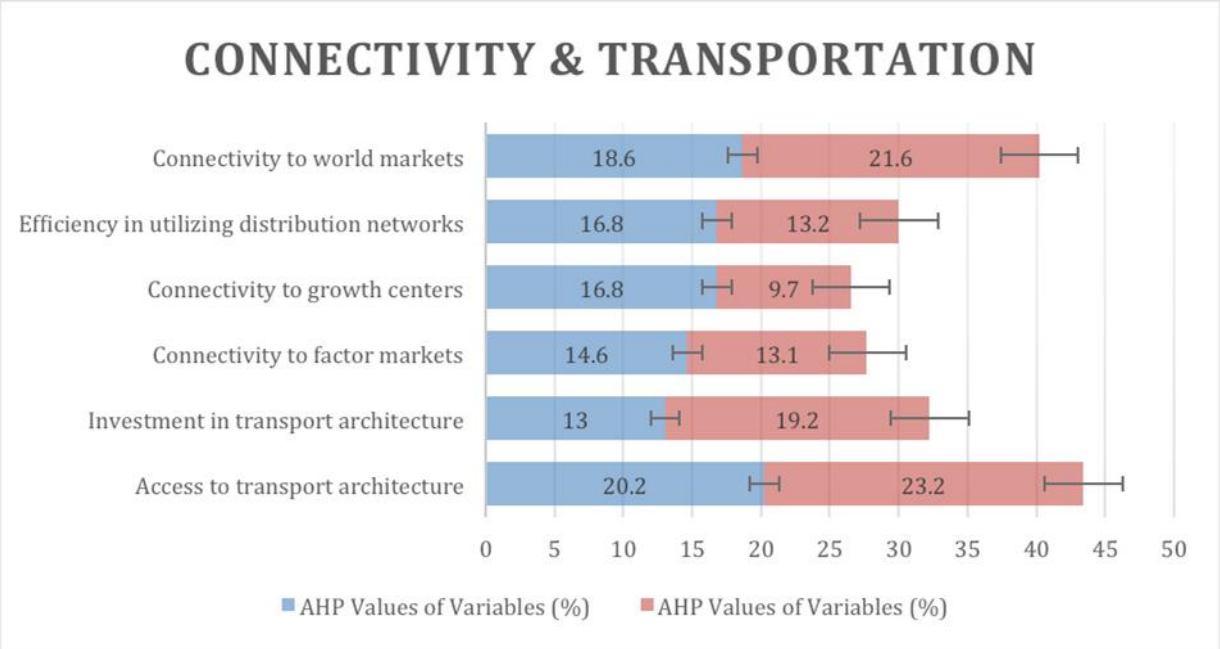
Constructs	Variables (impacting)in premium jute production areas affect the competitive edge of jute	AHP Values of Variables (%)	
		Survey	Meta-Data
Agricultural Value Addition	Policy support from the State in agricultural production	25.4	17.5
	Agricultural Mechanization	17.7	19.3
	Research and Development	24.4	14.6
	Agricultural Extension	8.1	16.5
	Education and Learning	10.7	15.1
	Infusion of advanced technology in agriculture	13.7	17

Figure 52: AHP Values for Industrial Value Addition



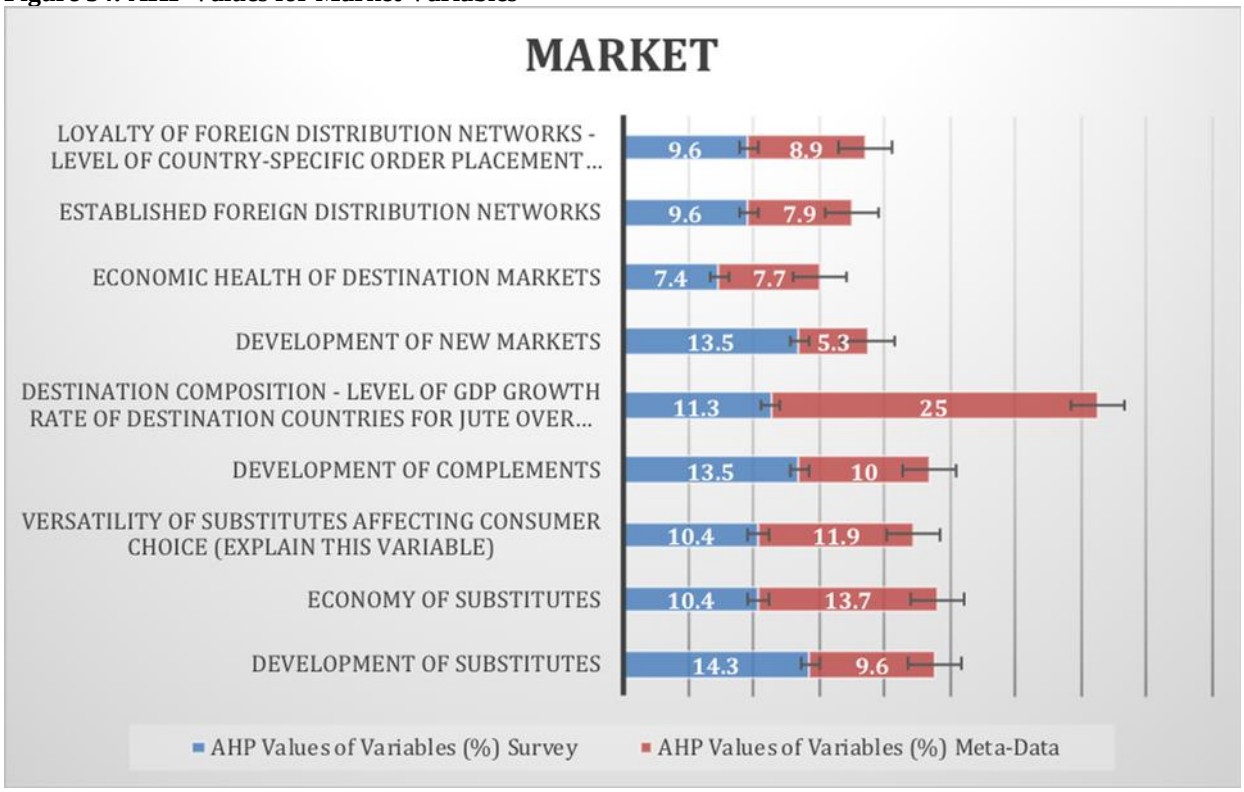
Constructs	Variables (impacting)in premium jute production areas affect the competitive edge of jute	AHP Values of Variables (%)	
		Survey	Meta-Data
Industrial Value Addition	Policy support from the State in industrial production	11.9	6.6
	Labour Employment	11.9	4.3
	Management Overhead	11.9	3
	Fixed Overhead	6.7	2.4
	Quality Control	12.4	17.9
	Research and Development in Production (how is it different from R&D)	12.4	22.2
	Product Variety	12.4	16.9
	Infusion of advanced technology in processing and manufacturing	12.4	22.2
	Position in the learning curve of industrial production	7.7	8.9

Figure 53: AHP Values for Connectivity and Transportation



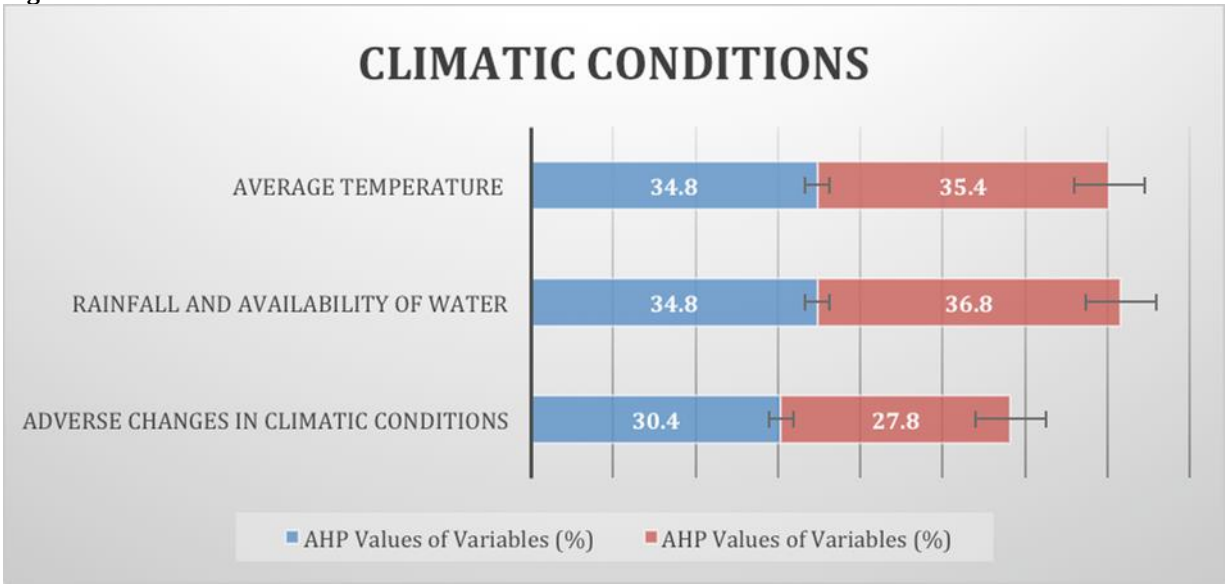
Constructs	Variables (impacting)in premium jute production areas affect the competitive edge of jute	AHP Values of Variables (%)	
		Survey	Meta-Data
Connectivity & Transportation	Access to transport architecture	20.2	23.2
	Investment in transport architecture	13	19.2
	Connectivity to factor markets	14.6	13.1
	Connectivity to growth centers	16.8	9.7
	Efficiency in utilizing distribution networks	16.8	13.2
	Connectivity to world markets	18.6	21.6

Figure 54: AHP Values for Market Variables



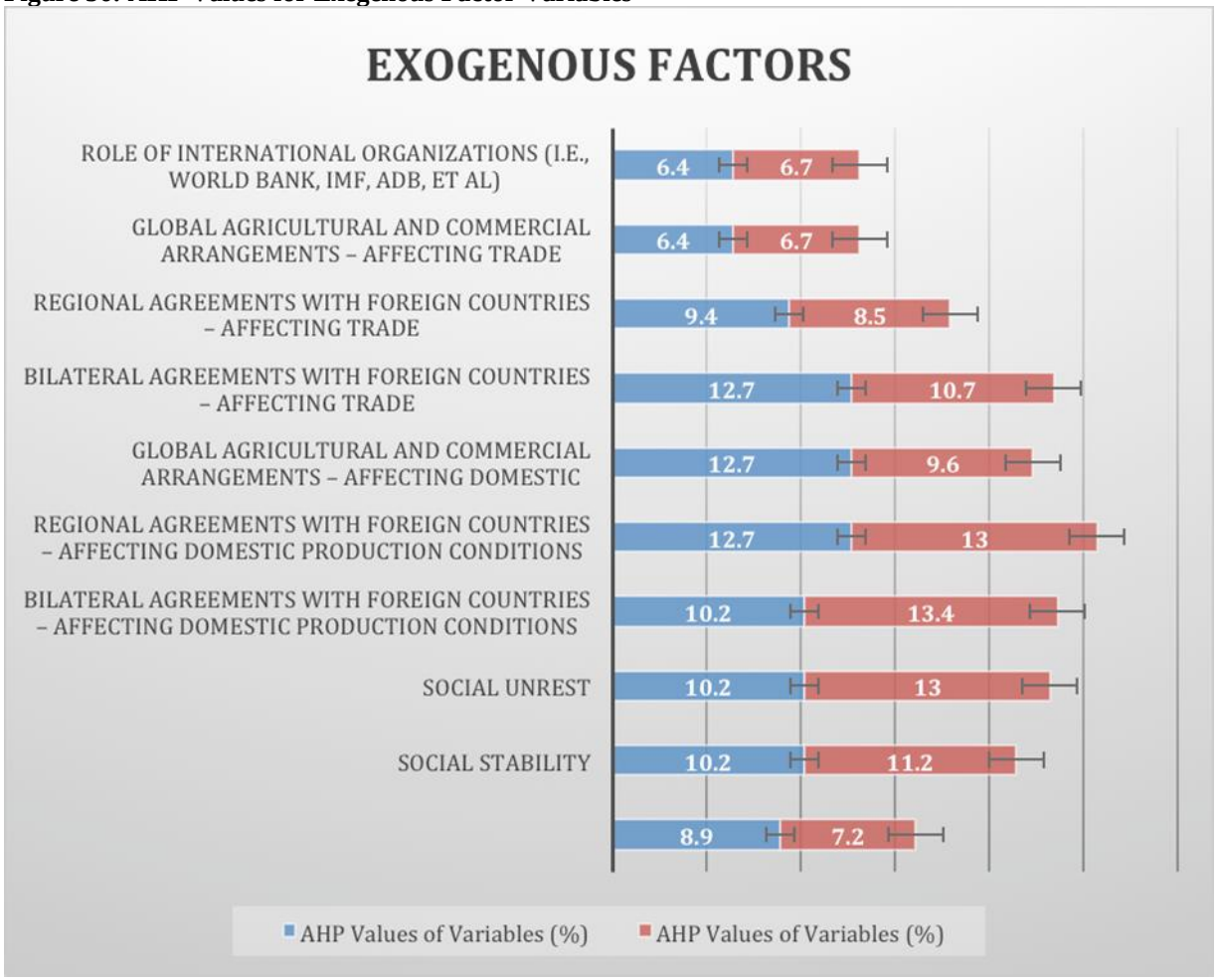
Constructs	Variables (impacting)in premium jute production areas affect the competitive edge of jute	AHP Values of Variables (%)	
		Survey	Meta-Data
Markets	Development of substitutes	14.3	9.6
	Economy of substitutes	10.4	13.7
	Versatility of substitutes affecting consumer choice (explain this variable)	10.4	11.9
	Development of complements	13.5	10
	Destination Composition - level of GDP growth rate of destination countries for jute over time	11.3	25
	Development of New Markets	13.5	5.3
	Economic Health of Destination Markets	7.4	7.7
	Established foreign distribution networks	9.6	7.9
	Loyalty of foreign distribution networks - Level of country-specific order placement year-to-year, i.e., if majority of ordered quanta is from the same source as that of the previous year	9.6	8.9

Figure 55: AHP Variables for Climatic Conditions



Constructs	Variables (impacting)in premium jute production areas affect the competitive edge of jute	AHP Values of Variables (%)	
		Survey	Meta-Data
Climatic Condition	Adverse changes in Climatic Conditions	30.4	27.8
	Rainfall and availability of water	34.8	36.8
	Average Temperature	34.8	35.4

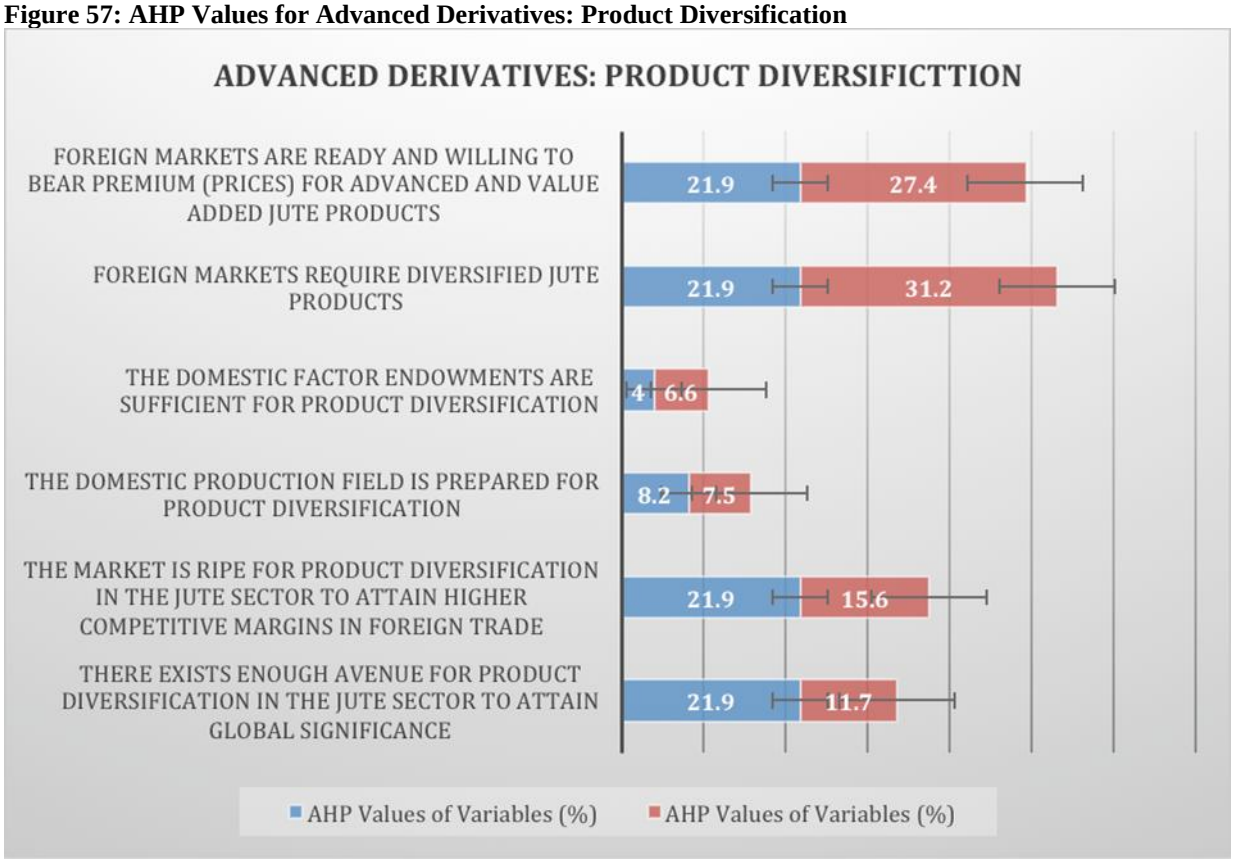
Figure 56: AHP Values for Exegenous Factor Variables



Constructs	Variables (impacting)in premium jute production areas affect the competitive edge of jute	AHP Values of Variables (%)	
		Survey	Meta-Data
Exogenous Factors	Entrepreneurial Capability - level of efficiency in entrepreneurial capabilities determined through no. of workforce and efficiency per worker and other indicators)	8.9	7.2
	Social stability	10.2	11.2
	Social unrest	10.2	13
	Bilateral agreements with foreign countries – affecting domestic production conditions	10.2	13.4
	Regional agreements with foreign countries – affecting domestic production conditions	12.7	13
	Global agricultural and commercial arrangements – affecting domestic production conditions	12.7	9.6
	Bilateral agreements with foreign countries – affecting trade	12.7	10.7
	Regional agreements with foreign countries – affecting trade	9.4	8.5

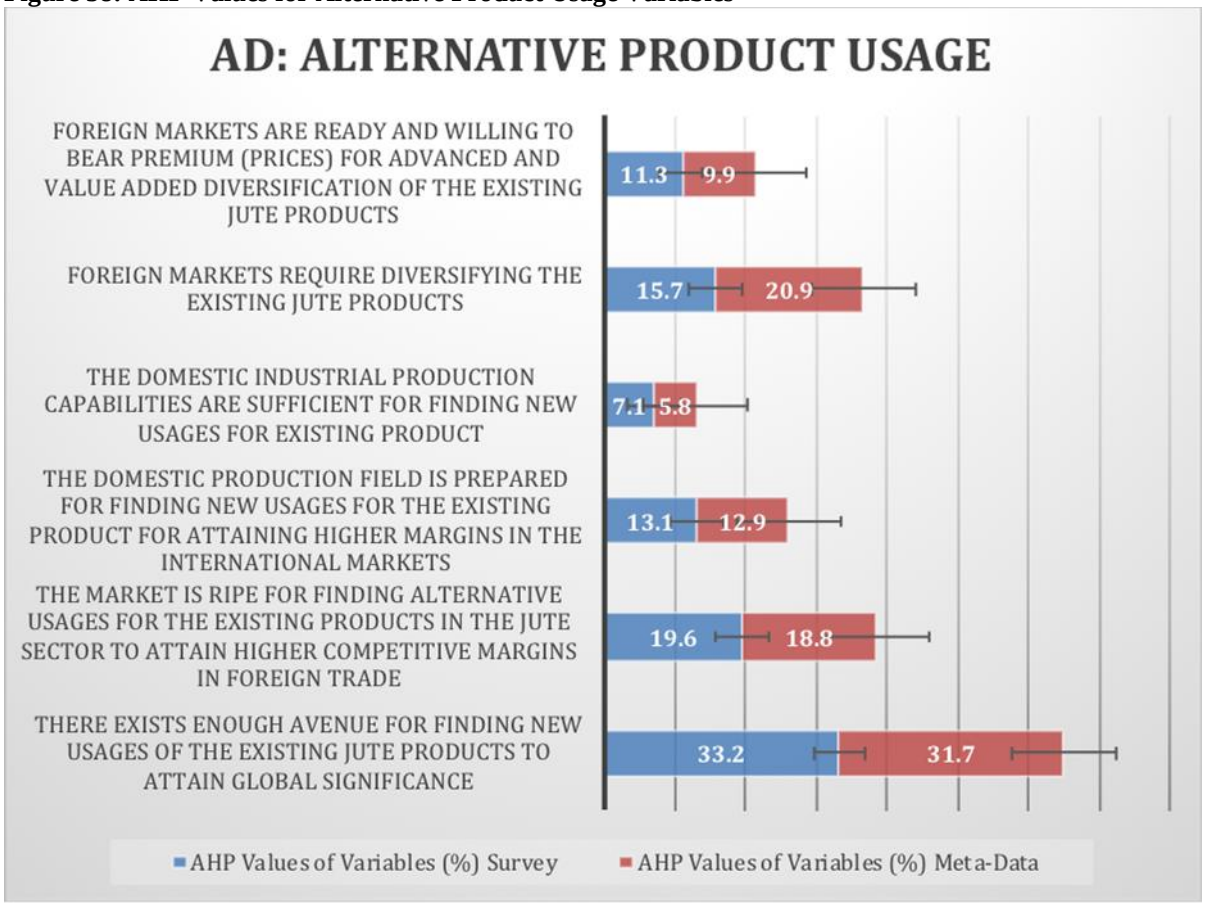
	Global agricultural and commercial arrangements – affecting trade	6.4	6.7
	Role of International Organizations (i.e., World Bank, IMF, ADB, et al)	6.4	6.7

Figure 57: AHP Values for Advanced Derivatives: Product Diversification



Constructs	**Variables (impacting)in premium jute production areas affect the competitive edge of jute**	**AHP Values of Variables (%)**	
		Survey	**Meta-Data**
AD. Product Diversification	There exists enough avenue for product diversification in the jute sector to attain global significance	21.9	11.7
	The market is ripe for product diversification in the jute sector to attain higher competitive margins in foreign trade	21.9	15.6
	The domestic production field is prepared for product diversification	8.2	7.5
	The domestic factor endowments are sufficient for product diversification	4	6.6
	Foreign markets require diversified jute products	21.9	31.2
	Foreign markets are ready and willing to bear premium (prices) for advanced and value added jute products	21.9	27.4

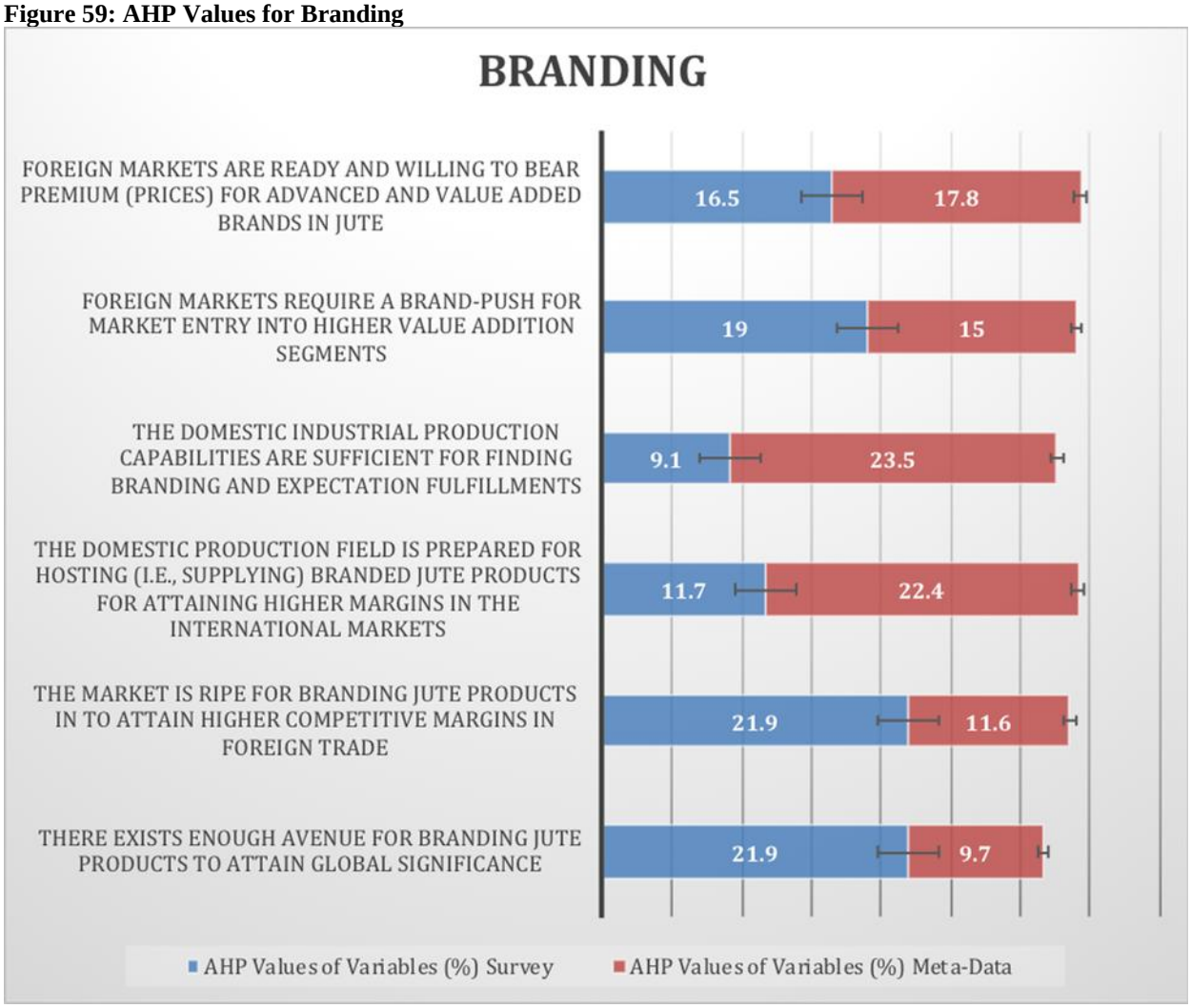
Figure 58: AHP Values for Alternative Product Usage Variables



Constructs	Variables (impacting)in premium jute production areas affect the competitive edge of jute	AHP Values of Variables (%)	
		Survey	Meta-Data
AD. Alternative Product Usage	There exists enough avenue for finding new usages of the existing jute products to attain global significance	33.2	31.7
	The market is ripe for finding alternative usages for the existing products in the jute sector to attain higher competitive margins in foreign trade	19.6	18.8
	The domestic production field is prepared for finding new usages for the existing product for attaining higher margins in the international markets	13.1	12.9
	The domestic industrial production capabilities are sufficient for finding new usages for existing product	7.1	5.8
	Foreign markets require diversifying the existing jute products	15.7	20.9
	Foreign markets are ready and willing to bear	11.3	9.9

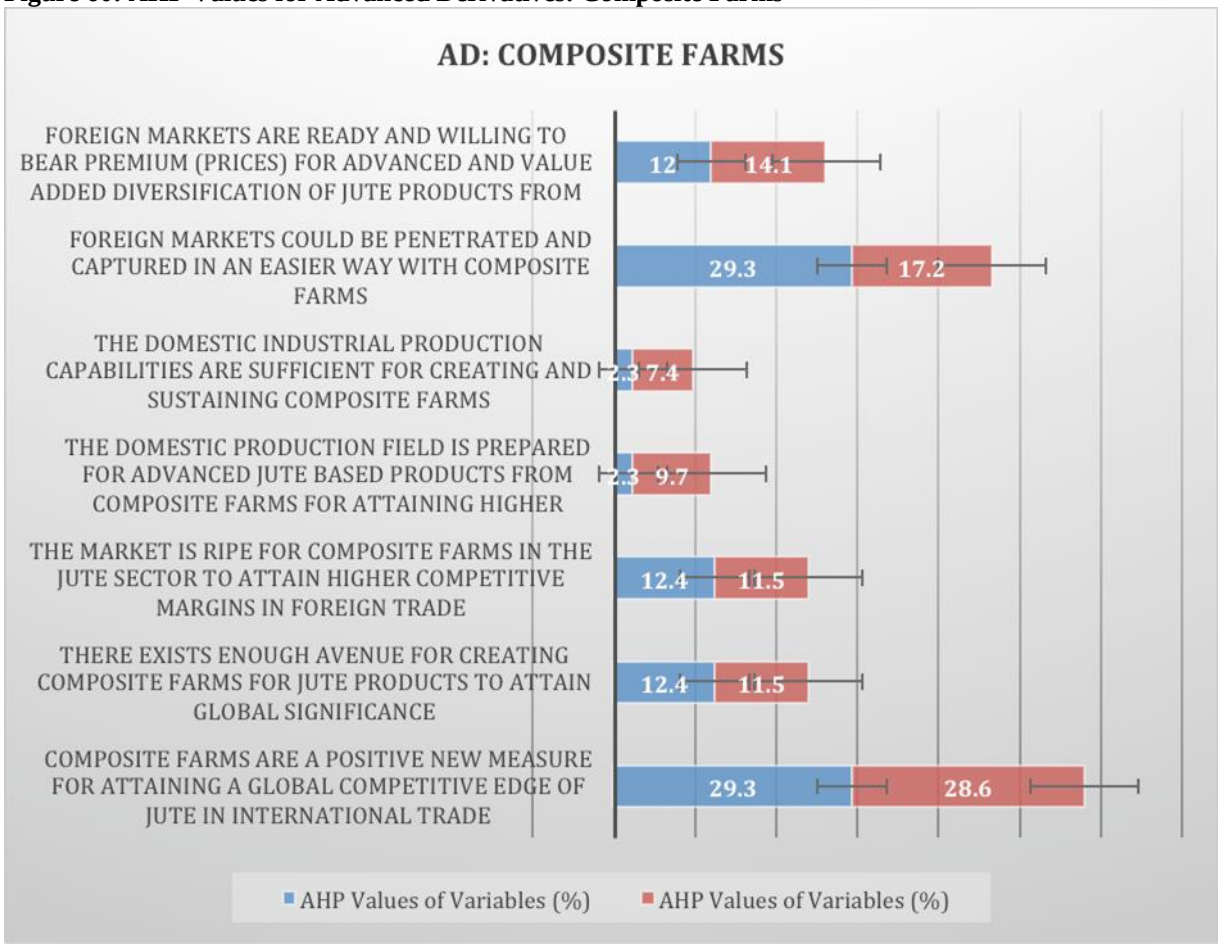
	premium (prices) for advanced and value added diversification of the existing jute products		

Figure 59: AHP Values for Branding



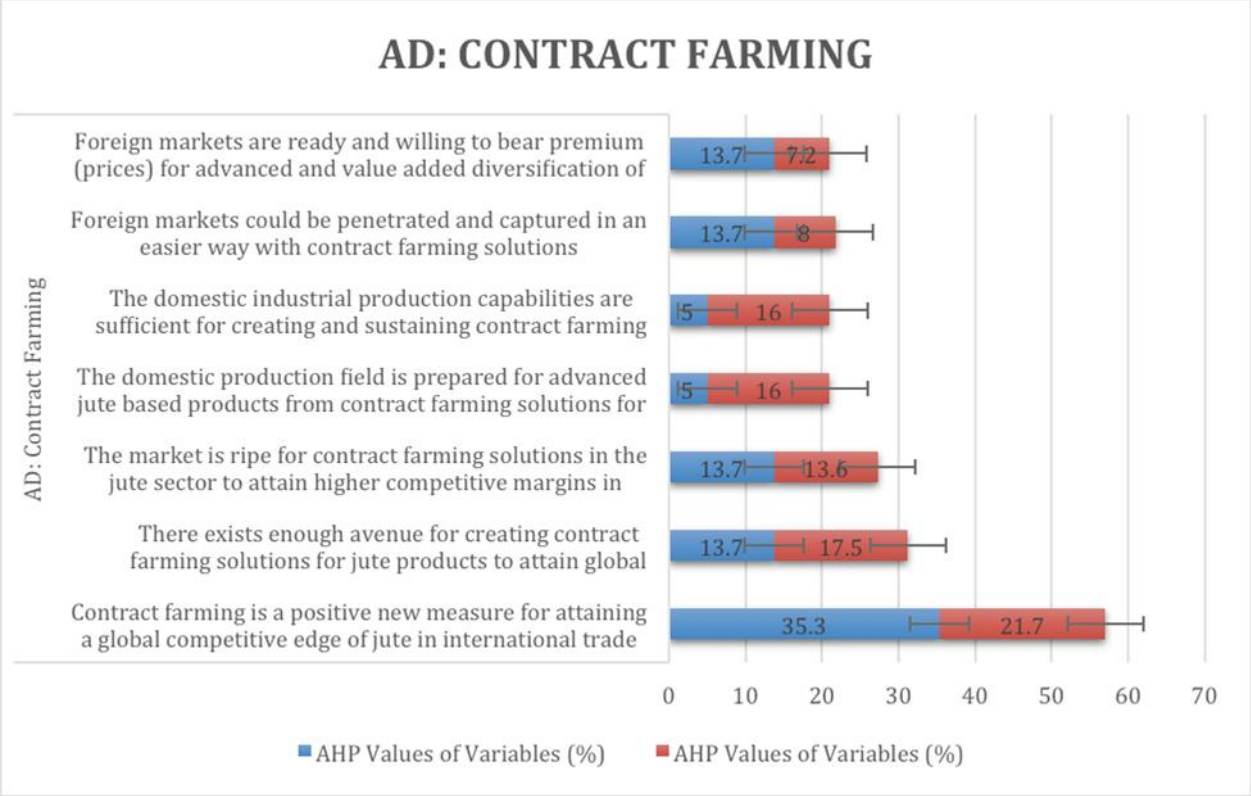
Constructs	Variables (impacting)in premium jute production areas affect the competitive edge of jute	AHP Values of Variables (%)	
		Survey	Meta-Data
AD. Branding	There exists enough avenue for branding jute products to attain global significance	21.9	9.7
	The market is ripe for branding jute products in to attain higher competitive margins in foreign trade	21.9	11.6
	The domestic production field is prepared for hosting (i.e., supplying) branded jute products for attaining higher margins in the international markets	11.7	22.4
	The domestic industrial production capabilities are sufficient for finding branding and expectation fulfillments	9.1	23.5
	Foreign markets require a brand-push for market entry into higher value addition segments	19	15
	Foreign markets are ready and willing to bear premium (prices) for advanced and value added brands in jute	16.5	17.8

Figure 60: AHP Values for Advanced Derivatives: Composite Farms



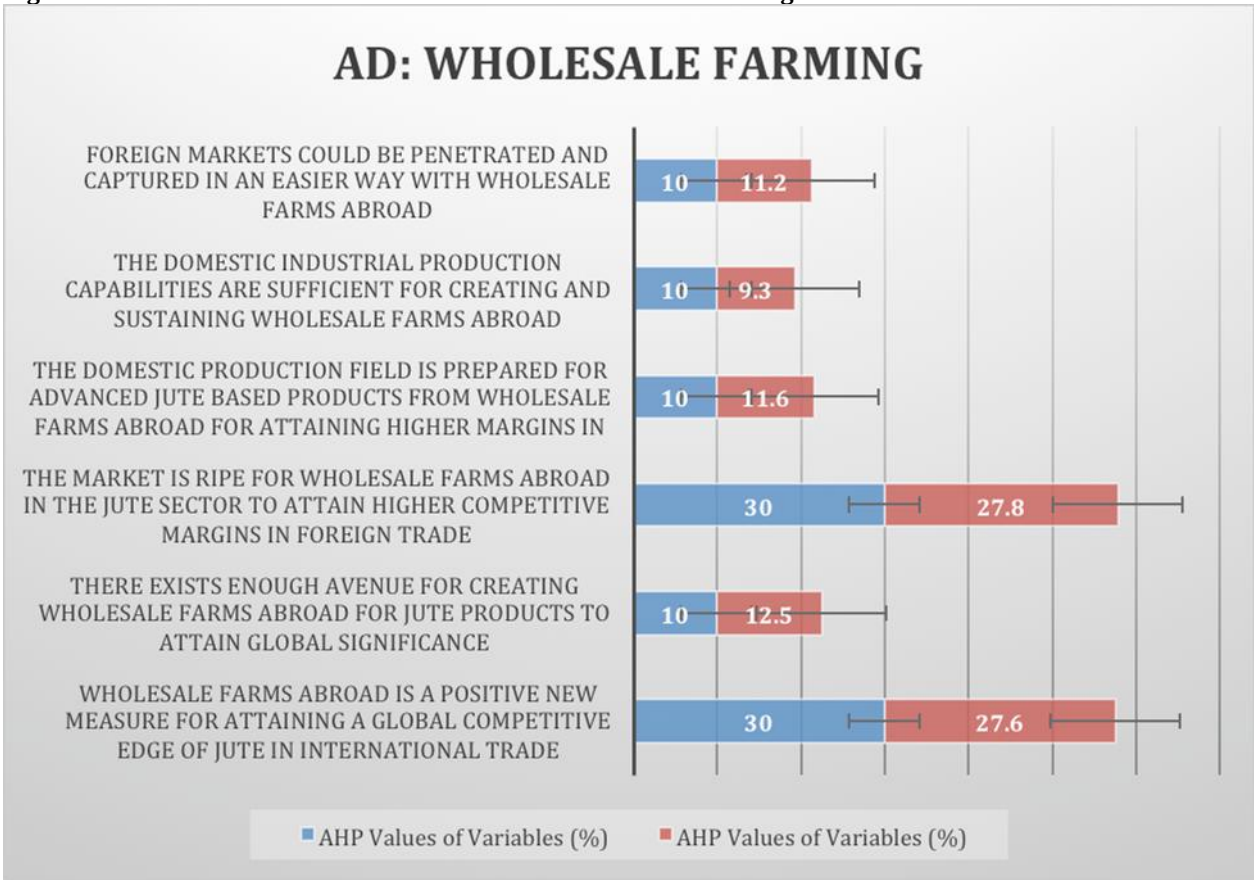
Constructs	Variables (impacting)in premium jute production areas affect the competitive edge of jute	AHP Values of Variables (%)	
		Survey	Meta-Data
AD: Composite Farming	Composite farms are a positive new measure for attaining a global competitive edge of jute in international trade	29.3	28.6
	There exists enough avenue for creating composite farms for jute products to attain global significance	12.4	11.5
	The market is ripe for composite farms in the jute sector to attain higher competitive margins in foreign trade	12.4	11.5
	The domestic production field is prepared for advanced jute based products from composite farms for attaining higher margins in the international markets	2.3	9.7
	The domestic industrial production capabilities are sufficient for creating and sustaining composite farms	2.3	7.4
	Foreign markets could be penetrated and captured in an easier way with composite farms	29.3	17.2
	Foreign markets are ready and willing to bear premium (prices) for advanced and value added diversification of jute products from composite farms	12	14.1

Figure 61: AHP Values for Advanced Derivatives: Contract Farming



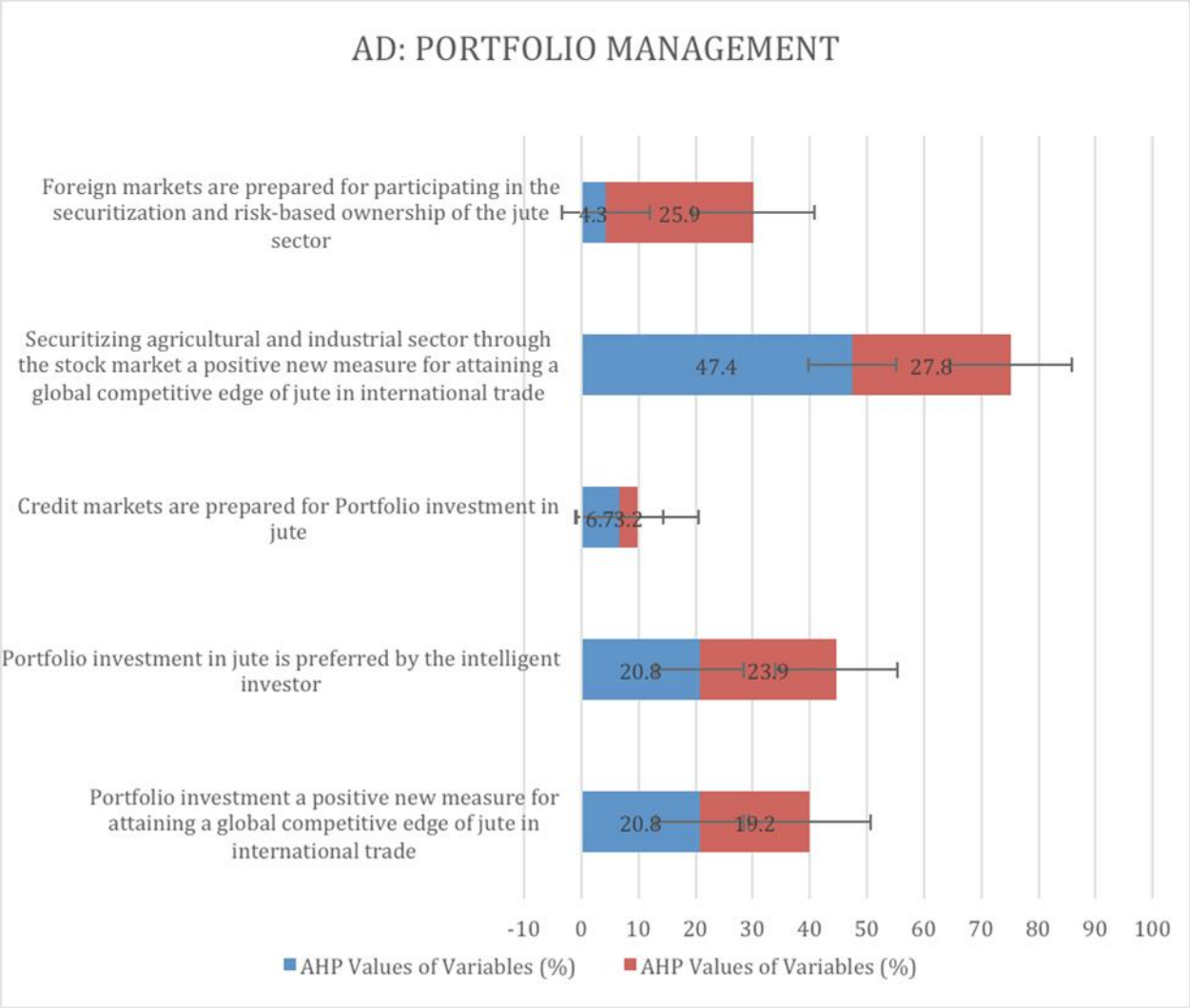
Constructs	Variables (impacting)in premium jute production areas affect the competitive edge of jute	AHP Values of Variables (%)	
		Survey	Meta-Data
AD: Contract Farming	Contract farming is a positive new measure for attaining a global competitive edge of jute in international trade	35.3	21.7
	There exists enough avenue for creating contract farming solutions for jute products to attain global significance	13.7	17.5
	The market is ripe for contract farming solutions in the jute sector to attain higher competitive margins in foreign trade	13.7	13.6
	The domestic production field is prepared for advanced jute based products from contract farming solutions for attaining higher margins in the international markets	5	16
	The domestic industrial production capabilities are sufficient for creating and sustaining contract farming solutions abroad	5	16
	Foreign markets could be penetrated and captured in an easier way with contract farming solutions	13.7	8
	Foreign markets are ready and willing to bear premium (prices) for advanced and value added diversification of jute products from contract farming solutions	13.7	7.2

Figure 62: AHP Values for Advanced Derivatives Wholesale Farming



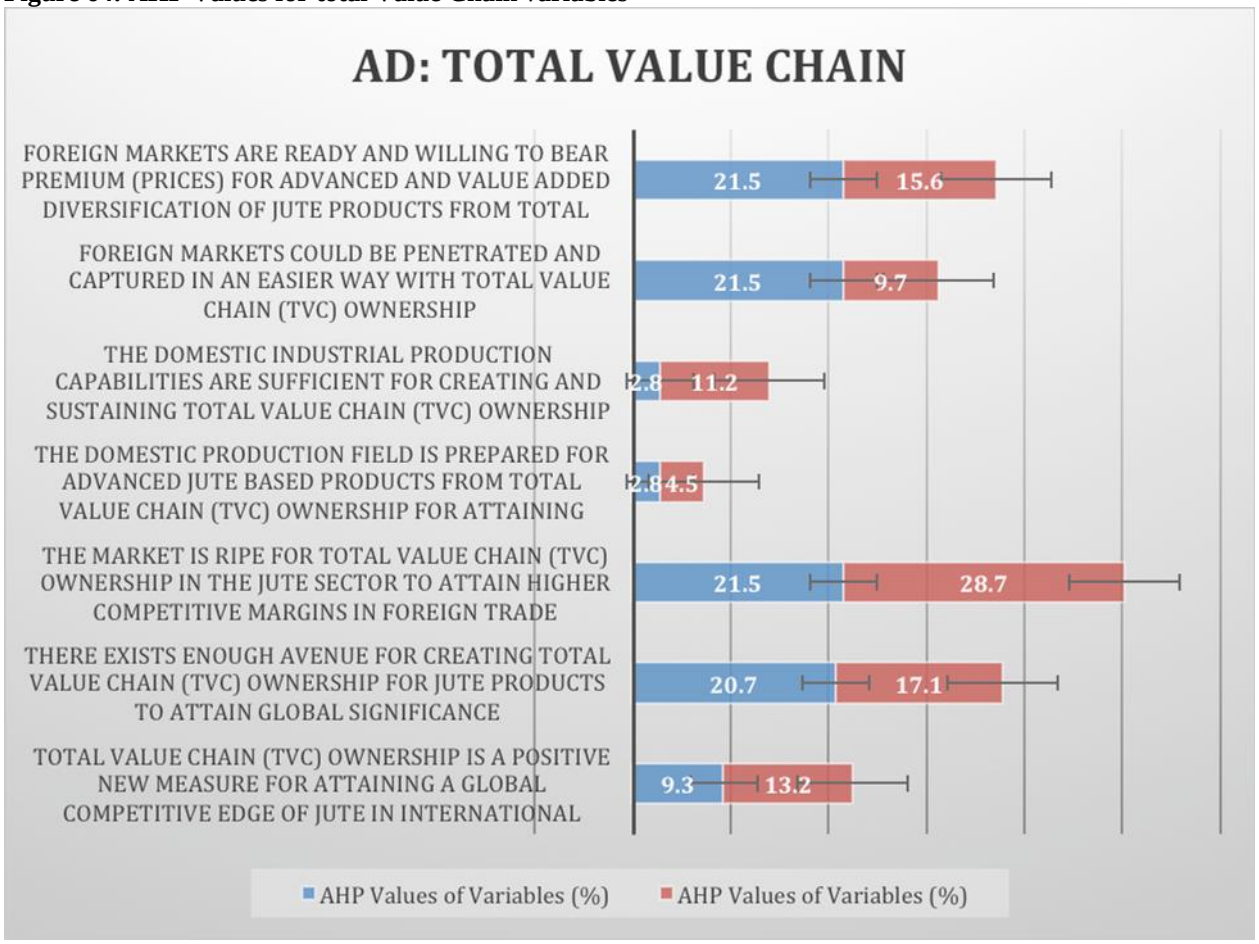
Constructs	Variables (impacting)in premium jute production areas affect the competitive edge of jute	AHP Values of Variables (%)	
		Survey	Meta-Data
AD: Wholesale Farming	Wholesale farms abroad is a positive new measure for attaining a global competitive edge of jute in international trade	30	27.6
	There exists enough avenue for creating Wholesale farms abroad for jute products to attain global significance	10	12.5
	The market is ripe for Wholesale farms abroad in the jute sector to attain higher competitive margins in foreign trade	30	27.8
	The domestic production field is prepared for advanced jute based products from Wholesale farms abroad for attaining higher margins in the international markets	10	11.6
	The domestic industrial production capabilities are sufficient for creating and sustaining Wholesale farms abroad	10	9.3
	Foreign markets could be penetrated and captured in an easier way with Wholesale farms abroad	10	11.2

Figure 63: AHP Values for Advanced Derivatives - Portfolio Management



Constructs	Variables (impacting)in premium jute production areas affect the competitive edge of jute	AHP Values of Variables (%)	
		Survey	Meta-Data
AD: Portfolio Management	Portfolio investment a positive new measure for attaining a global competitive edge of jute in international trade	20.8	19.2
	Portfolio investment in jute is preferred by the intelligent investor	20.8	23.9
	Credit markets are prepared for Portfolio investment in jute	6.7	3.2
	Securitizing agricultural and industrial sector through the stock market a positive new measure for attaining a global competitive edge of jute in international trade	47.4	27.8
	Foreign markets are prepared for participating in the securitization and risk-based ownership of the jute sector	4.3	25.9

Figure 64: AHP Values for total Value Chain variables



Constructs	Variables (impacting)in premium jute production areas affect the competitive edge of jute	AHP Values of Variables (%)	
		Survey	Meta-Data
AD: Total Value Chain	Total Value Chain (TVC) Ownership is a positive new measure for attaining a global competitive edge of jute in international trade	9.3	13.2
	There exists enough avenue for creating Total Value Chain (TVC) Ownership for jute products to attain global significance	20.7	17.1
	The market is ripe for Total Value Chain (TVC) Ownership in the jute sector to attain higher competitive margins in foreign trade	21.5	28.7
	The domestic production field is prepared for advanced jute based products from Total Value Chain (TVC) Ownership for attaining higher margins in the international markets	2.8	4.5
	The domestic industrial production capabilities are sufficient for creating and sustaining Total Value Chain (TVC) Ownership	2.8	11.2
	Foreign markets could be penetrated and captured in an easier way with Total Value Chain (TVC) Ownership	21.5	9.7
	Foreign markets are ready and willing to bear premium (prices) for advanced and value added diversification of jute products from Total Value Chain (TVC) Ownership	21.5	15.6

4.4 Preparing an action plan which could be followed by (i) Government, (ii) Trade Bodies (i.e., Federations/Chambers/Associations), (iii) Established Business Houses, and (iv) Entrepreneurial/Green-Field institutions to take advantage of the emerging situation in terms of providing a Value Chain Framework for international trade in agricultural products, services and aggregate solutions

4.4.1 Commodity Value Chains and their Impact on Factory Productivity

4.4.1.1 Defining the Parameters

The value chain methodology is a tradition developed from two strains of literature[606]: the business literature on strategy and organization of Porter (Porter 1990) and the literature of global commodity chains promoted by Gereffi (1994; 1999; 1999; 2001; 2002), Gereffi and others (Gereffi and Korzeniewicz 1994; Gereffi, Korzeniewicz et al. 1994; Gereffi, Garcia-Johnson et al. 2001; Gereffi and Kaplinsky 2001; Gereffi, Humphrey et al. 2003) and developed in numerous studies in the late 1990s. The "value chain" is defined by Kapinsky as "the full range of activities which are required to bring a product or service from conception, through the intermediary phases of production, delivery to final consumers, and final disposal after use" (Kaplinsky 1999, pg. 121).

Briefly, such analysis focuses on the interaction of actors along each step of the production system (from raw producer to consumer) as well as the linkages within each set of actors (UNCTAD 2000).

[606] Diagnostic Study, Phase 1 of Design, Agricultural Program, Cambodia, 2007-12 – Program Concept Document Final Report; www.agrifoodconsulting.com

Such an approach thus considers international trade relations as being part of a series of networks of producers, exporters, importers, and retailers, whereby knowledge and relationships are developed to gain access to markets and suppliers. As UNCTAD notes, such a perspective means that the success of developing countries in value-adding their production lies in the ability of these countries to access these networks (UNCTAD 2000).

The role of governance is central to the literature on value chains; that is, who controls the power relationships within the chain. Two types of value chains have been identified in the literature. Producer-driven chains are those in which companies that produce the product control the networks within the chain. As UNCTAD points out, producer-driven chains are most common in capital- and technology-intensive industries where high barriers to entry exist in production (UNCTAD 2000). Buyer-driven chains, by contrast, are controlled by groups that market the product (UNCTAD 2000). In the case of agriculture, there are instance of both types of governance structures, though increased consolidation in the retail sector has led to an increase in the power of retailers in food distribution.

UNCTAD remarks that such governance issues are of increasing importance in agriculture, given the greater emphasis on product differentiation, food safety, and product standards required in the competitive market environment (UNCTAD 2000). Such issues place a premium on strong linkages within the value chain between agents within the chain. Two additional elements of the value-chain are also important with respect to agriculture. First, the role of upgrading by upstream actors is an important concept, given that competitiveness is a dynamic, continual process. In the context of value-chain analysis, upgrading takes the form of either developing new, higher-value market niches or by expanding the range of activities employed. For the latter, this could include a manufacturer expanding into distribution or R&D, for instance (UNCTAD 2000). The role of governance structures is important in how such upgrading by suppliers occurs, as is the support of government and other institutions (UNCTAD 2000). The second issue concerns the means by which benefits are distributed within the chain. This refers to the amount of benefit obtained by various actors in the chain as well as ways actors try to improve their position within the chain, through the differentiation of services and roles.

Kaplinsky and Morris (2001) observe that in the course of globalization, there has been a perception that the gap in incomes within and between countries has increased. They argue that value chain analysis can help to explain this lacuna, particularly in a dynamic perspective. First, by mapping the range of activities in the chain it provides the capacity to decompose total value chain earnings into the rewards that are achieved by different parties in the chain. Other ways of viewing global distributional patterns provide only partial insights into these phenomena. For example, trade statistics only provide data on aggregate, gross returns rather than on net earnings, and branch-specific analyses (agriculture, industry, services) only capture part of the story. Secondly, a value chain perspective analyses the way in which particular firms, regions and countries are linked to the global economy. This mode of insertion will determine to a large extent the distributional outcomes of global production systems and the capacity which individual producers have to upgrade their operations and thus to launch themselves onto a path of sustainable income growth.

A major benefit of value-chain analysis is through the identification of the nature and extent of barriers to entry along the chain. As a result, such an approach is amenable to explain many of the distributional outcomes that occur in the course of globalization as well as the evolution of such relationships over time (Kaplinsky and Morris 2001). Value chain analysis has been applied to the understanding of commodity chains and export strategies in a number of developing countries. Dolan, Humphrey, and Harris-Pascal use this approach to analyze the impact of consolidation and market power in theUK supermarket industry on fresh vegetable suppliers in developing countries

(Dolan, Humphrey et al. 1998). The authors note that this commodity chain is a buyer-driven chain, with specifications and standards determined by the supermarkets and enforced upon the suppliers. While this presents opportunities for value-adding by potential exporters who can meet the strict standards of these retailers, numerous challenges exist for suppliers in developing countries. These challenges include producing high-quality produce that is reliably supplied, low cost, ethically produced, and safe, that continually innovates to meet the changing needs of consumers. This has consequently restricted access to these commodities chains. The rewards for such value-adding are significant –the authors note that the price of various types of packaged carrots earn a premium of 7 to 15 times that of ordinary bulk carrots. Yet there is constant pressure among actors in the chain to maintain and upgrade their positions and continually upgrade and innovate to stay ahead of potential competitors. These pressures put exporters in a tenuous position vis-à-vis retailers, who are argued to have greater power and leverage in the chain. As a result, exports and suppliers need to find way to diversify.

While the integration of high-value production with retailers in developing countries has positive benefits for developing countries, Dolan, Humphrey, and Harris-Pascal remark that the benefits are mainly concentrated among larger farms and exporters (Dolan, Humphrey et al. 1998). In Kenya, sourcing was once common from smallholders, but has since declined, with less than 20 percent of sourcing by leading exporters coming from smallholders. Reasons given for this decline include problems with credit provision to smallholders, loan defaults, and "side-selling" (selling contracted produce to other buyers) (Dolan, Humphrey et al. 1998, pp. 29-30). Institutional impediments, particularly agronomic practices and post-harvest technologies, are often constraints. Nonetheless, the authors note that there can be an advantage to smallholder suppliers, particularly with respect to the care of production and reduced risks of plant diseases. They also note less supervision of wage labor is required for smallholders. While examples of successful smallholder sourcing exists, the need for greater control of the supply-chain reduces the reliance on smallholders by retailers.

4.4.1.2 Value Chain Governance and Coordination as a Measure of Market success

The emergence of market power in agricultural supply chains, and the increasing recognition of market power in these chains by economic analysts, has given rise to some changes in the way agricultural markets are analysed. The assumptions of perfect competition are inapplicable in many situations. Equity among farmers, equity between farmers and downstream elements of the chain, and the need for and impact of domestic and international policies demand re-assessment. The rapid development of vertically-coordinated supply chains have important, but not necessarily negative, implications for the farmers who participate in them[607].

[607] A fundamental issue when analysing trade policy reform in global agricultural markets is the extent to which domestic agricultural commodity markets in developing countries respond to changes in international prices. Price transmission from the world to domestic markets is central in understanding the extent of the integration of economic agents into the market process.
Studies on the transmission of price signals are founded on concepts related to competitive pricing behaviour.[47] In spatial terms, the classical paradigm of the Law of One Price, as well as the predictions on market integration provided by the standard spatial price determination models (Enke, 1951; Samuelson, 1952; Takayama and Judge, 1972) postulate that price transmission is complete with equilibrium prices of a commodity sold on competitive foreign and domestic markets differing only by transfer costs, when converted to a common currency. These models predict that changes in supply and demand conditions in one market will affect trade and therefore prices in other markets as equilibrium is restored through spatial arbitrage.
The absence of market integration, or of complete pass-through of price changes from one market to another has important implications for economic welfare. Incomplete price transmission arising either due to trade and other policies, or due to transaction costs such as poor transport and communication infrastructure, results in a reduction in the price information available to economic agents and consequently may lead to decisions that contribute to inefficient outcomes. Agricultural and food trade policy reform, especially, is a priority issue in the next WTO negotiations, as trade liberalization is viewed as encouraging allocative efficiency and long run growth.

The traditional pattern of agricultural production and markets as described by economists was (and to a large extent, still is) one of more-or-less perfect competition, typified by, inter alia, product homogeneity, a large number of buyers and sellers, and freedom of entry to the market. Under this model, each small farmer determines the volume and type of output to be produced and placed on the market[608]. The relationships between seller and buyer (producer:wholesaler; wholesaler:retailer) are generally limited to simple spot transactions. The widely noted exception to the free market was the operation of various state trading enterprises. In countries such as the communist states of Eastern Europe, as well as China and Viet Nam, the supply chain was integrated and controlled by the state. Production, processing, marketing, and the provision of inputs and credit were all centrally planned. But in other countries also the state played a significant role in vertical coordination in food supply chains. In many African countries, parastatal organizations provided inputs and extension services to farmers and purchased their output and, despite the liberalization that has occurred in the past 20 years, this state controlled vertical coordination is still common in some African countries. Elsewhere, the state controlled the export of commodities from Canada and Australia, and controlled imports into Japan, Korea and India, among others.

In recent decades, this perception of commodity markets has been changing. Some analysts believe that market power has not been adequately recognised in the literature. Raw commodities are typically inputs into a vertical commodity chain, such that the raw commodity is only a small proportion of the value of the final product, the downstream stages of which may, in both developed and developing countries, be less than perfectly competitive. Coffee producers, for example, account for 10 percent of total value added while processors, roasters and retailers receive between 20-30 percent respectively[609].

The exercise of market power in the supply chain is particularly evident where successive stages are closely coordinated by contractual arrangements. Arrangements of this type, which have become

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Price transmission studies are ostensibly an empirical exercise testing the predictions of economic theory and providing important insights as to how changes in one market are transmitted to another, thus reflecting the extent of market integration, as well as the extent to which markets function efficiently. In addition to the body of research and application that tests economic theory, price transmission mechanisms feature prominently in all global agricultural partial equilibrium models, such as the World Food Model of the UN Food and Agriculture Organization and other models such as the that developed by Tyers and Anderson (1992). In these models the price transmission parameter values consist of key building blocks and play an important role in determining the direction, magnitude and distribution of welfare effects of trade policy scenarios (for a review of price transmission mechanisms in partial equilibrium models see Sharma, 2002). Given the increasing use of these models to address sensitive policy issues, such as trade liberalization and the distribution of benefits and costs across countries and population groups, there is an urgency to review these mechanisms and fine-tune them for further applications.

[608] Governance, coordination and distribution along commodity value chains; Rome, 4–5 April 2006; Markets Division; FAO Commodities And Trade Proceedings (ISBN 978-92-5-105748-3)

[609] The data are similar for cocoa, with farmers receiving around 15 percent of the total value of the finished product. Even where the commodity involved requires little processing, the shares received by commodity producers can be rather small. Banana plantations typically receive only 10 percent of the total value, while the share of retailers may be as much as 40 percent. Market power can be exerted by participating firms in these chains. If the retail or processing sector is highly concentrated, then there is the possibility of oligopoly power being exerted by these firms in selling their produce. At the same time, the downstream firms can act as oligopsonists in purchasing produce from farmers, middlemen and processors. Where the retail and processing sectors are imperfectly competitive, successive market power may be exercised at each stage of the food chain. In the coffee sector, for example, McCorriston in his paper notes that only three roasters (Philip Morris, Nestl. and Sara Lee) account for just less than 50 percent of the total market, while in the cocoa market, six chocolate manufacturers account for around 50 percent of total sales. Three global companies account for 80 percent of the total soybean crushing industry in the European Union and 70 percent of that market in the United States.

much more developed in recent decades, are particularly evident in the supply of fresh food to supermarkets, where there are close vertical relationships in the chain, controlled by private companies. The development of supermarkets, initially in the developed countries and more recently, but at a rapid rate, in developing countries, has been one of the drivers behind these developments. Small numbers of buyers are prevalent in these markets, and product differentiation (the provision of particular product qualities for a particular outlet) is evident. Farmers in this system produce under contract to agents acting on behalf of supermarkets, with product quantities, qualities, timeliness and prices specified in advance. However, many farmers are unable to enter this system. Small, less capitalized, less technically advanced ones are unable to reach the required standards. Often a two or three-tier system develops in agricultural production, with some farmers producing on contract to supply to tightly controlled standards for export; other, typically smaller farmers, producing independently for the traditional local market; with perhaps an intermediate group supplying local supermarkets. The level of competitiveness in the supply chain of agricultural commodities has important implications for productivity in the sector, for growth of production and incomes, for equity and farmer welfare, and on the impact which trade liberalization can have on the sector. A non-competitive market structure does not, however, necessarily imply a lack of competitive practices, as firms do not necessarily exercise their market power[610].

4.4.1.3 Impact of Market Power on the Benefits From Trade Liberalization

Market structure and the nature and intensity of competition are intrinsically related to the marketing margin. The marketing margin consists of the costs of services such as processing, distribution, marketing and retailing, as well as valuations of risk and expectations of how markets will evolve. In general, marketing margins will tend to vary due to factors such as the changing costs of providing services, the introduction of new technologies and changes in the quantity of the product marketed. In the event that the structure of the supply chain beyond the farm-gate is not perfectly competitive, marketing margins will also reflect market power over the consumer (producer) level with oligopoly (oligopsony) price distortions that widen the margin by increasing the consumer (producer) price[611].

Typically, as McCorriston points out, the potential impact of trade liberalization is modelled on the assumption of perfect competition. However, this has been shown to understate the benefits which can be realised if, in fact, the supply chain is characterised by oligopolistic and oligopsonistic relationships. In the presence of imperfect competition, the welfare gains from trade are higher than under perfect competition, the demand for labour increases more, and the productivity increases are higher. The consensus from most studies is that analyses which assume the existence of perfect

[610] Ibid; reproduced

[611] Hallam and Rapsomanikis note that there is broad agreement in the economics profession that trade liberalization and the subsequent integration of developing and least developed countries into the world trading system are potentially important drivers of economic growth. However, the magnitude of the impact of trade reform on economic agents in these countries, as well as the distribution of benefits to population groups will be determined by the structure and characteristics of commodity supply chains. The presence of market power exerted by successive oligopsonies or oligopolies will result in the impact of trade reform being different from what would be realised under competitive conditions for both exporting and importing developing countries. More importantly, market power affects the distribution of benefits and costs across economic agents, such as producers, processors and consumers. In this context, analysis of the structure of commodity supply chains and the vertical linkages that characterise them is necessary in order to assess the welfare changes, which arise from trade reform. In particular, for developing and least developed countries, it is important to examine marketing systems that are characterised by high concentration and market power, especially in cash crops, where volatile prices in conjunction with the need for liquidity favour large trading enterprises.

competition are likely to under-estimate the welfare effects from trade reform. Trade liberalization will have a pro-competitive effect leading to lower prices, the mechanism being via changes to the price-cost margin[612].

4.4.1.4 Empirical Studies of Market Power In Value Chains

The New Empirical Industrial Organisation (NEIO) conduct parameter model was used to analyse the jute market in Bangladesh by Hallam and Rapsomanikis. The characteristics of the supply chain for jute suggest a priori that buyer power may exist. Jute fibre is bulky and subject to high transport costs, restricting the mobility of traders and limiting producers' access to local traders. Processors' needs are specific, as the possibility of substitution with other inputs is limited. Also, raw fibre supply is relatively inelastic, as jute is cultivated in some form of crop rotation with rice. Articles in the national press in Bangladesh frequently suggest that price increases are not passed through to producers. Jute producers receive only some 54 percent of the consumer price, as compared to 71 and 66 percent for rice and wheat respectively.

The study estimated the conduct parameter at 0.006, suggesting that the wedge between price and marginal cost, in proportional terms, is very small. This provides evidence against the presence of oligopsony power in the jute supply chain. It appears that in spite of the structural characteristics of the jute market and the relatively high marketing margins, conduct in the jute supply chain is close to perfect competition. In the cocoa and coffee markets also, the exercise of market power has been shown to be low, despite popular perceptions to the contrary. Gilbert notes the "cake division" fallacy, in which value at one stage is seen as being at the expense of value at another. The majority of smallholder coffee farmers have not obtained satisfactory returns over much of the past fifteen years, but it is not the case that the prosperity of the processors is a cause of the difficulties experienced by the farmer. Gilbert used a global value-chain (GVC) analysis to examine the coffee and cocoa markets. In both coffee and cocoa industries, it has been suggested that market concentration has allowed value to be appropriated by multinational processing companies at the expense of developing country farmers and that this was one of the factors underlying the Coffee Crisis. Gilbert shows that there is no evidence that the margins in either cocoa or coffee processing have risen over time. This is not to imply an absence of monopoly or monopsony power, but only that a loss of producer share cannot be explained through an increase in market power. Instead, the decline in the producer share of the retail coffee price is due to the fact that only around one half of the costs underlying retail coffee prices are attributable to the fob price of coffee. The proportion of chocolate production costs attributable to raw cocoa is even lower.

The remaining costs are incurred in consuming countries. Productivity gains have reduced coffee production costs but coffee processing and distribution costs have risen, at least until the start of this decade. The result is that retail coffee and chocolate prices have fallen only modestly implying a decline in the producer shares of the retail price. Swinnen and Vanderplas studied a number of markets, and concluded that the competitive structure of firms in the supply chain has an important bearing on farmers. Competition in the chain results in better returns to producers who are able to capture a larger percentage of the export price. Where firms compete with one another, farmers are offered higher prices, and are typically also offered inputs and credit as firms attempt to secure their supplies. Conversely, under monopolised systems, where a state-owned enterprise is the only trader, such as in some east European countries, rent is extracted from farmers, who fare more poorly than under a competitive system. Competition among buyers, however, undermines enforcement, and side-selling can become a problem. Although contracted to sell to one firm,

[612] Ibid

farmers may be tempted to dishonour contracts and sell to another who offers higher prices[613]. Firms can guard against default by means such as incorporating appropriate incentives and penalties

[613] Several authors have studied price transmission within the context of the Law of One Price (*inter alia* Ardeni, 1989; Baffes, 1991) or within the context of market integration (Ravallion, 1986; Sexton *et al*, 1991; Palaskas and Harriss 1993; Zanias, 1993; Gardner and Brooks, 1994; Blauch 1997). The concept and the analytical techniques have also been used to evaluate policy reform, such as *ex post* assessment of market integration in the context of the implementation of the structural adjustment programmes (Goletti and Babu, 1994; Alexander and Wyeth, 1994; Dercon, 1995). Another vein of research focuses on vertical price transmission along the supply chain from the consumer to the producer level (see for example Brorsen *et al*, 1985; Wohlgenant, 1985; Kinnucan and Forker, 1987; Shroeter and Azzam, 1991; Goodwin and Holt, 1999; Prakash 1998; von Cramon-Taubadel, 1999).

The large body of research on market integration and price transmission, both spatially and vertically, has applied different quantitative techniques and has highlighted several factors that impede the pass-through of price signals. Distortions introduced by governments in the form of policies either at the border, or as price support mechanisms weaken the link between the international and domestic markets. Agricultural policy instruments such as import tariffs, tariff rate quotas, and export subsidies or taxes, intervention mechanisms, as well as exchange rate policies insulate the domestic markets and hinder the full transmission of international price signals by affecting the excess demand or supply schedules of domestic commodity markets (Gardner, 1975; Mundlak and Larson, 1992; Quiroz and Soto, 1996; Baffes and Ajwad, 2001; Abdulai, 2000; Sharma, 2002).

In theory, spatial price determination models suggest that, if two markets are linked by trade in a free market regime, excess demand or supply shocks in one market will have an equal impact on price in both markets. The implementation of import tariffs, in general, will allow international price changes to be fully transmitted to domestic markets in relative terms. Thus a proportional increase in the international price will result in an equal proportional increase in the domestic price, at all points in time provided that tariff levels remain unchanged. However, if the tariff level is prohibitively high, changes in the international price would be only partly, if at all, transmitted to the domestic market, as domestic prices may be close to the autarky price level, thus obliterating opportunities for spatial arbitrage and resulting in the two prices moving independently of each other, as if an import ban was implemented. Other policy instruments such as tariff rate quotas may result in international price changes not being at all points of time proportionately transmitted to domestic prices, as changes in the domestic price level will depend on two different tariff rates that are applied according to whether the volume of imports falls within or outside the quota level. In the event that imports are equal to the quota level, changes in the international price may not affect the domestic price level at all, provided that these changes are relatively small, as compared to the difference between the within-the-quota and the out-of-the-quota tariff levels. The implementation of price support policies, such as intervention mechanisms and floor prices, may result in the international and the domestic price being completely unrelated or being related in a non linear manner, depending on the level of the intervention or floor price relative to the international price. Changes in the international price will have no effect on the domestic price level when the international price lies on a level lower than that to which the floor price has been set. However, any changes in the international price above the floor price level will be transmitted to the domestic market. Thus floor price policies may result in the domestic price being completely unrelated to the international market below a certain threshold determined by the floor price, or in the two prices being related in a non linear manner with increases in the international price being fully transmitted to the domestic level, whilst decreases are slowly and incompletely passed-through.

Apart from policies, domestic markets can also be partly insulated by large marketing margins that arise due to high transfer costs. Especially in developing countries, poor infrastructure, transport and communication services give rise to large marketing margins due to high costs of delivering the locally produced commodity to the border for export or the imported commodity to the domestic market for consumption. High transfer costs and marketing margins hinder the transmission of price signals, as they may prohibit arbitrage (Sexton, Kling and Carman, 1991; Badiane and Shively, 1998). As a consequence, changes in world market prices are not fully transmitted to domestic prices, resulting in economic agents adjusting (if at all) partly to shifts in world supply and demand.

Non-competitive behaviour such as that considered in pricing-to-market models (Dornbush, 1987; Froot and Klempeter, 1989; Krugman, 1986) can hinder market integration. Pricing-to-market models postulate that firms may absorb part of exchange rate movements by altering export prices measured in home currency in order to retain their market share. Alternatively, oligopolistic behaviour and collusion among domestic traders may retain price differences between international and domestic prices in levels higher that those determined by transfer costs.

Most of the studies utilize time series econometric analysis techniques that test for the co-movement of prices. The development of these techniques, which include cointegration and error correction models, has become the standard tool for analysing spatial market relationships, replacing earlier empirical tools, such as the bivariate correlation coefficient and regressions. Nevertheless, time series analysis has also being criticized as unreliable (Blauch, 1997; Barrett and Li, 2002) with recent research focussing on switching regime models that incorporate data on prices, volumes traded and

into contracts, informal personal relationships, coordination among buyers, publicizing defaulters thus attacking their reputations, and setting up a system of group responsibility among farmers.

4.4.1.5 Vertically-Coordinated Supply Chains

Much of the discussion on value chains in agriculture focuses on the development of vertically coordinated supply chains, which typically have farmers under contract to provide fresh food to supermarkets. These contractual arrangements with firms can provide farmers with a number of advantages[614]. Firms may provide farmers with inputs, training, technical assistance and other services, and credit, as well as having a guaranteed market for their produce. These farms are larger, and more highly capitalized, and have more access to credit, and they use more fertilizers and chemicals than those in the traditional sector. At the same time, however, farmers give up their independence to varying degrees[615].

Centralized procurement offers a number of cost-savings, from reduced coordination costs, less inventory management, reduced supervision, savings in transport and other transaction costs for suppliers and buying in one place in bulk. Farmers under contract generally supply produce of a higher quality, and often add value by sorting, cleaning, processing and packaging. Traditional wholesalers who do not get involved in production support programs and usually do not enter into long term commercial relationships with producers generally buy and sell on a day-to-day basis. They typically lack the capacity to define, monitor, or enforce a quality or safety standard beyond basic requirements such as refusing decayed produce[616].

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transactions costs. The debate on the application methodology for testing for market integration and price transmission has a relatively long history starting with Harriss (1979). Blauch (1997) provides a review of the debate and examines the statistical performance of econometric tests for market integration. In essence, linear tests for market integration and price transmission are thought of as crude and inappropriate (Blauch, 1997; McNew, 1996; McNew and Fackler, 1997; Fackler and Goodwin, 2002 and Barrett and Li, 2002). Non linearities in market relationships that arise from arbitrage conditions, unsynchronized price cycles, discontinuous trade and non stationary transfer costs are thought of as rendering linear representations and models not useful and inaccurate.

In this paper, we argue that, although there is some merit in the above criticisms, especially as far as non stationary transfer costs are concerned, time series analysis can provide useful insights into the issue of market integration and price transmission if an appropriate testing framework is employed and the results are interpreted correctly. Market integration is formally testable, if one adheres to the definition implied by the standard spatial equilibrium model. However, the *extent* of price transmission is an inherently ambiguous concept. Cointegration and error correction models provide an analytical tool that can focus beyond the case of market integration or complete price transmission, in testing notions such as completeness, speed, and asymmetry of the relationship between prices. For example, discontinuities in trade, within a time series modelling framework, correspond to slow speed of convergence to a long run relationship, whilst non linearities may be modelled as asymmetric responses to price changes. Time series models have small data requirements as compared to other methodologies, relying on price series only, which are more easily available for developing countries. In addition, time series applications perform a useful role in signalling potential failures in markets and in contributing to the assessment of the direction, magnitude and distribution of welfare effects of trade policy reforms. However, it is important to note that, in general, time series applications may also founder while attempting to achieve an unattainable goal, that of giving a universal measure of the extent of price transmission in terms of a single parameter or test.

[614] In some cases firms employ extension agents to supervise farmers to ensure that they adhere to the company's production requirements. Farmers are locked in to producing a specific product, possibly following practices prescribed by the firm, and may have limited capacity to negotiate advantageously with the firm. Despite their limited bargaining power, however, it is typically found that farmers in this sector have higher levels of income and wealth than those in the traditional sector.

[615] Ibid

[616] Ibid; The paper by van der Meer and Ignacio discusses major changes in global food markets that have taken place in recent times. Food safety scares such as those associated with BSE, salmonella, Avian Flu and pesticide and antibiotic

Van der Meer and Ignacio describe the three-tiered nature of a typical market, and apply this concept to discussions of the Chinese market for fruits and vegetables, and to the Chinese market for food staples and tropical products. Traditional local markets, which take the bulk of the production, are the least demanding of quality and safety; a more elite, but much smaller, urban retail segment is more demanding; while the export market is more demanding again.

Coordinated supply chains are most likely to be feasible where market requirements on product quality, consistency, safety and delivery schedules are more demanding. Van de Meer and Ignacio discuss the potential for small-scale producers to participate in these different market segments, and for private investment in these segments. The authors consider that small producers might successfully participate in coordinated supply chains when they have a cost advantage over large producers, and this would be most likely to occur with labour-intensive production. In the light of the rapid rise of supermarkets in Central America in the past decade, and the accompanying changes in the procurement system, Reardon et al surveyed some 600 farmers and made comparisons between those growing produce for supermarkets and those in the traditional channel. Farms in the supermarket channel were generally, though not always, larger and in all cases more specialised than those in the traditional channel. Supermarket suppliers are more capitalized and receive more credit, and generally receive more technical assistance. They use more chemicals and more fertiliser, and less labour. They received higher prices, achieved higher yields and, despite their higher costs, they made larger profits. Four key "pillars" of the new kind of procurement system were identified, involving specialised procurement agents, centralised procurement through distribution centres, consistent supply through preferred suppliers, and quality and safety standards imposed on suppliers[617]. Buying companies prefer to purchase larger volumes from producers, and hence prefer farmers dedicated to producing a single product[618].

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residues have increased the pressure from public authorities for tighter control on the food chain, and the imposition of higher standards by private companies, requiring increased certification and verification. The paper discusses factors which affect safety and quality requirements, including the diverse preferences of countries and buyers; the nature of the market outlet, where fast food chains in particular are very sensitive to product quality and safety; and the nature of the product, where markets for perishable fresh produce are more sensitive that those for frozen and processed produce.

[617] The study of value chains in horticultural production in Central America by Lundy et al examines the participation of vegetable farmers in value chains in Honduras and El Salvador. Vegetable farming has expanded rapidly in these countries since the 1970s. Direct participants in the supply chain include producers, traders and retailers, while indirect participants include providers of technical and business services, researchers, banks, etc. Three groups of producers can be identified: unorganized small producers, small producers in formal organizations, and independent producers with secure markets. The study found that only a small number (5 percent) of producers are encompassed by producer organizations in the countries. A skewed governance structure was identified, in which the rules of the game are developed and imposed by the stronger members of the supply chain (e.g. the retailers) while other members have little or no choice but to accept. A third problem is that public-sector policies in Honduras and El Salvador are not adapting to the rapidly changing market conditions. Public decision-makers have little or no access to consistent and up-to-date information regarding the economic, social and environmental effects that these changes are having on rural development. As a result, policies change slowly, and have not provided food safety standards to protect consumers or fair marketing practice standards to protect weaker members of an increasingly concentrated supply-chain. The authors advocate the development of more effective organizational models, the development of improved governance structures, and the development of public policies as appropriate strategies to upgrade the supply chain. Minten's study in Madagascar used primary data gathered from a domestic agricultural trader survey and from interviews of representatives of global retail chains and the farmers they work with, to contrast the functioning of traditional with the global retail supply chains. Traditional marketing is done by a myriad of small traders who offer little trade credit, use no forward ordering and enact on the spot transactions with poor market institutions, high search costs and imperfect and asymmetric information. Larger traders rely more on relationships and social capital to partly overcome these problems. However, global retail chains put different systems in place. They procure their goods through micro-contracts, fixing the price in advance and supplying seeds, fertilizers and chemicals on credit. The one major firm which exports vegetable to Europe imposes rigid control and monitoring of production. It provides training to farmers, and the study found that farmers under contract achieved considerably higher productivity than those without contracts. Contracts are honoured as a result of social pressure rather than legal

4.4.1.6 Jute Diversification Mind-Map:

Figure 65: Supply chain Stakeholders in Jute and diversified Products in Bangladesh

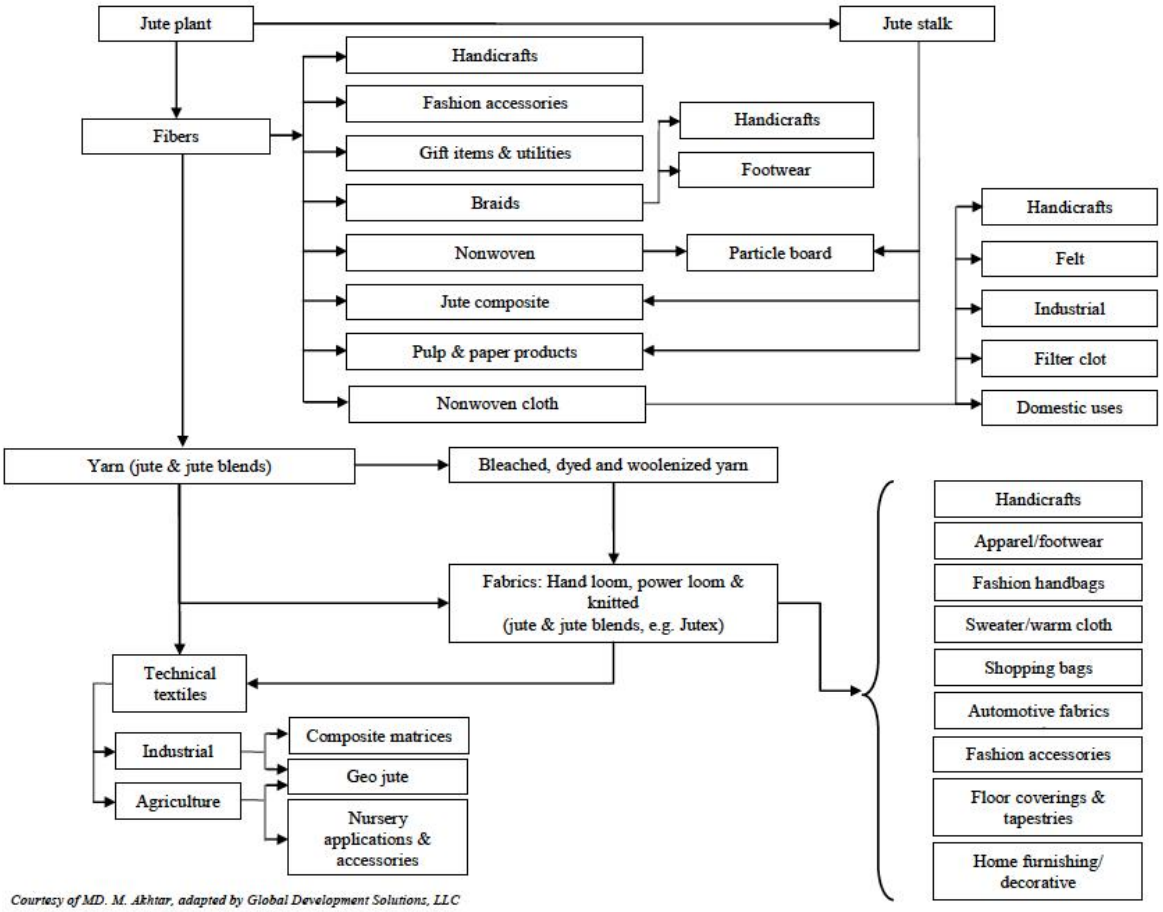
Supply chain stakeholders	Activities
Jute farmers and producers	Produce (planting, cultivating, harvesting) and process (retting, separating, drying, bundling) jute.
Fair trade organizations	Three such entities that contract local artisans, as well as maintain permanent artisans, to produce handicrafts, including jute-based items. Also provide training assistance to jute farmers desiring to become jute artisans.
Local supply outlets	Numerous local suppliers throughout Dhaka and surroundings supply incidentals, chemicals, and dyes to the sector.
Laminating companies	General service providers that are not specialized for laminating jute (17 entities in Dhaka). Export-bound shopping bags are often laminated, as are sacks for the cement industry. In the case of cement sacks, there are mills that have laminating capabilities in-house.
Dyeing mills	Provide services for dyeing jute fabrics and jute yarn.
Screen printers	Silk screen logos and designs onto jute fabrics; commonly required for export-bound shopping bags.
Jute mills	There are approximately 221 jute mills, including spinning mills, throughout the country, which employ approximately 150,000 people.
Intermediaries	Provide service of collecting jute from farmers and transporting it to mills, spinners, and raw jute exporters.

Source: Global Development Solutions, LLC.

processes. These contracts are further characterized by extensive farm assistance and supervision programs. In the case study and the business model presented, there is no evidence that this is a bad development for poor farmers.

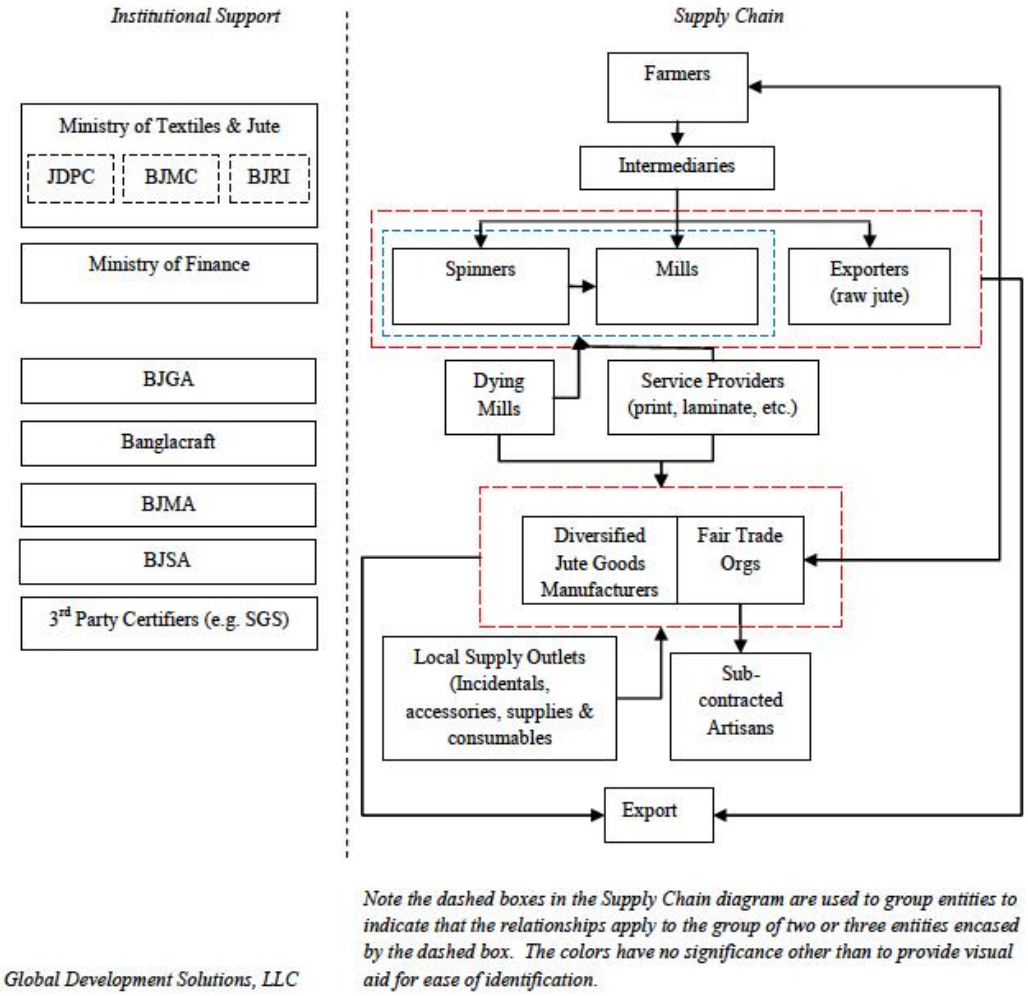
[618] Ibid

Figure 66: From Jute to diversified Products



Source: MD. M. Akhtar, adapted by Global Development Solutions, LLC.

Figure 67: Institutional Support and Supply Chain Structure for Jute and Diversified Products in Bangladesh



Source: Global Development Solutions, LLC.

4.4.2 Policy Implications

4.4.2.1 Present Policies for Jute Sector

It was noted in the earlier section that because of environmental concerns, use of artificial fibres are at present being discouraged all over the world. It appears that in the backdrop of the renewed interest in jute as an environment-friendly, bio-degradable product, it could experience a new birth. Both domestic and global policies will need to be brought to play, to realise the emerging potential opportunities for Bangladesh. Successive policies in Bangladesh have mentioned about developing and diversifying jute products. Export Policy 2009-12 specified the jute sector as special development sector and mentioned about putting in place facilities in the form of loan with low interest rate, carrying goods through air at reduced rate, bond facility, facility for technological upgradation, facility for international market expansion, and initiatives to attract foreign direct investment (FDI) in this sector. It has also mentioned about undertaking a 'plan of action' to strengthen research activities and increase productivity of the jute industry, to take necessary steps to identify and minimise the obstacles in exporting jute and jute products, to popularise the use of jute by emphasising the environment-friendly qualities of jute products through Bangladeshi Missions abroad, to provide cooperation to entrepreneurs for participation in international fairs and

exhibitions to explore markets, to support for design development sector to bring in diversity to jute products through technological upgradation, and to establish design development centres. Industrial Policy 2010 has also mentioned about initiating reform measures to reactivate the closed jute industries. As a designated thrust sector, jute industries will be able to avail special incentives and financial benefits such as tax exemption, and will be excluded from double taxation. From FY2008-09, jute industries have been included in the list of industries enjoying tax holidays. From 1 July 2008 to 30 June 2011, jute goods industries are to receive taxation facility at a reduced rate of 15 per cent on their export incomes.

4.4.3 Primary Survey Results

Table 58: Priority Ranking based on AHP Values for Constructs

CONSTRUCTs	AHP Values (%)		Priority Rank		Co- efficient	
	As per Survey	As per Meta-Data	As per Survey	As per Meta-Data	Survey	Meta-Data
Land	5.3	2.2	12	12	0.053	0.022
Input Availability	6.2	3.1	10	7	0.062	0.031
Labor	6.1	2.6	10	8	0.061	0.026
Capital	6.8	4.9	7	6	0.068	0.049
Agricultural Value Addition	5.2	1.5	14	13	0.052	0.015
Industrial Value Addition	5.1	1.6	13	14	0.051	0.016
Connectivity & Transportation	7.6	8.2	5	4	0.076	0.082
Markets	9.1	12.6	3	1	0.091	0.126
Climatic Condition	5.8	5	6	9	0.058	0.05
Exogenous Factors	5.5	3.1	9	11	0.055	0.031
AD. Product Diversification	7.9	8.5	4	3	0.079	0.085
AD. Alternative Product Usage	4.3	1.4	15	15	0.043	0.014
AD. Branding	8.5	17.1	2	2	0.085	0.171
AD: Composite & Contract Farming	5.8	4.5	8	10	0.058	0.045
AD: Portfolio Management	3.9	1.4	15	16	0.039	0.014
AD: Total Value Chain	6.9	22.3	1	5	0.069	0.223
	100	**100**				

Figure 68: AHP Value Comparisons

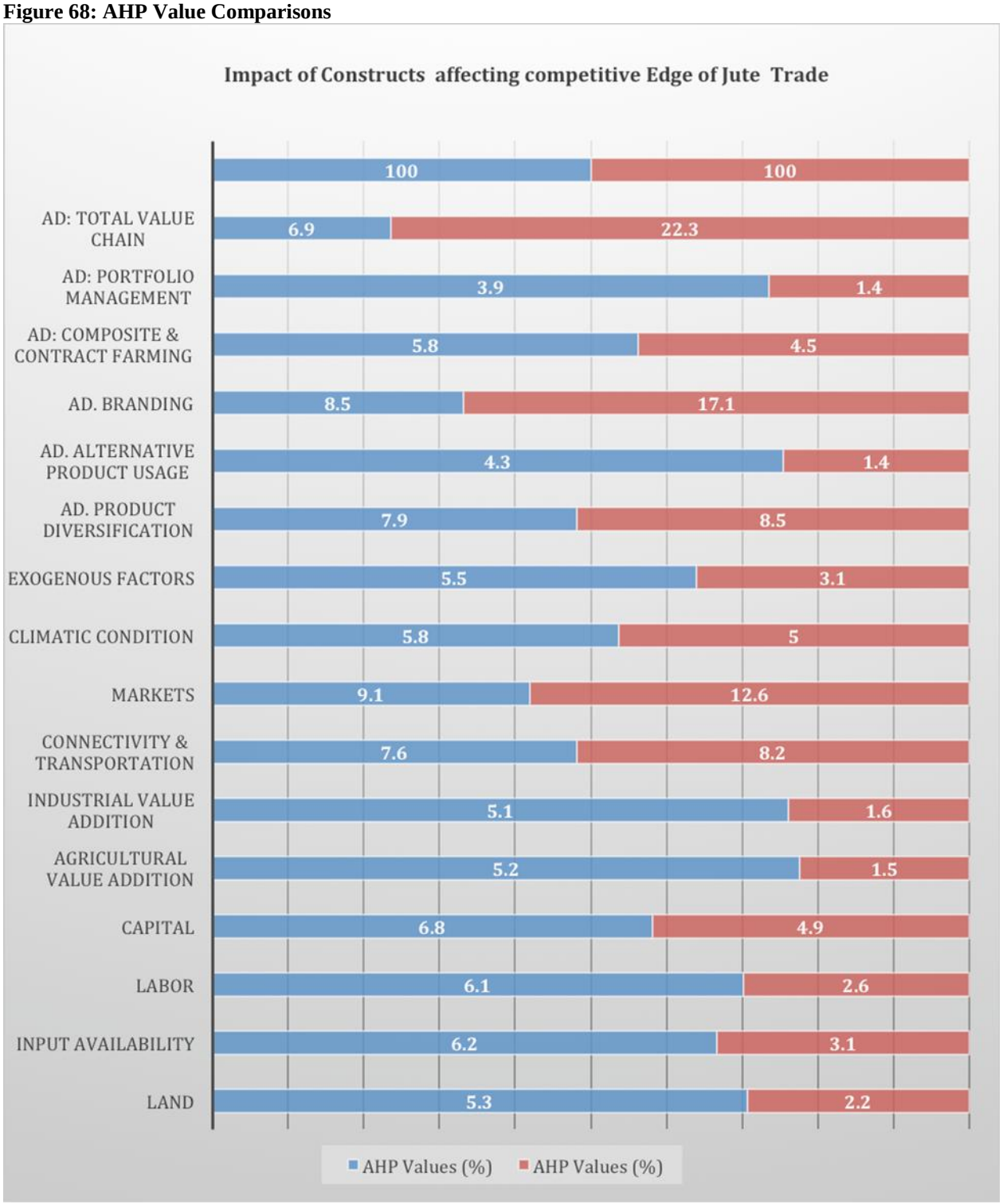
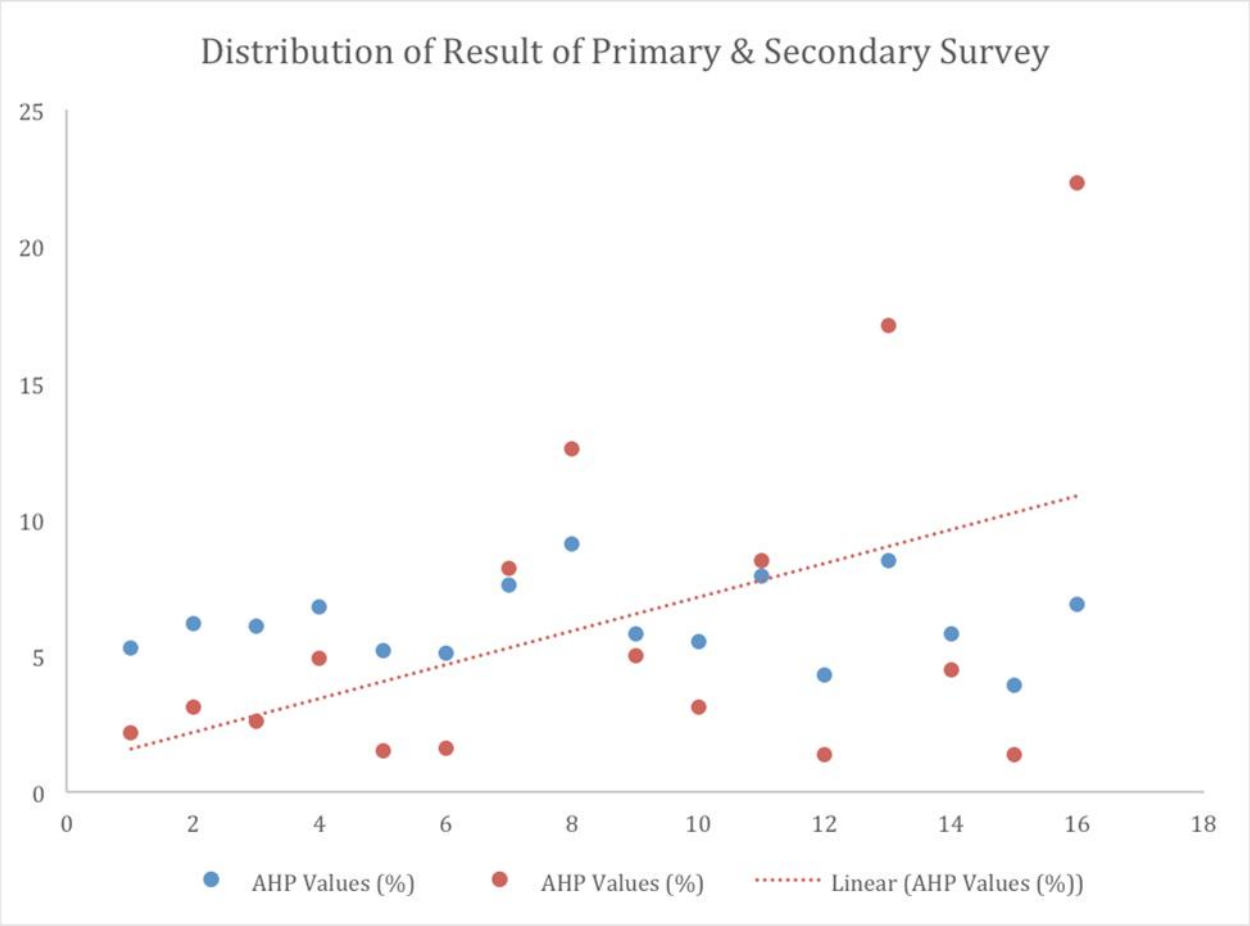
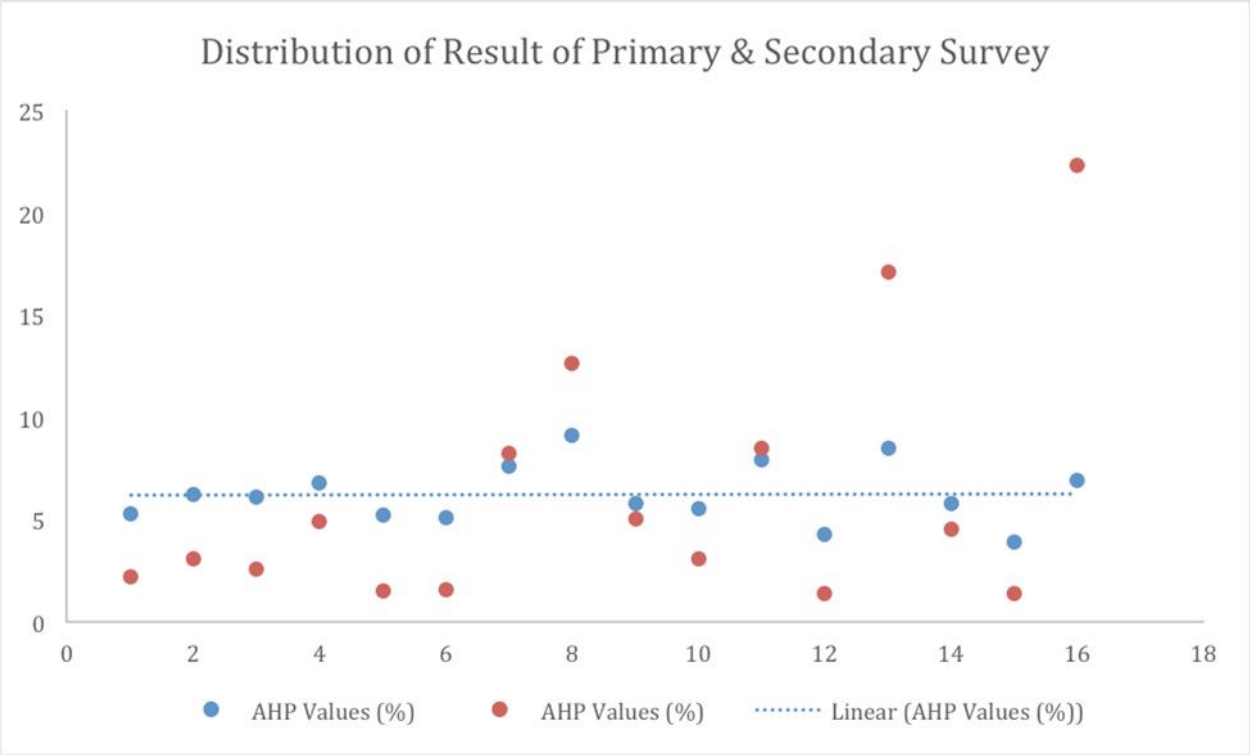


Figure 69: AHP Values Scatter-plot for both surveys



(Linear Trend line of Meta-data AHP shows unusual futuristic slope)

Figure 70: Scatter-plot Distribution of AHP rankings for Constructs



(Linear Trend line of Survey AHP Values shows Horizontal slope)

5.0 POLITICAL ECONOMY OF JUTE WITH RESPECT TO SOUTH ASIA – A CASE STUDY

It is very interesting and important to study how jute evolved as a base for economic and social instituionalisation processes which ultimately marked the formation of a soveriegn country by the namw Bangladesh – even at the cost of its (i.e., of jute's) own economic life. Last two hundred years of history of the cultivation, processing, trade, manufacturing and export of this fibre is intricately intertwined and deeply woven in the morphosis of the political, social, cultural and economic landscape of the country.

Jute is a member of the family of "soft" vegetable fibres, second only to cotton in amount produced, and traditionally one of the cheapest natural fibres. It falls into the category of bast fibre (produced from the skin of the plant) and White Jute (Corchorus Capsularis) is known to have been cultivated in India more than four hundred years ago, to be spun into cloth by artisans, and also used in ropes and twines.

Tossa Jute (Corchorus Olitorius) which is silkier and stronger than White Jute - has traditionally been grown around the area of the Ganges Delta, and was already in such large-scale production two hundred years ago to allow export of raw fibre to a nascent Jute-spinning industry in Dundee. Large-scale spinning of Jute began in Dundee centuries ago, when machinery used for Flax spinning was adapted to produce Jute yarns, using fibre sourced from the India sub-continent. The principal use for these yarns was for cheap packaging - the term "Gunny bag" derives from a Hindi word - but as Jute spinning industries developed in countries across the world, the uses of Jute and Jute products expanded rapidly.

At one stage the future of Jute was threatened by the increase in use of synthetic fibres, but the environmental advantages of natural fibre and the closure of Jute spinning and weaving plants in many of the developed nations of the world, which resulted in the transfer of production of finished articles back to the point of origin of the fibre itself, have reduced the costs of production and enabled jute to maintain a stable level of consumption for an extended period.

Tossa Jute is known as the "Golden Fibre", from the lustrous appearance of the threads, although Tossa can range in colour from dark to reddish, depending upon the area of cultivation. Bangladesh (formerly East Bengal until the Partition of India, and East Pakistan until independence), together with the Indian state of West Bengal, produces most of the world's Jute fibre. There is also cultivation of Jute, or its allied fibre Kenaf (Hibiscus Cannabinus) - a coarser textured plant - in other Asian countries eg; Myanmar, Thailand, China. New uses of Jute in the non-woven sectors have opened up fresh areas, to offset the decline in the production of more traditional articles.

Historically, Jute has a long and chequered story in Bangladesh and the surrounding areas in the Indian Sub-Continent. Going through the evolution from a primary product (read, production) extraction frontier for merchants from land afar, it evolved through the indigenization of the trading architecture with the introduction of the Indian (read, Marwari) business houses (read, families) and then after the rather arbitrary partition of the sub-continent, a phase of rapid industrialization and then after the liberation of the country, a rapid and progressive downfall. Questions arise as to how this happened in the first place and what went so wrong that a once-thriving and still flourishing sector suddenly collapsed and it continued to collapse like a house of cards till nothing remained of its industrial strength. This case study is there to document what went wrong and when and how and this author believes it could be remedied (in line with the analysis made in the previous four sections of the thesis) by taking intelligent solutions.

5.1 Background of Jute Production and Trading

The late nineteenth century witnessed a rise in the peasant production of "commodities of empire" in Europe's colonial possessions in Asia, Africa, and the Americas. In these peripheral economies, peasant smallholders and sharecroppers devoted more of their land and labor to produce industrial raw materials and consumer comestibles for global commodity markets housed in distant imperial metropolises[619]. In addition to jute,

[619] The tremendous rise of commodity production in Europe's colonial possessions during the nineteenth and twentieth century is the focus of a special issue of the Journal of Global History titled "Commodities, Empires, and Global History," As the editors of the issue, Sandeep Hazareesingh and Jonathan Curry- Machado note, "The growing resource, manufacturing, and consumption needs of industrializing society, the emergence of the steamship and the railways … escalated demand for raw materials and foodstuffs, and quickened and intensified commodity transactions, bringing profound changes to

peasant smallholders in British India produced cotton, sugar, indigo, opium, rice and wheat for distant colonial markets[620]. Peasant smallholders produced rubber in colonial Malaya[621], sisal and coffee in East Africa[622], cocoa on the Gold Coast[623], and so forth. Perhaps the most stunning example of the rise of peasant commodity production during the late nineteenth century was the "rapid geographic expansion of the worldwide web of cotton production," to use Sven Beckert's phrase. In the wake of the American Civil War and emancipation, cotton cultivation expanded rapidly in India, Turkestan, Egypt, and Brazil, and was everywhere, including in post-emancipation southern USA, produced by "cultivators who would work their own or rented land with the input of family labor and metropolitan capital[624]." The rise of jute cultivation in Bengal was, therefore, a specific instance in the sweeping and global history of the rise of peasant production of commodities of empire during the late nineteenth and early twentieth centuries.

The emergence of commodity production was often preceded and accompanied by changes in the social relations of agrarian production. Imperial commodity production was often more credit-intensive than subsistence production and moneylenders were ubiquitous in peasant commodity producing regimes in the colonial world[625]. The rise of jute cultivation in Bengal was accompanied by increasing agrarian indebtedness, as credit emerged as the major mechanism of surplus appropriation of peasant labour during the late nineteenth century[626]. Credit markets and produce markets were closely integrated, a fact that was borne out during the Great Depression of 1930, when the crash in commodity prices was accompanied by a credit squeeze in Bengal's jute tracts and other primary commodity producing regions in the colonial world[627].

Peasant commodity production was also often preceded and accompanied by significant changes in relationships of land. Commodity production was spurred by colonial reforms of agrarian land tenure. Revenue-hungry colonial governments were primarily interested in revenue extraction and law and order and their reforms tended to crystallize relations of domination and authority in agrarian land tenure[628]. Superior tenure holders often

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regions and societies in both south and north." Hazareesing, Sandeep and Curry-Machado, Jonathan, "Editorial – Commodities, Empire and Global History," Journal of Global History , 4(1), March, 2009

[620] Ibid; For sugar in the United Provinces, see Amin, Shahid, Sugarcane and Sugar in Gorakhpur: An Inquiry into Peasant Production for Capitalist Enterprise in Colonial India , Delhi: Oxford University Press, 1984. For cotton in the Berar, see Satya, Laxman, Cotton and Famine in Berar, 1850-1900 , New Delhi: Manohar, 1997. On peasant production of opium, see Richards, John, "The Indian Empire and Peasant Production of Opium in the Nineteenth Century," MAS , 15(1), 1981, pp. 59-82.

[621] Rubber was growth both on plantations and by indentured labour and peasant smallholdings with peasant labour. Drabble, John H., Rubber in Malaya, 1876-1922: The Genesis of the Industry , Kuala Lampur: Oxford University Press, 1973.

[622] Ibid; Peasant production of sisal in Tanganyika began in the 1920s, during a less favourable period in commodity markets. Westcott, N., "The East African Sisal Industry, 1929-1949: The Marketing of a Colonial Commodity During Depression and War," The Journal of African History , 25(4), 1984, pp. 445-461. A good overview of peasant coffee cultivation also in Tanzania is provided in Mbilinyi, Simon M., The Economics of Peasant Coffee Production: the Case of Tanzania , Nairobi: Kenya Literature Bureau, 1976

[623] Ibid; Polly Hill's excellent study of cocoa farmers in southern Ghana is a classic in the field of peasant commodity production in colonial contexts. Hill, Polly, The Migrant Cocoa Farmers of Southern Ghana: A Study in Rural Capitalism , Cambridge: Cambridge University Press, 1963

[624] Beckert, Sven, "Emancipation and Empire: Reconstructing the Worldwide Web of Cotton Production in the Age of the American Civil War," American Historical Review , 109(5), 2004, p. 35

[625] Ibid; This was the case with peasant cotton cultivation around the world and sugar cultivation in northern India, to cite just two instances. See, Beckert's "Emancipation and Empire" for cotton and indebtedness in India, Egypt and Brazil, and Amin's Sugarcane and Sugar in Gorakhpur for sugar in north India.

[626] Ibid; Sugata Bose has argued that the late nineteenth century witnessed the rise of debt in the Bengal countryside. Bose, Sugata, Peasant Labour and Colonial Capital: Rural Bengal since 1770 , Cambridge: Cambridge University Press, 1993, especially Chapter 4.

[627] Sugata Bose has demonstrated the devastating effects of the global depression on Bengal's agrarian economy. Bose, Sugata, Agrarian Bengal , chapter 4

coerced peasants and sharecroppers to produce imperial commodities. This was most notably the case with indigo, where peasants rebelled against landlords and planters forcing indigo cultivation[629]. After the "blue mutiny," indigo cultivation was restricted to Bihar, where landlords had far greater power over their tenants and their allocation of resources to particular crops[630]. Peasant commodity production did not necessarily involve the coercion of superior tenure holders. Unlike indigo, peasants were never coerced to cultivate jute. Peasant jute production involved cultivators' decisions – within the context of prevailing social relations of agrarian production – on how to allocate land and labour between imperial commodities and articles of household consumption. This decision relied not only on the social relations of the land but on the land itself – the size and quality of peasant holdings. In the late nineteenth century, the decision to grow jute was driven by land availability. Peasants cultivated jute on new lands thrown up by the delta's active river-systems, augmenting cash incomes without compromising household food security. As landholdings fragmented and land became scarce, the logic of peasant jute production changed. In the twentieth century, cultivators grew jute as part of a market-oriented subsistence livelihood strategy. The earlier period of expansion has parallels with peasant cocoa cultivation in West Africa, while the latter has more in common with commodity production in East Africa, particularly Kenya, where peasant holdings were reduced by land alienation for European settlers. The most significant impact of peasant commodity production in Bengal, as in other parts of colonial Asia and Africa, lay in intensifying peasant households' engagements with markets, not only as producers but also as consumers. A "natural economy," consisting of the production of use-values and simple exchange between producers, did not exist in the Bengal delta or other parts of South Asia characterized by settled agriculture. Settled agriculturists in Asia and Africa produced commodities for regional and inter-regional markets along the Indian Ocean rim prior to the advent of European empires. Imperial commodity production, however, intensified peasants' market-engagements and linked the peasant household not just to regional or inter-regional markets but to distant markets connected by the flows of European colonial capital.

Before the 1850s, Bengal's major cash crop doubled as its subsistence crop. Bengal rice was exported inland to northern India and along the Bay of Bengal coast to Madras and Ceylon from at least the sixteenth century onwards. Markets for Bengal rice expanded in the era of European empires – in the growing colonial metropolis of Calcutta, in the specialized sugar islands of the Indian Ocean, and in Britain and Europe itself[631].

During the second half of the nineteenth century, peasant smallholders in the Bengal delta – an alluvial tract formed out of the silt deposits of the Ganges, Brahmaputra, and Meghna river-systems – expanded their cultivation of jute, a fibrous plant that was the world's primary packaging material. Jute fibres were spun and woven into course cloths used to pack the world's commodities – its grains, sugar, coffee, cotton, wool, and so forth – in their journey from farms and plantations to urban and industrial centres of consumption[632]. Peasant smallholders in the delta cultivated jute on small lots of land, using a combination of household and hired labour and stored and borrowed capital. Peasant produce journeyed westwards from the peasant homestead, along the delta's waterways and railways, through river-ports and railway towns, to Calcutta. From Calcutta, part of the crop went north, to the jute mills along the banks of the Hooghly and the rest was exported overseas, to jute mills in Britain, continental Europe and North America. The mills spun and wove the fibres into fabrics that were dispatched to the world's farms, plantations, and mines. From there, wrapped around a multitude of

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[628] Ibid; Washbrook, David, ""Law, State and Agrarian Society in Colonial India," Modern Asian Studies , 15(3), 1981, pp. 649-721

[629] Kling, Blair, The Blue Mutiny: The Indigo Disturbances in Bengal, 1859-1862, Philadelphia: University of Pennsylvania Press, 1966

[630] Ibid; Bose, Sugata, Colonial Capital and Peasant Labour, p. 52

[631] Ibid; For the pre-colonial rice trade in the Bay of Bengal, see Arasaratnam, S., "The Rice Trade in Eastern India, 1650-1740," MAS , 22(3), 1988, pp. 531-549

[632] Ibid.

The emergence of jute cultivation in the Bengal delta should not be seen as a moment in the region's transitions to capitalism, a one-off event with a less capitalist before and a more capitalist after.1 The relationship between commodity-producing region and global commodity markets was continuous – repeated and reiterated and sometimes reshaped and reoriented each time Bengal's cultivators sowed their lands with jute and bought fibres to sale into global markets.

primary products, jute sacks traveled the globe. The fibre connected the Bengal delta and its peasant smallholders to the vicissitudes of global commodity markets[633].

Jute displaced rice in stages. Initially, in the 1850s and 1860s, jute was cultivated on new lands accreted by the delta's active rivers, on uncultivated lands, or lands that formerly grew indigo. As cultivation expanded further, during the 1870s and 1880s, jute displaced commercial grain production, but most cultivators would try to sow enough rice for secure household subsistence before allocating land to jute. Peasant households cultivated jute to finance the consumption of goods and services, including Manchester cloth, corrugated tin sheets for housing, ornaments, toys, foodstuffs, utensils, cooking and lamp oil, salt, and the colonial governments' legal and educational services. In the 1900s, as landholdings fragmented, cultivators were no longer able to produce sufficient rice for household subsistence and substituted grain for commercial fibre. Although the delta's agrarian economy was already commercialized, it was only with the advent of jute that peasant households' subsistence became tied to markets. With the emergence and rise of jute, the exchange of peasant produce for articles of household of consumption and subsistence in these markets came to constitute the core of peasant livelihoods and survival.

Peasant commodity production also led to peasant differentiation in Bengal as in other colonial worlds. One group of peasants households, endowed with greater landholdings, capital stocks, or political and social connections, prospered through a combination of commodity production, moneylending, and trade. Another group, with smaller landholdings and limited stocks of capital, were impoverished through market shocks and increasing indebtedness[634]. With respect to agrarian Bengal, the debate on peasant differentiation has been dominated by Rajat and Ratna Ray's "jotedar thesis" – the argument that jotedars, rural households with very large landholdings who had their lands cultivated by sharecroppers and wage labourers, replaced zamindars as the dominant power in the countryside[635]. Sugata Bose has demonstrated that the jotedar was limited to northern Bengal particularly the Rangpur district while landholdings in eastern Bengal – the jute tracts of Faridpur, Dacca, Mymensingh and Tippera – were more evenly distributed between cultivators[636].

However, even small variations in the size of landholdings could and did make a difference in the economic trajectory of peasant fortunes. Peasant households with enough land to grow sufficient subsistence grain for the household and commercial fibre for markets were relatively insulated from global market shocks. A difference between 1 or 2 acres and 5 or 6 acres of landholdings could and did lead to significant divergences in the fortunes of peasant households. Market and ecological shocks drove the former group deeper into debt and, especially during the depression years of the 1930s, led to loss of lands. This group of farmers was steadily converted into sharecroppers and agricultural wage-labourers, were most vulnerable to market and ecological shocks, and perished in large numbers in the 1943 famine.

On the other hand, peasant households with larger landholdings managed to prosper during favourable years and hold their own during economic and ecological shocks. They were able to diversify sources of income, by going into the petty jute trade or other forms of small business, to purchase intermediary tenures, such as talukdaris, go into petty moneylending, and, in some case, to even send their sons to formal schools and enter the ranks of the

[633] From the PhD dissertation, titled, "The Envelope of Global Trade: The Political Economy and Intellectual History of Jute in the Bengal Delta, 1850s to 1950s", by Dr. Tariq Omar Ali (Accessed January 20, 2015 8:34:42 AM EST; Citable Link http://nrs.harvard.edu/urn-3:HUL.InstRepos:10364584; The article was downloaded from Harvard University's DASH repository, and is made available under the terms and conditions applicable to Other Posted Material, as set forth at http://nrs.harvard.edu/urn-3:HUL.InstRepos:dash.current.terms-ofuse# LAA

[634] For India, David Washbrook has argued that cash crops like cotton, oilseeds, tobacco and sugar strengthened and enriched a small section of wealthy peasants in Madras: Washbrook, David, The Emergence of Provincial Politics: The Madras Presidency, Cambridge: Cambridge University Press, 1976, pp. 68-93. Frederick Cooper has warned against exaggerating this process of peasant differentiation and the emergence of a capitalist elite peasantry in African history. Cooper, Frederick, "Peasants, Capitalists, and Historians: A Review Article," Journal of Southern African Studies , 7(2), 1981, pp. 284-314. The story of impoverishment through commodity production in Berar's cotton tracts has been narrated by Laxman Satya, Cotton and Famine in Berar .

[635] Rajat and Ratna Ray, "Zamindars and Jotedars: A Study of Rural Politics in Bengal," MAS , 9(1), 1975.

[636] Bose, Sugata, Agrarian Bengal , Chapter 1.

salaried middle-classes. This group developed stronger connections to the market towns that emerged along the delta's waterways and railways[637].

Commodities circulated through routes of built-up capital, or capital that had been fixed into the land – railways, ports, docks, warehouses, baling presses, and so forth[638]. In the jute tracts, built-up capital concentrated in small market along the delta's waterways and railways. With populations ranging from 10,000 to 25,000 inhabitants, these small market towns were nodes connecting peasant smallholdings to global commodity markets. In the towns, intermediary traders purchased small lots of unassorted peasant produce, and bulked, stored, quality graded, and packaged fibres before dispatching it to Calcutta, and thence to mills. Peasant produce was converted into a standardized unit of quantity, quality, and price – the bale, which was used in forward purchases, futures transactions, and commodity exchanges. As the volume of jute circulating through the delta increased, so did concentrations of built-up capital in the delta's small towns. The tremendous increase in jute production during the late nineteenth and early twentieth centuries was accompanied by the growth of the hinterland's market towns. Historians of imperial commodities and colonial India have, by and large, neglected these hinterland market towns, and have focused more exclusively on metropolitan centres of finance and trade[639]. Yet each of these cities was connected to small market-towns deeper in the hinterland, often along the waterways connecting coasts to interior farms and along the railways introduced by colonial governments[640]. In these market towns in Africa, Asia and the Americas, as in the ganjes[641] of Bengal, cultivators and petty traders

[637] Ibid; A similar argument about the political rise of a class of relatively wealthy peasants is made by Joya Chatterji in Bengal Divided: Hindu Communalism and Partition, 1932-1947 , Cambridge: Cambridge University Press, 1994. Chatterji revisits the jotedar argument, taking issue with Bose's characterization of an undifferentiated peasantry. Bose is correct in his depiction of patterns of land distribution. The peasants who came to form a new group of political elites were not jotedars – they were small landholders with just enough lands to benefit from jute cultivation without compromising household food security.

[638] Ibid; Harvey, David, The Limits to Capital , Oxford: Blackwell, 1982. Harvey's larger argument is that circulations of commodity and liquid capital through concentrations of built-up or fixed capital leads to competing geographical spaces and consequently war. The small-towns in question represent much smaller concentrations of capital that were cogs within the broader geographical space marked out by circulations of jute which included the delta's farms and the mills along the Hooghly. There never was any question of market towns going to war.

[639] Two important exceptions Indian history are Chris Bayly's study of the north Indian qasbah and Anand Yang's detailed analysis of intermediary and secondary markets in Bihar: Bayly, Chris, Rulers Townsmen, Bazaars: North Indian Society in the Age of British Expansion, 1770-1870 , Cambridge: Cambridge University Press, 1983 and Yang, Anand, Bazaar India: Markets, Society, and the Colonial State in Gangetic Bihar , Berkeley: University of California Press, 1998. By and large, however, historians of colonial Asia and Africa have neglected the small market town. Charles Good's 1973 review article on African market towns notes that "markets [in Africa] were hardly likely subjects for serious scholarly attention … [because] during he colonial period markets and African commerce generally had a low level of official encouragement and visibility." Good, Charles, "Markets in Africa: A Review of Research Themes and the Question of Market Origins," Cahiers d'Etudes Africaines , 13, Cahier 52, 1973, pp. 769=780.

The classic study of a commodity metropolis is William Cronon's history of Chicago and its relationship to its hinterland: Cronon, William, Nature's Metropolis: Chicago and the Great West , New York: W.W. Norton, 1992. On the other hand, histories of colonial metropolises have not focused on the relationship of the city to the countryside, but on industry and labour. For example: Cooper, Frederick, On the African Waterfront: Urban Disorder and the Transformation of Work in Colonial Mombasa, New Haven: Yale University Press, 1987; Chandavarkar, Raj, The Origins of Industrial Capitalism in India: Business Strategies and the Working Classes in Bombay, 1900-1940 , Cambridge: Cambridge University Press, 1994; and Dutta, Partha, Urbanization, Local Politics, and Labour Protest: A Case Study of Jute Mills Area of 24-Parganas (North), 1900-1959 , Malda: Dipali Publishers, 2008.

[640] There are a few monographs explicitly concerned with the small market town in colonial Africa. For instance, P.O. Pedersen's Small African Towns: Between Rural Networks and Urban Hierarchies , Aldershot: 1997, is an ethnology of two market-towns in Zimbabwe – Gotu and Gokwe – emphasizing these towns' "external relations to the rural hinterland, the larger urban centres and the national and international economy." Pederson and Jonathan Baker have developed this theme of the small market town in Africa in two edited volumes: Baker, Jonathan (ed.), Small Town Africa: Studies in Rural-Urban Interaction , Uppsala: Scandinavian Institute of African Studies, 1990; and Baker, and Pederson, P.O., (ed.) The Rural-Urban Interface in Africa: Expansion and Adaption , Uppsala: Scandinavian Institute of African Studies, 1992.

[641] Ibid; These towns were also centres of state administration and of cultural and intellectual production. They housed not only the built-up facilities of commodity trade, but also branches of government that were charged with administering, monitoring, regulating, policing, and extracting revenue out of agrarian production and transactions of agricultural produce. The expansion of peasant commodity production was accompanied by the penetration of the state and its various

brought in peasant produce from the surrounding countryside for sale to larger traders or agents of metropolitan firms.

At an international level, the Crimean War interrupted Britain's supplies of Russian flax and hemp leading textile mills in Dundee, Scotland, to switch en masse to jute[642]. Though initially concentrated in Dundee, jute mills were established in continental Europe, the USA and in western Bengal during the late nineteenth and early twentieth century. By 1910, about half of the world's jute manufacturing capacity was located along the banks of the Hooghly, to the north of Calcutta[643]. Bengal's peasant smallholders responded to the sharp rise in global manufacturing requirements, and the delta's jute acreage increased from about 50,000 acres in the 1850s to close to 3 million acres in the 1900s[644].

Jute remained inextricably tied to the soil of the Bengal delta. Attempts to transfer jute cultivation to other parts of the world during the nineteenth century failed. In 1873, the Queensland society requested and received jute seeds from Bengal, though little seems to have come out of it. A more concerted attempt to introduce jute cultivation in Louisiana, in the Mississippi delta, also failed – though it caused consternation amongst colonial

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branches into rural hinterlands. Small towns were sites of state formation in agrarian hinterlands. These mofussil towns – to use the term employed by colonial government and European capitalists – were located in-between the jute hinterland and metropolitan

Calcutta. They provided settings for encounters between the countryside and the city, and between rural peasants and urban capitalists, lawyers, government officials, and school-teachers. Cultivators from the surrounding countryside visited these towns to sell and buy commodities, conduct legal and financial affairs, send their children to school, attend fairs, participate in organized politics, and so forth. The small towns were centres of cultural and intellectual life, many of which operated printing presses, accommodated bookstores and literary societies, and published local newspapers. By and large, historians have ignored the cultural and intellectual production of these small towns and have focused on more vibrant metropolitan settings. This bias towards the metropolis is even more pronounced in Bengal, where Calcutta was the centre of an admittedly remarkable flowering of creativity in the nineteenth and early twentieth centuries. In the words of Aurobindo Ghosh, the Indian nationalist leader of the early 1900s, "Calcutta is to Bengal what Paris is to France, it is from Calcutta that Bengal takes its opinions, its inspirations, its leaders, its tone, its programme of action."27 Dazzled by Calcutta's intellectual production, historians have tended not to take the small-town intelligentsia seriously, relegating them to the status of "rustics" who expressed "peasant consciousness" rather than well-formulated ideas worthy of intellectual histories.A distinctive intellectual and political culture, influenced but certainly not determined by the metropolis, emerged out of the jute tracts' mofussil towns.

[642] Over the following half-century, the production of jute fibre and fabric rose rapidly –until World War I. The outbreak of war in Europe, in August 1914, known in the jute tracts as the "German War," caused a sudden collapse in prices and the virtual disappearance of jute markets just as cultivators were bringing the fibre to market. WWI brought to an end a prolonged period of expanding jute cultivation and relative prosperity in eastern Bengal. After 1918, very few people would speak of eastern

Bengal and jute cultivators as anything but impoverished. Prior to WWI, the prosperity of the delta was manifested in jute cultivators' new and varied forms of cash-based consumption. Consumption and prosperity came to constitute the core of material and political life in the delta. Consumption lay at the heart of peasant movements prior to World War I – the anti-rent movement between 1872 and 1885 and resistance to the Swadeshi economic programme of boycott in 1905/06. Jute consumers' prosperity also informed nationalist and colonial perceptions of eastern Bengal's jute tracts and these perceptions changed along with the changes in jute production. As jute acreage was extended and rice cultivation receded, seasonal food shortages and indebtedness became important aspects of peasant livelihoods. For most commentators in the 1870s, consumption was an uncomplicated indication of the jute cultivators' progress and prosperity; at the turn of the century, consumption came to be associated with indebtedness and extravagance. The Swadeshi movement and its associated programme of economic boycott was a broad attack on peasant consumption. This attack was informed by an emerging nationalist discourse of Indian poverty and it was accompanied by a Bengali middle-class antipathy towards jute cultivation. The failure of the Swadeshi movement to gain traction in eastern Bengal's jute tracts should be seen in terms of nationalist economic ideas.

[643] D.R. Wallace, The Romance of Jute: A Short History of the Calcutta Jute Mill Industry, Calcutta: 1928, provides an entertaining and first hand account of the tremendous growth of the Calcutta jute industry in the late nineteenth and early twentieth centuries. Donald Stewart's Jute and Empire: Calcutta Jutewallahs and the Landscapes of Empire , Manchester: Manchester University Press, 1998 provides an account of the increasing competition between Dundee and Calcutta jute mills in an imperial context.

[644] Ali, M.W., Jute in the Agrarian History of Bengal, 1870-1914 , Rajshahi, 1998 describes the steady increase in jute cultivation during the late nineteenth and early twentieth centuries.

officials in Bengal[645]. A report by the United States agricultural department noted success in growing the plant in the Mississippi delta's ecology but concluded that unless the process of extracting the fibre was mechanized, farmers would not take up large-scale cultivation[646]. Agricultural wages were too high and farm families in the American south were unwilling to exploit family labour. Bengal's monopoly over jute cultivation was maintained through low wages and through the exploitation of women's and children's labour. Agriculturists in other parts of the world were simply not willing to work for as little as the Bengali farmer.

The world's increasing consumption of jute fibre and fabrics was met entirely by the land and labour of peasant smallholders in eastern Bengal. As demand rose through the late nineteenth century, so did the quantity of land devoted to cultivating the jute plant. M.W. Ali has estimated that the quantity of land under jute increased from 50,000 acres annually in the 1850s to close to 420,000 acres in the early 1870s[647]. Omkar Goswami estimates that 553,000 acres were under jute in 1876, which increased to 1.6 million acres in 1896-97[648]. The colonial government's statistics of jute acreage began in 1896-97 but were notoriously inaccurate; they indicate that jute acreage increased until World War I, from 2.1 million acres in 1900 to 3.1 million acres in 1913, with a peak of close to 3.5 million acres in 1912-13[649].

The bulk of Bengal's jute was produced in the eastern and northern districts of the province. These districts were located on the alluvial lands formed out of the delta's shifting river-systems: in the northern districts of Jalpaiguri, Rangpur, Pabna, Bogra and western Mymensingh on lands accreted by the Brahmaputra, in the central districts of Faridpur and western Dacca on the deposits of the Ganges; and in eastern Mymensingh, eastern Dacca and Tipperah by the Meghna. The jute tract was bound in the south by the estuaries of the rivers as they entered the Bay of Bengal, to the west by the relatively high and dry Barendra region, and in the north and east by the foothills of the Himalayas in Assam and Hill Tipperah[650]. Within these bounds lay the Bengal delta, an alluvial tract formed out of the silt deposits of the three river-systems and crisscrossed by their numeroustributaries.

[645] In a government resolution to investigate the cultivation and trade of jute, George Campbell, the Lieutenant Governor of Bengal, noted: "the Americans are actively prosecuting the experimental growth of the plant in various parts of their country." "Resolution," February 4, 1876, GoB, Agri Dept, Agri Branch, List 14, Bundle 4, NAB.

[646] Waterhouse, S., Report on Jute Culture and the Importance of the Industry , Department of Agriculture: Special Report, Washington, Government Printing Office, 1883, p. 14

[647] Ali, M.W., Jute in the Agrarian History of Bengal, 1870-1914 , Rajshahi, 1998.

[648] Goswami, Omkar, Industry, Trade and Peasant Society: The Jute Economy of Eastern Bengal , New Delhi, 1991, p.

[649] Government of India, Agricultural Statistics of British India 1904-05 to 1914-15 , Calcutta, 1916

[650] It was difficult to distinguish land and water in the delta. The shifting rivers were constantly swallowing up land from its banks, and throwing up new lands, both on its edges and out of the riverbed. The delta flooded each year, during July and August, when the monsoon rains and the summer snowmelt in the high Himalayas caused the rivers to swell and spill their banks. The colonial bureaucrat J.C. Jack's description of the delta, published in 1916, points to all of the above features: "The delta of the Ganges … is a peculiar country, worth knowledge and worth description. It is made up of new mud, old mud and marsh; it contains rivers as large as any in the world, linked together by an amazing network of lesser rivers, streams and ditches; it mostly disappears under water for several months in the year; yet it grows abundant crops everywhere and supports a very considerable population in considerable idleness" (Jack, J.C. The Economic Life of a Bengal District: A Study, Oxford, Clarendon Press, 1916, p. 2).

Table 59: Acerage of Jute in Major Jute Producing Districts (1872-1910)[651]

District	1872	1880	1890	1900	1910
Jalpaiguri	50,000	15,400	20,500	63,000	94,800
Rangpur	100,000	131,200	600,000	277,000	237,600
Dinajpur	117,600	14,600	96,000	80,000	92,000
Pabna	122,900	102,300	150,000	136,500	180,100
Bogra	46,600	36,600	35,000	88,000	120,000
Mymensingh	48,000	160,900	301,000	519,000	717,500
Dacca	40,000	115,000	180,000	161,000	184,600
Faridpur	16,600	79,600	80,000	100,000	120,200
Tippera	78,400	0	190,800	219,000	236,900
Rest of Bengal	139,205	140,200	272,800	321,100	447,900
Total	759,305	795,800	1,926,100	1,964,600	2,431,600
Proportion of Bengal's jute cultivated in above districts	81.7	82.4	85.8	83.7	81.6

Jute grew abundantly in the delta's unique ecology of soil and water. The fast-growing plant survived and prospered in standing water. Unless floods arrived early or sowing was delayed – because April showers were late – the plant would outpace the rising rivers. Jute was harvested in August and September, at the height of the annual floods, and peasants and labourers would wade into knee or even waist-deep water to cut the stems. The stems were steeped in water for a week or more before the fibre was stripped, a task rendered much easier by the ready availability of water in the flooded delta. The floods also facilitated transport – every part of the delta was accessible by wooden country boats. When the fibres were ready to be marketed, they could be transported cheaply from the farmer's home to the delta's river-ports and railway towns.

Jute competed with a plant equally suited to the delta's ecology, a plant with an older and richer heritage: rice. The region produced two rice crops – spring rice or aus, and winter rice or aman. The crop calendars for aus and jute overlapped exactly. Both plants were sown broadcast with the spring rains, both grew rapidly to escape the rising floodwaters, and both were harvested at about the same time – aus slightly earlier in July and August and jute in August and September. The winter rice crop, aman, on the other hand was transplanted in September and October, when flood waters receded, and harvested in early January. Though it was possible to transplant aman onto land from which jute had been just harvested, it was not profitable. Jute is an exhaustive plant, and transplanting aman seedlings onto land just cleared of jute seriously reduced yields. Jute cultivation implied forgone rice production. The rapid increase in jute acreage during the nineteenth century came at the expense of rice and commercial fibre displaced subsistence grain.

This displacement took place over stages. Initially, jute was not cultivated on rice lands – but on new lands accreted by the regions' rivers, recently cleared wastelands or on land that would otherwise be left fallow. Contemporary colonial bureaucrats commented on the importance of new accretions of land to the expansion of jute cultivation. According to the Collector of Brahmanbaria, these lands, "the large churs thrown up by the Meghna … opened his [the cultivators'] eyes, and the plant [jute] now forms the staple produce of the country next to paddy[652]." Jute also replaced indigo cultivation and may have been one of the motivating factors behind the indigo riots of the 1850s[653]. The remarkable productivity of the delta meant that, until the early 1870s, jute and rice production increased simultaneously. In the early 1870s, it was reported that in the important jute-growing district of Mymensingh, "the extent of land under rice cultivation … [has] increased in quantity within the last twenty years by about twenty per cent[654]." The emergence and expansion of jute cultivation in the same

[651] Chaudhuri, N.C., Jute in Bengal , Calcutta, 1921, pp. 210-211

[652] Excerpted in the report of the Chittagong Commissioner, 2nd September, 1872, in D.J. McNeile, Secy, Board of Revenue, Lower Bengal to Secy, GoB, Gen Dept., 4th February, 1873, in GoB, Agri Dept, Agri Branch, List 14, Bundle 4

[653] Several witnesses before the Indigo Commission of 1860 claimed that cultivators were reluctant to sow their lands with indigo because greater profits could be made from jute, safflower and rice cultivation. Report of the Indigo Commission, 1860 , ed. Das, Pulin, Darjeeling: University of North Bengal, 1992, pp. 91-92 and p. 160

[654] Hunter, W.W., A Statistical Account of Bengal, Vol. V, London: Trubner & Co., 1877, p. 420

period had not hindered the expansion of rice acreage in Mymensingh, or in other parts of the delta[655]. Most districts in eastern Bengal, with the exception of densely populated and relatively urban Dacca district, were net exporters of paddy until almost the end of the century[656].

For much of the nineteenth century, cultivators in eastern Bengal switched back and forth between commercial grain and commercial fibre cultivation. In the jute-cum-rice tracts of the Bengal delta even small variations in landholdings could and did come to make a huge difference to peasant household's prosperity and poverty. Peasants with enough land to grow subsistence rice in addition to commercial fibre could absorb sudden price shocks without being pushed into hunger, debt and poverty by a sudden collapse in jute prices. Such farmers were also better able to cope with ecological shocks and reduced yields. Unfortunately, as the population of the delta rose rapidly during the late nineteenth century, farm sizes fragmented and landholdings shrank[657]. At the same time, jute cultivation continued to be extended at the expense of rice cultivation. According to J.C. Jack, by 1916, jute had almost completely replaced subsistence rice cultivation in Faridpur: some of the cultivators have given up the growing of their whole food supply on a calculation that it would be more profitable to grow jute and buy grain. … Nowadays the cultivator tends to grow jute on all the land fit for the purpose and to grow rice and other food crops only on the remainder. If that remainder is insufficient to supply the family requirements in food, he prefers to buy rather than to reduce the amount of land under jute[658].

The reduction in subsistence rice production meant that the region as a whole had become dependent on imported rice. This dependence was timed with the opening up of the Irrawaddy delta in Burma, the British Empire's latest imperial acquisitions in South Asia[659]. By the 1890s, eastern Bengal's rice production had been reduced to dangerously low levels and peasant smallholders were vulnerable to seasonal scarcity, especially if crops failed or jute prices dropped precipitously. Peasant vulnerability to ecological and market shocks took the form of seasonal hunger. The aus crop was harvested in July and August while the aman crop was harvested in December. Hunger most often reared its head in the months immediately preceding the two harvests – when stocks of grain (or cash) from the previous harvest crop were running low, and the new crop was yet to come in. The consequences of hunger was most frequently debt and as jute gradually displaced subsistence rice, levels of indebtedness in the delta and instances of cultivators' mortgaging their lands to secure loans increased.

In addition to ecological shocks, peasant smallholders were more vulnerable to market shocks. Farmers with sufficient stocks of subsistence grain to feed their households between aman and aus harvests would not be driven to market their fibre out of hunger – they would be able to hold on to their crop for longer. If the aus harvest was sufficient to feed the peasant household between September and December, when the aman harvest came in, the farmer would not be forced to sell his fibre out of hunger. The pressure for cash did not come from landlords, who found it difficult to exercise power in the fluid ecology of the delta, or from moneylenders, who were known for making emergency loans in times of trouble rather than recalling outstanding loans[660]. Moneylenders did tide subsistence cultivators through such hard times, though they did so at high interest and frequently with devastating consequences for the peasant producer[661]. Unfortunately, however, price falls were often accompanied by credit crunches. Subsistence jute cultivators were much more dependent on moneylenders and as fibre replaced grain, credit became the main means of combating hunger. The pressure to borrow was felt most sharply when the aus harvest ran out, jute earnings had been spent, and the aman harvest

[655] In Tipperah, similarly, the expansion of jute cultivation was accompanied by rising rice acreage, Hunter, W.W., A Statistical Account of Bengal , Vol. VI, London: Trubner & Co., 1876, 392

[656] Hunter, W.W., Statistical Account , Vol, V, p. 90

[657] Bose, Sugata, Peasant Labour and Colonial Capital , Cambridge University Press, 1993

[658] Jack, J.C., The Economic Life of a Bengal District: A Study, Oxford: The Clarendon Press, 1916, p. 85

[659] Adas, Michael. The Burma Delta: Economic Development and Social Change on an Asian Rice Frontier, 1852-1941 , Madison: University of Wisconsin Press, 2011

[660] Iftekhar Iqbal discusses difficulties in assessing and collecting land taxes in the Bengal delta in the nineteenth century, Iqbal, Iftekhar, The Bengal Delta: Ecology, State and Social Change, 1840-1943 , Basingstoke: Palgrave Macmillan, 2010.

[661] This was most notably and devastatingly the case with the Great Depression of 1930-31 (see Bose, Sugata, Agrarian Bengal: Economy, Social Structure, and Politics, 1919-1947 , Cambridge: Cambridge University Press, 1986).

was yet to come in[662]. Similarly, seasonal hunger drove cultivators to borrow during April and May, when the aman harvest was running out and the aus harvest was yet to come in. The pressure to borrow during these months was compounded by the need to hire labour to thin and weed the jute fields. Agricultural workers in jute fields had to be paid in cash, while those employed to harvest rice tended to be paid in grain. Jute cultivation and the substitution of rice with jute during the nineteenth century increased the use of credit in peasant livelihoods. Sugata Bose has argued, credit replaced rent as the main mechanism of surplus extraction in the delta during the late nineteenth century: the rise of credit was, at least partly, due to the rise of jute production, the displacement of rice cultivation and seasonal hunger.

The period between 1850 and 1913 was an era of prosperity, as cultivators with larger landholdings produced both sufficient rice for household subsistence and commercial fibre for sale. They were thus relatively insulated from sharp falls in commodity prices, and could use jute revenue to consume market-place goods and colonial governments' services, specially legal services and, to a much lesser extent, educational services. Peasant prosperity manifested most visibly in their rising consumption of market goods – imported cloth, corrugated tin-sheets for houses, household utensils, children's toys, and so forth. By the turn of the century, however, conditions were beginning to change. First, land fragmentation driven by a rapidly growing population meant that cultivators adopted a market-based subsistence livelihood strategy: exchanging jute for rice in local markets to secure household subsistence needs. Second, cultivators slid into debt, and interest payments were taking up an increasing proportion of peasant expenditures. Third, the ecology of the delta deteriorated, and peasant households were struck by more frequent and intense ecological shocks, especially floods and water-borne epidemics[663].

Subsistence jute cultivators were much more dependent on moneylenders and as fibre replaced grain, credit became the main means of combating hunger. The pressure to borrow was felt most sharply when the aus harvest ran out, jute earnings had been spent, and the aman harvest was yet to come in[664]. Similarly, seasonal hunger drove cultivators to borrow during April and May, when the aman harvest was running out and the aus harvest was yet to come in. The pressure to borrow during these months was compounded by the need to hire labour to thin and weed the jute fields[665]. Agricultural workers in jute fields had to be paid in cash, while those employed to harvest rice tended to be paid in grain. Jute cultivation and the substitution of rice with jute during the nineteenth century increased the use of credit in peasant livelihoods. Sugata Bose has argued, credit replaced rent as the main mechanism of surplus extraction in the delta during the late nineteenth century: the rise of credit was, at least partly, due to the rise of jute production, the displacement of rice cultivation and seasonal hunger[666].

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[662] F.A. Sachse, Settlement Officer, Mymensingh discusses the relationship between credit and the jute crop calendar in detail in his letter to the Secy, GoB, Rev Dept, 21st February, 1914, in "Jute Cultivation: Enquiry as to the causes which hamper further extension, Agriculture Dept, Auguat, 1914, Nos. 1-25, GoB, Proc A, Agri Dept, Agri Branch, List 14, Bundle 22, NAB

[663] Ibid; Sugata Bose discusses the demographic impact of landholding and the increasing debt burden during the twentieth century, particularly after the Great Depression: Bose, Sugata, Agrarian Bengal: Economy, Social Structure, and Politics, 1919-1947 , Cambridge: Cambridge University Press, 1986. Omkar Goswami describes the impact of worsening market conditions and the declining returns to peasant production after WWI: Goswami, Omkar, Industry, Trade, and Peasant Society: The Jute Economy of Eastern India, 1900-1947 , Delhi: Oxford University Press, 1991. Iftekhar Iqbal describes the ecological deterioration of the delta from the beginning of twentieth century, as delta's drainage was blocked by railways and the invasive weed, the water hyacinth. Iqbal, Iftekhar, The Bengal Delta: Ecology, State, and Social Change, 1840-1943, Basingstoke:
Palgrave Macmillan, 2010.

[664] F.A. Sachse, Settlement Officer, Mymensingh discusses the relationship between credit and the jute crop calendar in detail in his letter to the Secy, GoB, Rev Dept, 21st February, 1914, in "Jute Cultivation: Enquiry as to the causes which hamper further extension, Agriculture Dept, Auguat, 1914, Nos. 1-25, GoB, Proc A, Agri Dept, Agri Branch, List 14, Bundle 22, NAB

[665] Ibid.

[666] Bose, Sugata, Colonial Capital and Peasant Labour.

Between 1866 and 1872, high and rising prices for the commodity in London and Dundee markets drove the acreage of jute up rapidly. Several colonial officials stationed in the delta dated the emergence of jute cultivation in their region to the rising prices of 1866. The Collector of Bogra stated that "the growth of jute has extended enormously since 1866."[667] Prices for the fibre reached record levels at the opening of the season in 1871. High prices spurred cultivators to sow a hitherto unprecedented quantity of land with jute during 1872. The royal commission enquiry into jute estimated that there was a 30% increase in jute production in 1872 over 1871, "induced" by "high prices and heavy demand[668]." In August and September 1872, just as cultivators were bringing the largest jute crop that they had ever produced to market, prices collapsed. One of the more serious economic recessions of the nineteenth century, the Long Depression had set in, and – in consequence – commodity prices collapsed across the board[669].

As demand for jute disappeared, markets were glutted and prices collapsed. The Royal Report estimates that the prices of best quality jute in Sirajganj fell from Rs. 5 per maund to Rs. 3 and a half per maund. The collapse in prices was even steeper in the case of inferior fibres, which were selling in Narayanganj for "as low as" 1 rupee per maund[670]. The communication of prices between Calcutta – most directly exposed to the global market, interior markets like Sirajganj and Narayanganj, and the village trader is captured in a Calcutta-based jute shippers market report for November, 1872. This market has become dull … All the regular buyers are in the bazaar, but do not exhibit much inclination to operate, whilst holders of stocks on the other hand, appear very eager in their endeavours to carry through sales. The daily importations continue freely, and are now in excess of deliveries, which have fallen off considerably, in consequence off which our local stocks have increased to over 80,000 maunds. The dullness prevailing locally has already affected the up-country marts, and values there have fallen from 3 to 5 annas per maund. The cultivators are now withholding their fibre from the export depots, in the hope that prices may again rally, but we consider it doubtful that these people can afford to hold their jute back long enough to have any serious effects on rates in this bazaar[671].

As the above report notes, cultivators were still holding on to their fibre in November 1872. The Jute Commissioner's tour of the jute tracts of western Bengal in March and April of the following year, 1873, confirmed that some jute cultivators were still holding on to their crop, "all those who could afford to do so had held in hopes of better prices.[672]" In the eastern delta, however, the Commissioners discovered that cultivators had not even bothered reaping their crop when prices fell: "In both Dacca and Mymensingh districts we were informed, everywhere, that quantities of jute grown last season had been left abandoned in the fields."[673] The Collector of Tipperah reported a similar phenomenon in his district, particularly in the subdivision of Bardakhat, where jute cultivation was most concentrated: "the rayats [in Bardakhat] left one-fourth of the crops rotting in the fields uncut."[674]

Why were cultivators able to simply abandon their crop, absorbing the sunk costs of cultivation? I suggest that this was mainly because most of them were still cultivating sufficient subsistence rice, their need for cash was not driven by hunger. The entire jute crop in eastern Bengal had not been abandoned and, what had been harvested, was dispatched to Calcutta. The Commissioners found that the entire jute produced in eastern Bengal

[667] D.J. McNeil, Secy, Board of Revenue, Lower Bengal to Secy, GoB, General Dept., 6th February, 1873, Agriculture Department, GoB, Proc A, Agri Dept, Agri Branch, List 14, Bundle 4, NAB

[668] Ibid; Kerr, Hemm Chunder, Report on the Cultivation of, and Trade in Jute, in Bengal, London, 1874, p. 47

[669] Ibid; The Long Depression, which lasted from 1873 to 1879 has been described as "the first truly international crisis." See Glasner, David and Cooley, Thomas F., "Crisis of 1873", Business Cycles and Depressions: An Encyclopedia, New York: Garland Publishing, 1997, pp. 132-133

[670] Ibid; Kerr, Report on Jute, p. 62

[671] Ibid; Economist, "Commercial Epitome," 18 January 1873, p. 18, Vol 031, Issue 1534.

[672] Ibid; H. Anstruther and H.C. Kerr, Jute Commissioners to Secy, GoB, Statistical Dept, 10th April, 1873, GoB, Proc A, List 14, Bundle 4, NAB.

[673] Ibid; H. Anstruther and H.C. Kerr, Jute Commissioners to Secy, GoB, Statistical Dept, 10th May, 1873 GoB, Proc A, Agri Dept, Agri Branch, List 14, Bundle 4, NAB

[674] Ibid; Hunter, W.W., Statistical Account, Vol. V, p. 391

had been exported to Calcutta[675]. They harvested and sold at least some of their jute to pay landlords or finance other forms of market-based consumption, not to purchase subsistence. They cut down on market consumption and many borrowed to tide them over their difficulties. The increase in indebtedness came to the attention of colonial officials stationed in the jute tracts. As the Collector of Bogra reported in 1872: "The cultivators of jute, however, have suffered a check during the year under review, from the fall in its market price; and the greatly increased sale of non-judicial two-anna stamps seems to indicate that the rayats in many cases have preferred borrowing to reducing their expenditure.[676]"

The bulk of the peasantry was able to absorb losses from jute cultivation in 1872 because those losses did not translate into hunger and food deprivation. The ecology of the delta and average landholdings were such that most peasants could produce both subsistence rice and surplus fibre[677].

The tremendous rise in jute production between 1866 and 1872 had not even displaced the production of surplus commercial rice in the delta. In the early 1870s right through to the 1890s, eastern Bengal produced surplus rice for export to the rest of India. The jute-cum-rice cultivators of Eastern Bengal had profited considerably from the spike in rice prices during the Madras famine of 1866. In the early 1870s, it was said about Tipperah, that "a famine in any other part of Bengal forms a source of prosperity; each man keeps for himself and his family all the food that he requires, and he is enabled to sell his surplus rice at an enhanced rate for exportation.[678]" Even the estimated 30% expansion between 1871 and '72 did not displace subsistence rice, though it did come at the expense of rice. Every district except Dacca was a net exporter of rice in 1872 and even in Dacca, the Collector of the district reported, farmers only cultivated jute after securing sufficient rice to feed their household[679].

However, as jute cultivation extended during the rest of the century, commercial rice production was displaced and then finally so was the production of subsistence rice. The tremendous rise in jute cultivation between 1900 and 1913 took place under very different material conditions. Farmers were now producing jute as part of a market-based subsistence strategy, that is, jute-cum-rice producing households subsisted by purchasing grain out of revenues from sales of jute. With increasing import of rice from Burma, peasant subsistence in eastern Bengal depended on the exchange – in global commodity markets – of Bengal's jute for Burma's rice. As long as the price of Bengal jute to relative to Burmese rice was high, farmers benefitted from these market-based subsistence strategies – earning enough cash from sales of jute to purchase subsistence rice and finance other forms of consumption. As Omkar Goswami has demonstrated, jute-cum-rice cultivators financially benefitted from substituting rice with jute between 1900 and 1913[680]. During those years, jute acreage expanded rapidly as high fibre prices encouraged more and more farmers to abandon subsistence rice for commercial jute and throw their very survival on the course of global markets. However, there were more serious implications of the rise in subsistence jute production: it led to the increasing importance of debt and credit for peasant livelihoods. The expansion of jute cultivation between 1900 and 1913 was accompanied by increasing levels of indebtedness, despite the high prices commanded by the commodity. On the other hand, the extension between 1866 and 1872 was accompanied by a reduction in debt, as many peasants used their incomes to pay off existing debts. In the 1860s and 70s, fibre had not displaced subsistence grain and the production of jute did not entail market purchases of grain. Hence, jute cultivation did not entail accumulating debt to stave off hunger and jute profits could be used to pay off outstanding loans. The displacement of subsistence grain in the 1900s meant that jute cultivators incurred debt and jute earnings serviced, rather than paid down, debt.

Not only did jute cultivation as a market-based subsistence strategy increase levels of debt, it also heightened the cultivators' vulnerability to price shocks. This vulnerability would be cruelly revealed in August 1914, when the outbreak of World War I led to a virtual cessation of all shipping and trade and markets for jute virtually disappeared. When selling resumed in September, prices were absurdly low – 2 rupees a maund for the best jute,

[675] Ibid; H. Anstruther and H.C. Kerr, Jute Commissioners to Secy, GoB, Statistical Dept, 10th May, 1873 GoB, Proc A, Agri Dept, Agri Branch, List 14, Bundle 4, NAB

[676] Ibid; Hunter, Statistical Account of Bengal, Vol. VIII, London: Trubner & Co., 1876, p. 206

[677] Ibid; Iqbal, Iftekhar, The Bengal Delta, p. 91

[678] Ibid; Hunter, Statistical Account, Vol. VI, p. 388

[679] Ibid; Hunter, Statistical Account, Vol V, p. 92

[680] Ibid; Goswami, Omkar, Industry, Trade and Peasant Society, p. 52

compared to the 10 to 12 rupees that ordinary jute sold for during 1913[681]. Fearful of panic spreading through the delta, the colonial government distributed pamphlets through the jute tracts urging cultivators to hold on to their crop, as markets would be restored and prices would rise again. The pamphlet issued on August 15, 1914 read "On account of the sudden outbreak of war in Europe buyers have stopped buying jute temporarily ... but such a state of things will not last long. … If you can wait a little, there will not be any big loss, but if you sell in a hurry, the loss will be great.[682]"

However, as their own officials would discover, many cultivators were unable to hold on for any length of time. L. Birley, the Magistrate of Dacca, toured the jute-growing villages in the district during August and September 1914 to keep an eye on developments. He noticed that cultivators had decided to forego employed labour and exploit household labour: "I was informed by all classes that cultivators were stripping their jute for themselves instead of by hired labour; in many places I saw a man with one or two small boys stripping jute and I think that this statement is correct[683]."
Unlike in 1872, cultivators did not – could not – abandon their crop in the fields and instead they intensified the exploitation of household labour. Their inability to hold on to the crop was related to hunger. As Birley said: "the tour had left me with the impression that the raiyats had more staying power than we had credited them with at first, but that they were feeling anxious, and that if they could not sell their jute soon those who did not get a good crop of aus dhan would feel the pinch until the time of the harvesting of the winter rice.[684]" The most desperate cultivators had already sold their jute at very low prices, but found that they could not buy rice with their returns from jute. Birley spoke to a group of "small cultivators who had sold all their jute at this price [Rs. 2 a maund] and were subsisting on loans of rice from friendly cultivators.[685]"

The market shock of 1914 proved a decisive push into poverty for many of the delta's inhabitants. In 1921, on his way from Kishoreganj to Mymensingh, Shah Abdul Hamid – a native of Kishoreganj and the author of several tracts on the Muslim peasantry of eastern Bengal – observed the following scene of a tearful farewell at a rural railway station[686]. An elderly man was standing in the entrance to a third-class carriage. His wife and children, with their belongings wrapped up in sheets, were inside the car, behind him. On the platform stood another teary-eyed family, congregated to say farewell. A man was holding on to the elderly man's legs, kneeling on the platform and wailing and weeping. As the train started, he refused to let go, and had to be dragged away. After the train departed, Hamid asked this man what happened. The man replied that that was his brother, who had lost all his possessions and was going away with his family to build a new life in the jungles of Assam. The man proceeded to narrate how his brother was reduced to such destitution: In the last German war, when the price of rice was 16 takas a maund and that of jute, one taka, my older brother fell into trouble. He had about fifteen or sixteen mouths to feed in his family and they had to buy rice from the market. Driven by hunger, he went to see a large moneylender – who has over a lakh takas outstanding in loans at any time – in a nearby bazaar. From the moneylender, my brother borrowed six and a half maunds of rice, valued at 100 rupees[687]. Three years later, he had not repaid anything and the moneylender sent a message that he was on "his way, with papers, to the courthouse in Mymensingh." The brothers interrupted the moneylender at the railway station, with fifty rupees in cash. The debt was renegotiated – under the new terms, the moneylender was owed 300 rupees and his farm mortgaged. Misfortune, however, piled on misfortune. His two oldest sons, who looked after the farm, died of small-pox within a few days of each other. He lost his crop to floods one year. For five years, debt continued to pile up until finally the moneylender claimed his mortgage – taking away the to Krishak Bilap are titled Prajakahini (Stories of Prajas) and Shashon-shongskarey Gramya Mussalman (Rural Muslims in Political

[681] Ibid; L.Birley, District Magistrate, Dacca, to Commissioner of Dacca, 5th October 1914, in "Depression in jute trade on account of the outbreak of war in Europe," February, 1915, Gob, Proc A, Agri Dept, Agri Branch, List 14, Bundle 29, NAB

[682] Ibid; Note dated 15th August 1914, in ibid.

[683] Ibid; L.Birley, District Magistrate, Dacca, to Commissioner of Dacca, 5th October 1914,in ibid.

[684] ibid.

[685] ibid.

[686] Hamid, Shah Abdul, Krishak Bilap, Bandulia, 1328 b.e., (1921). The title translates as "extinction of the peasantry," the main theme of this pamphlet. His two previous publications, mentioned in the foreword

[687] Ibid; Hamid, Krishak Bilap, pp. 9-10

Reforms). unfortunate farmer's arable land and, finally, even the tin sheets out of which his house was built. In the end, losing everything, he left with his family for the Assam jungles[688].

The above events began with the market shock produced at the onset of World War I – when jute markets virtually disappeared and rice prices spiked. This was not an unusual or unique narrative in the delta, as low jute prices forced many subsistence cultivators to mortgage their lands in lieu of loans, and they lost their lands when unable to repay and were forced into the Assam jungles. Market shocks did not produce poverty to a similar extent and depth during the nineteenth century because, I have argued, most peasant households were not dependent on markets for subsistence and hence could absorb market shocks. As population increased and farm sizes fragmented, more and more cultivators sacrificed subsistence rice for the sake of commercial fibre, especially during the sharp rise in jute production between 1900 and 1913. Increased peasant dependence on markets for subsistence led to increasing levels of indebtedness – during the early 1900s, credit and interest had been firmly established as the major mechanism for the expropriation of peasant surplus. Increased indebtedness was accompanied by a heightened vulnerability to market shocks. Market shocks were compounded with environmental shocks, as the ecology of the delta deteriorated during the early 1900s, peasants households were hit more frequently by water-borne epidemics and floods[689]. After World War I, jute was no longer associated with wealth and vitality but with poverty, with debt, hunger and disease.

On a second note, Kaminikumar Chakrabarty[690], an employee of a zamindari estate in Sherpur, described the jute cultivators' relationship with the plant in an agricultural manual published in that town in 1882: "These days there is a lot of affection (ador) towards jute in this country. For this reason cultivators plant an excessive (odhik) quantity of jute. The romantic (shuromik) Cultivators love (bhalobasha) jute so much that they sing songs like "there is no crop like jute" while working the fields". It is unusual to think of the cultivators' relationship to the plant as one of "love" and "affection." The above phrase seems particularly out of place in an otherwise dry and technical treatise on the best cultivation practices for a variety of crops, including exotic European fruits and vegetables. Chakrabarty appears to be critical of jute cultivators, accusing peasants of an irrational attachment to the plant and "excessive" cultivation. The cultivation for the fibre, I argue below, was related to consumption and prosperity. As Bengali poets liked to point out, you could not eat your jute[691]; that is, cultivators could not consume the fibre in the same sense that they could consume rice or their other edible produce. However, the cash earned from jute financed modern forms of consumption and consumption was associated with prosperity.

Nineteenth century colonial officials and Bengali bhadralok noted – occasionally with wonder – the increasing numbers of possessions of cultivators. Sambhucharan Mukherjee, a prominent member of the Calcutta intellectual scene and editor of Mukherjee's Magazine, described his impressions while floating down the Meghna, through the jute tracts of Tipperah, en route from Calcutta to Agartala: "It is something that so many about here are well protected in this cold weather by the cheap cottons and woolens of Europe. The women have all more costly ornaments … Silver clearly predominates. … It was all due to jute[692]." Jute cultivator's shiny

[688] Ibid, p. 11

[689] Iftekhar Iqbal argues strongly that ecological conditions worsened in the early twentieth century as the delta's drainage was blocked by railways and water hyacinth. Iqbal, Iftekhar, The Bengal Delta, 2010

[690] Chakrabarty, Kaminikumar, Krishak , Sherpur, Published by Sree Tamijuddin Ahmed, 1893, p. 38. Also, The most often-repeated and serious accusation leveled against jute was that it had displaced rice – the "war" between subsistence grain for local consumption and "fibre" for export to Europe. The following depiction of fibre and grain at war is taken from an essay by Dwijdas Datta, a lecturer in agriculture at Shibpur engineering college: "Jute is now in competition with paddy. Both are involved in a great war. Who can predict whether our own food-grain will win or whether the foreignrequired fibre will win in this Kurukshetra and whether we will have to learn to eat jute in order to survive."116 The charge that expanding jute cultivation would reduce Bengalis would to eating the fibre was repeated in essays, poems, pamphlets and novels of the early twentieth century. (Datta, Dwijdas, Pat ba nalita , Calcutta, 1911, p. 1. Kurukshetra was the scene of the final battle between the Pandavas and the Kauravas in the Mahabharat.)

[691] Amongst many other poets from eastern Bengal, Abed Ali Mian, from Mymensingh, wrote extensively on the inedibility of the fibre, contrasting it with the taste of home-grown rice. Mian, Abed Ali, Kali Chitra, Rangpur, Alamnagar Lokaranjan Press, 1917

[692] Ibid; Mookerjee, Sambhu Chandra, Travels and Voyages between Calcutta and Independent Tipperah , Calcutta, 1887, p.

new tin homes were perhaps the most noticeable indicator of increased prosperity – even more so than the Manchester fabrics and silver ornaments that caught Shambhucharan's eye. A nineteenth century proverb about the wealth of jute cultivators ran: "One who deals in jute has seven huts in his home and his home is built with strong Joanshahi timber[693]." The sub-inspector of madrassas in Sirajganj, Mokhtar Ahmed Siddiqi, wrote about Sirajganj subdivision in 1914, "The jute trade has improved the conditions of ordinary people so much that there is no poverty in these parts. In every village and in every neighbourhood we see many tin houses –only because of jute.[694]" A poem titled "The Jute Song", also published in Sirajganj in 1914, makes a similar observation on tin homes: "Those who did not have straw hovels/ now their houses are covered/ four-cornered, eight-cornered, shining.[695]" Cultivators consumed a wide variety of goods. The Collector of Bogra, writing in 1873, noted the wealth of the jute cultivators in a variety of consumer goods – brass utensils, umbrellas and ponies: "those who used to do very well with earthen pots and pans now have vessels of brass and copper. Vendors of these vessels say that they now sell as many at a single fair as they formerly sold at three. Well-to-do raiyats constantly walk about with umbrellas, and import small ponies for their own use.[696]"

Conversely, contemporaries saw poverty as absence of goods – tin for houses, brass utensils, etc. J.C. Jack, in his 1916 account of Faridpur, wrote: "in the poorer homesteads the most obvious signs of poverty will be holes in the walls of the huts and the absence of brass plates, pots and jars.[697]" Visible manifestations of consumption were not only in housing, furnishing, utensils, clothing and ornamentation, but also in diet. In 1916, Mokhtar Ahmed Siddiqi was complaining that jute cultivators were driving up prices of hilsa, the quintessential Bengali fish: "They [jute cultivators] pay one taka, one and a half takas for a simple hilsa. On the other hand, bhadraloks, salaried men and businessmen do not dare to pay more than 10 or 11 annas for the same fish[698]." J.C. Jack commented on more cultivators' buying sweets and fruits at country bazaars: "In the harvest season nine out of every ten cultivators returning from the market will carry an earthen jar full of sweetmeats and at least a pair of the best fish obtainable, whatever may be their price; if the large jack-fruit, which is not unlike a melon and a great favourite of the cultivator, is in season, he will carry home two or three also."[699]

The increased consumption of goods was matched by the consumption of services, particularly services provided by the colonial state. During the late nineteenth century, cultivators contested more lawsuits and more of them – though still quite a small number – were likelier to send their sons to village schools. The colonial state constructed and staffed courtrooms, police-stations, and school-houses in the delta during the nineteenth century. The expansion of education took place through a programme of state-supported government schools at the district level and grant-in-aid for private schools following the Woods dispatch of 1854. In an influential essay, David Washbrook has argued that the colonial state brought agrarian society under the rule of law during this period through changes in agrarian law, the construction of courtrooms and the appointments of judges[700].

It is not, however, sufficient to look at the increased penetration of state educational and legal services in the delta as a purely supply-side phenomenon. There was considerable demand for such services and, moreover, jute cultivators had the money to purchase such services. Aminur Rahim has argued that jute earnings financed the increased enrollment of Muslims in government schools and drove demand for government-aided schools in the jute tracts[701]. However, more than anything else, the image of peasant litigiousness appeared to confirm the view that peasant expenditure was "frivolous." The notion of "frivolous" and "recklessly extravagant" jute

[693] Ibid; Quoted in Bose, Agrarian Bengal , p. 80

[694] Ibid; Siddiqi, Maulvi Mokhtar Ahmed, Sirajganjer Itihas , Sirajganj, 1916, p. 53

[695] Ibid; "Jar chhilo na chhoner kurey/Tahar ekhon bari jurey/Chouchala atchala koto jhilmil kopat!" Gobindo Chandra Das, "Paater Gaan," Islam Robi, Bhadro, 1321. (September 1914), Reprinted in Siddiqi, Sirajganjer Itihas, p. 88

[696] Ibid; Hunter, W.W., Statistical Account, Vol. VIII, p. 205

[697] Ibid; Jack, J.C. , Economic Life , p. 29

[698] Ibid; Siddiqi, Maulvi Mokhtar Ahmed, Sirajganjer Itihas , Sirajganj, B.E. 1322. p. 25

[699] Jack, J.C., Economic Life , p. 48

[700] Washbrook, David, "Law, State and Agrarian Society in Colonial India," Modern Asian Studies , 15(3), 1981, pp. 649-721

[701] Ibid; Rahim, Aminur, "The Political Economy of English Education in Muslim Bengal, 1871-1912," Comparative Education Review, 36(3), Aug 1992, pp.309-321

cultivators gained in currency during the 1890s and 1900s as levels of indebtedness in the delta soared. In some contemporary's minds, consumption became associated with indebtedness rather than prosperity, informing the widespread charge that peasants spent frivolously[702].

The shift from a dominant view of consumption as a simple indicator of prosperity to one of frivolousness, extravagance and indolence took place gradually, as fibre displaced grain, seasonal food-scarcity reared its head and debt emerged as the main strategy of staving off hunger. For most external observers in the 1900s, prior to World War I, the jute cultivator's prosperity was undeniable and consumption continued to be the clearest and most visible manifestation of such prosperity. Added, the role of the substantial, "sufficiently well-to-do," jute cultivating peasantry across the jute tracts of eastern Bengal was underpinned by their ability to finance expensive and lengthy lawsuits. Peasants conducted their anti-rent struggle, for the most part, through colonial legal institutions.

The period after World War I was marked by a rapid and thorough process of agrarian immiseration in the delta, culminating in the tragedy of the 1943 famine, when about 3 million people died of starvation or hunger-related causes[703].

Agrarian immiseration was driven by a combination of factors that converged at the outbreak of WWI: fragmenting landholdings, deteriorating ecological conditions, uncertain, unfavourable, and rigged produce markets, and exploitative credit markets. The hinterland population had grown rapidly during the late nineteenth century and early twentieth centuries and the limits of cultivation had been reached by the 1900s[704]. Peasant landholdings fragmented, as Muslim inheritance laws stipulated the division of property amongst children. In 1929-30, the average landholding of "occupancy ryots" paying cash rents varied from just over 1 acre in Pabna to about 2.8 acres in Mymensingh. Sharecroppers paying produce rents had much smaller lands – estimated at less than an acre in Mymensingh and Tippera:

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[702] Quoting. The colonial government's report on material conditions of the Bengal peasantry noted about Dacca district, "Unhappily thrift is the last passion which dominates the Dacca peasant's breast."(Memorandum on the Material Conditions of the Lower Orders in Bengal, (1892), in GoB, Proc A, Agri Dept, Agri Branch, List 14, Bundle 12, NAB.). Writing in 1913, F.A. Sachse, the District Magistrate of Mymensingh, associated peasant consumption with poverty rather than prosperity: The crores of rupees paid for the raw article have had no visible effect on the manliness or contentedness of the agricultural classes or even on their material prosperity. They have no idea of saving, and in most cases their earnings from jute are frittered away on profitless extravagances long before the next crop is on the ground. By increasing their credit the inflated prices of jute have deepened rather than diminished their general indebtedness. (F.A. Sachse, Settlement Officer, Mymensingh to Revenue Dept, Government of Bengal, 21st February 1914. GoB, Proc A, Agri Dept, Agri Branch, List 14, Bundle 28, NAB)

[703] Ibid; As Amartya Sen has argued, hunger and starvation came about due to loss of "exchange entitlements," as a wide-range of people could no longer afford to purchase rise in exchange for their labour or other resources. Famine, as always, was the result of poverty; not, as Sen has convincingly demonstrated, from crop failures and food availability decline. Sen, Amartya, Poverty and Famines: An Essay on Entitlement and Deprivation , Oxford: Clarendon Press, 1981

[704] Ibid; Chatterji, Joya, Bengal Divided: Hindu Communalism and Partition, 1932-1947 , Cambridge: Cambridge University Press, 1994. See especially Chapter 2 titled "The Emergence of the Mofussil in Bengal Politics," pp. 55-102

Table 60: Average Land-holdings in Jute Growing Areas (1929-30)[705]

District	Average Landholdings
Dacca	1.52 acres
Mymensingh	2.79 acres when rent is paid in cash
	0.86 acres when rent is paid in produce
Faridpur	1.39 acres
Tippera	2.03 acres when rent is paid in cash
	0.86 acres when rent is paid in produce
Pabna	1.09 acres
Bogra	2.05 acres

Most cultivators' landholdings were less than the averages tabulated above. In Mymensingh in 1919, 60% of farmers cultivated about 2 acres on average and were considered "subsistence ryots," 36% cultivated 5 acres on average and 4% cultivated 12 acres[706]. In the jute-growing Pabna subdivision during the 1920s, 36% of cultivators held less than an acre, 20% had holdings of between 1 and 2 acres and 12.5% had holdings of between 2 and 3 acres.[707] In both Sirajganj and Pabna, about half of all cultivators had less than one acre of land. The author of Pabna and Bogra settlement report noted, "This condition of land tenure is uneconomic. Even in the most fertile tracts, a holding of 3 bighas, of which about . has to be deducted for the homestead site, will not suffice to keep a cultivator with his family in the barest necessities of life. In order to exist he has to take a few extra bighas in barga, or to undertake a little labour such as carting jute to market.[708]"

As landholdings fragmented, the acreage of land devoted to jute increased. Jute acreage increased from a low of 2.6 million acres in 1921-22 to a high of 3.7 million acres in 1929-30, against an average acreage of about 2.9 million acres between 1909 and 1913[709]. The increase in acreage came at the expense of aus or autumn rice and reflected the market-based subsistence strategies pursued by cultivators on small plots of land. Unable to raise sufficient subsistence grain for the household, cultivators produced jute and purchased grain from sales of jute. As D. Macpherson noted regarding Pabna district in the 1920s: "The cultivator grows sufficient paddy to last for 8-10 months and trust to the profit from the jute to provide him with food for the remaining months.[710]" Based on his personal experience in his home constituency of Tippera, Indu Bhushan Dutta stated on the floor of the Bengal Legislative Council that "not more than 25 per cent of the agriculturists can grow sufficient rice for their own consumption. The rest of the people have to buy, even if for a few months of the year.[711]"

In their attempt to eke out a living from fragmenting landholdings, cultivators deepened their dependence on global markets to deliver households' simple subsistence needs. Unfortunately, global commodity markets turned sharply against jute cultivators during and after WWI. As the following demonstrates, jute prices were extremely volatile during the 1920s, rising after WWI, falling sharply during 1920 and '21, rising again in 1922, before falling in 1923, rising again and reaching a peak in 1925 and 1926. Prices dropped steeply in 1930 and remained depressed at unrenumerative and very low levels throughout the 1930s, and only recovered towards the end of the decade with the outbreak of World War II. For the entirety of the 1930s and for periods during the 1920s jute prices were too low to cover the costs of cultivation[712].

[705] Ibid; Report Bengal Provincial Banking Enquiry Committee , p. 27

[706] Ibid; Mymensingh SSR, 1910-1919, p. 25

[707] Ibid; Pabna SSR , p. 35

[708] Ibid; D. Macpherson, Pabna and Bogra SSR, p. 35

[709] Ibid; IJMA, Report of the Committee 1949 , Calcutta, 1950, pp. 99-100, cited in Goswami, Omkar, Industry, Trade and Peasant Society , p. 116

[710] Ibid; Pabna and Bogra SSR, p. 35

[711] Ibid; BLC, Vol. 1, No. 2, p. 188

[712] Ibid; Goswami, Omkar, Industry, Trade and Peasant Society: The Jute Economy of Eastern India, 1900-1947, Delhi, Oxford University Press, 1991

Jute prices were not only uncertain from year, but also fluctuated within the year. Prices were generally low in the beginning of the season, when cultivators had to sell off at least a portion of their crop in order to meet their immediate cash needs. As the Indian Chamber of Commerce testified to the Banking Enquiry Committee in early 1930, "The jute market is always dull in the months of September, October and November … It is only after the first rush is over that the arrivals of jute in the mofussil are to some extent affected by the prices ruling in the market.[713]" Further, it was a widely held that jute markets were rigged against cultivators, as buyers acted as cartels to influence prices. Narayan Chandra Ghosh, SDO of Netrokona in Mymensingh district, informed the Banking Committee that "It sometimes appears that the agents of firms and companies, dealing in the export trade, stop buying of jute whenever there is a tendency towards increase in the buying rate.[714]" Members of the Bengal National Chamber of Commerce also alleged that buyers manipulated quality grades – by eliminating higher qualities so they had to be sold under lower grades – and this caused the loss of several crore rupees to the Bengal's jute cultivators[715].

Table 61: Index of Prices In Bengal (1914=100)[716]

Year	Rice	Jute	All Commodities
1917	n.a.	65	145
1918	n.a.	75	178
1919	n.a.	115	196
1920	166	104	201
1921	144	83	178
1922	125	110	176
1923	112	90	172
1924	104	102	173
1925	147	154	159
1926	133	120	148
1927	144	93	148
1928	141	100	145
1929	114	95	141
1930	105	63	116
1931	71	49	96
1932	58	45	91
1933	57	41	87
1934	63	39	89
1935	62	50	91
1936	71	50	91
1937	67	56	92
1938	69	48	95
1939	75	51	96

Further, buyers of raw jute – particularly the Calcutta jute mills – had gained control over prices paid to cultivators and petty traders lower down the commodity chain during World War I. During the late nineteenth and early twentieth centuries, jute exporters had expanded their purchasing and baling operations deep into the hinterland. Second, WWI had witnessed a considerable expansion in Calcutta's jute manufacturing capacity, transforming the IJMA – which aspired to behave like a cartel by controlling output, wages and prices of raw materials – into the single largest consumer of the delta's fibre. Third, and perhaps most significantly, diminished landholdings and reduced aus rice production meant that cultivators could no longer hold on to fibres in the hope of better prices. They had to sell their produce almost immediately to pay off rents, service debt and purchase subsistence grains.

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[713] Ibid; BPBEC, Vol. II, Part I, p. 346

[714] Ibid; BPBEC, Vol. II, Part I, p. 210

[715] Ibid; BPBEC, Vol. II, Part I, p. 375

[716] Ibid; Compiled in Bose, Sugata, Agrarian Bengal: Economy, Social Structure and Politics , Cambridge: Cambridge University Press, 1982, p. 84

Under these transformed market conditions, cultivators could not benefit even during years of high jute prices. Instead, the benefit of high prices accrued to traders and middlemen with the financial wherewithal to hold on to jute. It was widely reported that relatively higher prices in 1926 had benefited wealthier inhabitants of the agrarian delta rather than the direct producers of the fibre. As the Narayanganj Chamber of Commerce reported to the Banking Enquiry Committee, "the middlemen or wealthier inhabitants of the village do all the holding of jute for better prices by financing the raiyat during the period for which the jute is held, and this has become more prevalent since 1926 when they made fabulous profits and put up corrugated iron sheds all over the country in order to store up their holdings, thereby minimizing the risk of fibre.[717]"

Jute cultivators not only had to contend with unfavourable, uncertain, and rigged commodity jute markets – they were also confronted with a rapidly deteriorating ecology. The inhabitants of eastern Bengal had enjoyed a healthy and productive ecology of land and water, mainly because the drainage of the delta was unobstructed. However, two factors combined to block the delta's natural north-to-south drainage during the early twentieth century, leading to more frequent and devastating floods and epidemics of water-borne diseases: first, high railway embankments with insufficient openings for the passage of water and, second, an invasive weed – the water hyacinth, dubbed the "lilac killer" – which choked the delta's arteries[718].

The two railway lines that were responsible for perhaps the greatest damage in the Bengal delta were the Sara-Sirajganj railway line in northern Bengal, opened in 1918 and the Akhaura-Ashuganj line on the Assam Bengal Railway, opened in 1915. The important jute-growing areas of Brahmanbaria subdivision in Tippera and along the banks of the Jamuna river in northern Bengal were particularly flood-prone during the 1910s and 1920s. Serious floods occurred in Brahmanbaria in 1915/16, the year the Akhaura-Ashuganj railway line opened, leading to "real famine" according to the Survey and Settlement Report for Tippera. Floods recurred in Brahmanbaria 1919, 1924 and then again in 1929. Floods had occurred in Tippera prior to railway construction but, according to the Tippera Survey and Settlement Report of 1919, "it seems that … they [floods] have been more frequent and violent than ever before.[719]"

According to official estimates, the floods of 1929 affected 250,000 people, 50,000 of them severely, and covered over 250 square miles. Ashrafuddin Chaudhuri, the member of the BLC from Brahmanbaria, alleged that floods had caused famine and starvation deaths. P.C. Mitter, representing the government, responded that deaths had not been due to starvation but disease[720]. In addition to frequent and devastating floods, there was a permanent decline in productivity in many areas abutting the railways, where high embankments caused water to pool and stagnate. In the low-lying areas in eastern Brahmanbaria "the cultivators seem to have lost much of the winter rice crops every year since the railway embankment on the Branch Line to Asuganj was completed[721]."

5.2 Status of Competition from India

Being a traditional agro-based manufacturing industry, the Indian jute industry can be considered a case in point as the industry has a global significance, enjoying a "major-industry" status since the colonial period[722]. History reveals that the jute industry was one of the major intermediate product (packaging) industries in India. This packaging product had enormous market opportunities in the colonial integrated market. It played a significant role in the process of "government-led colonial market integration", where the product almost enjoyed a monopoly status as a packaging product in the vertical chain of the manufacturing goods of colonial market. As direct private foreign investments were done in consumer goods industries, the jute industry never suffered from deficiency of capital during the colonial period. The industry also had a significance from the

[717] BPBEC, Vol. II, No. 1, p. 396

[718] Ibid; Iqbal, Iftekhar, The Bengal Delta: Ecology, State, and Social Change, 1840-1943 , London: Palgrave Macmillan, 2010

[719] Ibid; SSR Tippera, p. 37

[720] Ibid; Response of P.C. Mitter to Ashrafuddin Chaudhuri, Bengal Legislative Council, Vol. XXXIV, No.2, p. 89

[721] Ibid; SSR Tippera , p. 7

[722] Indian Jute Industry in the Globalisation Era: Structure and Performance Anusri Pal, Pinaki Chakraborti; Economic & Political Weekly EPW march 5, 2011 vol xlvI no 10

administrative point of view, and thus, got state attention as a part of colonial policy (Rothermund 1993). The British capitalists who established the jute mills in Bengal had a virtual monopoly over the supplies of jute products in the international markets and they earned huge profits (Stewart 1998). According to Bagchi (1972), the oligopolistic structure and the pattern of collusion among the big business houses played a vital role behind the successful performance of the industry during that period. At the time of independence, the partition of Bengal that placed some major supply-side constraints on the industry as the majority of the jute cultivated lands were in East Pakistan and mills in India. This was a major structural shock faced by the industry. Further, takeover of British firms by Indian entrepreneurs led to the withdrawal of colonial support of the industry in the export market. This created an additional demand-side constraint on the industry. These constraints ultimately hindered the commercial prospect of the industry greatly. To combat this structural shock, government took a number of protectionist policies as a part of welfare-oriented public economic policy to support the industry in the pre-globalisation era. The process of industrialisation if steered by the state sector would emphasise the equity and self-reliance aspect keeping the welfare orientation in mind. The government thus accorded top priority to programmes of industrialisation as soon as the planning process began in the country. Emphasis was given towards the inward looking development policies, where one of the major objectives is to attain self-sufficiency, particularly in the traditional line. That means the development path was self-reliance-driven development[723].

Now to protect equity, government or state generally expands along protection through appropriate pricing policies to the most vulnerable class as and when required in order to achieve the self-sufficiency (Bhaduri 2002; Kohli 2004). As a result, quite a few distortions are likely to emerge such as in the market structure. For the traditional agro-based industries various price control policies have been taken for different selected groups like growers, manufacturers, labourers, etc, in order to combat the structural imbalances of these industrial sectors. But these protectionist policies create some barriers to the free operation of the market forces and hindered their formal exposure to the market. These industries tend to be slow to adapt themselves to fast changing scenario in the international/domestic markets as they are "path dependent". Being a traditional industry, jute had also never been fully exposed to the free market due to its operational behaviour under protectionist environment. Thus, globalisation is a kind of structural shock to this industry. This "globalism" is again market integration under a changing perspective which is guided by the efficiency principle that was not to match very easily with the state of the industry at this new phase. The promotion of this integrated world market through liberalisation and globalisation would advocate against such selective protection to remove inefficiencies, and thus the beneficiaries of protection would find themselves incapable of coping with the market norms. Hence, protectionist policies were designed for the jute sector during the plan periods to enhance its capability of coping with the current market situation. As a part of it, in 1956, the Office of the Jute Commissioner was established as a purely regulatory body to control the operational behaviour of the industry as a whole. During the period preceding economic policy reforms 1991, it was found that jute policies were taken in the lines of achieving of self-sufficiency in the production of raw jute with the introduction of minimum support price (MSP) scheme[724] for jute growers and improvement of productivity and quality of raw jute. Further, policies were designed for modernisation of the industry, domestic[725] and external market assistance were also provided to promote new diversified product lines as the industry started moving from the vertical chain of the market to the horizontal chain, where it started facing competition from other substitutes both in traditional and new product lines. In the existing literature, like Singh (1964), the conventional kinky demand curve model is used to explain the oligopolistic market structure and its behaviour. During the pre-globalisation period, the substitutes of jute products started growing at a faster rate that led to a relative downward shift of the demand-curve as shown in the following Figure.

[723] Ibid

[724] In 1971, Jute Corporation of India (JCI) was established to support and to ensure a fair return to the jute growers through MSP mechanism.

[725] As a part of the protectionist policy an internalization of the demand for the jute products was done to support the industry through Jute Corporation of India which supports the public distribution system also. This gave a captive domestic market to jute against a volatile external market.

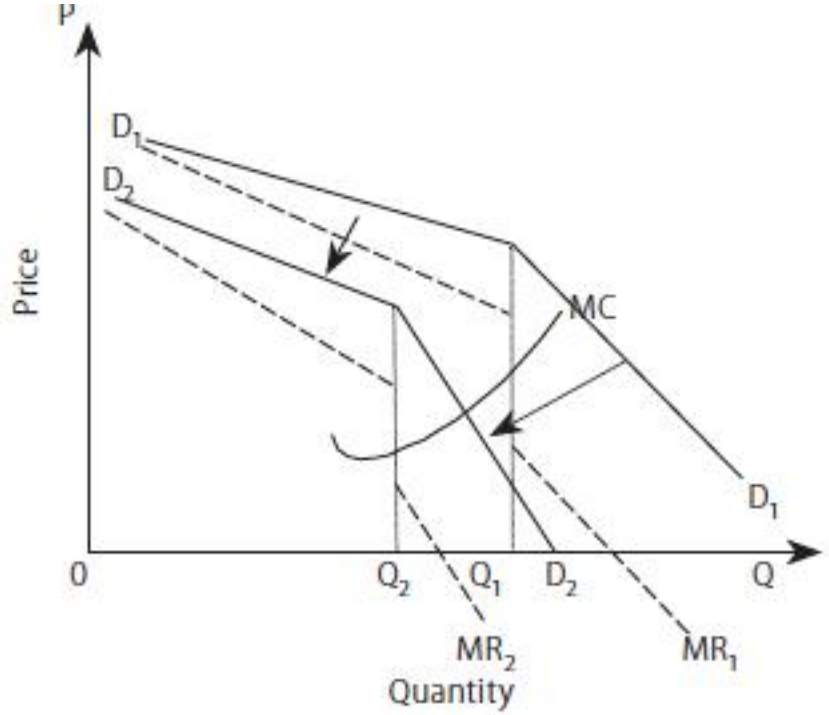

Figure 71: Kinked Demand Schedule of Jute

Further, as the price is rigid at the point of kink, the policy-induced cost supports are swallowed by the discontinuous part of the broken marginal revenue (MR) curve and do not reach the consumer and so, fail to generate any demand boost. The technological innovation is also ineffective due to this stagnatory break of the MR curve. The industry started facing a potential survival threat where the protectionist policies were not supported successfully. This leads to stagnation in the industry. It is likely that due to the imperfect market structure and the protectionist policies some inefficiency is likely to be accumulating over time.

With the industry in such a situation, India opened up its economy unavoidably. Being a path dependent one, the industry finds itself incapable to cope with this market system. The Government of India thus continued most of the policies taken in the pre-globalisation period and along with those some new schemes and policies to make the sector competitive and functionally more efficient. In a nutshell, we can identify two major policies that have been taken by the Government of India to rejuvenate the jute sector. One is the United Nations Development Programme (UNDP) assisted National Jute Development Programme taken in the Eighth Plan period. It is a programme described as a technological development/transfer/adaptation and modernisation effort to rejuvenate the Indian jute sector. In the Tenth Plan period, a national jute policy was formulated as a part of National Common Minimum Programme in 2005 to restructure and rejuvenate the sector as a whole. But yet how far the jute industry has reaped the benefit of these liberalisation policies is an issue of investigation. The industry lobby has labelled this sector as a sunset industry which remains in a state of permanent crisis in the line of high labour cost, obsolete machinery and operational diseconomies. Is this really so or there are other strategic reasons and lobbies that are responsible? In order to find out the validity of this claim, we see how far or to what extent the present industrial structure is responsible for the present performance of the industry.

Now, there is also a need to compare and contrast the jute industry which existed in India and which existed in Bangladesh, i.e., formerly East Bengal [726]. As has been noted quite adequately erstwhile in the primary spheres

[726] Ibid.

It is very interesting to compare and contrast notes with the dissertation, which examines the connections between the delta and international commodity markets from the 1850s to the 1950s – it is a local history of global capital. It is interesting to note, the researcher's own word, to he the dissertation rightly explores how the commodity shaped the delta's economic, political and intellectual history, how economic lives, social and cultural formations, and political processes in eastern Bengal were informed and influenced by the cultivation and trade of jute fibres. First, the paper established how commodity production changed peasant households' economic lives, particularly intensifying peasant interactions with markets. It then focuses on peasant households' market-based consumption, and argue that consumption informed peasant politics during the late nineteenth and early twentieth centuries. Second, it looks at how the circulation of the commodity transformed the physical and ecological landscape of the delta and focuses on the

of this thesis, this industry existed in Bengal as handloom industry but the large-scale industry started in 1855 at Rishra, near Kolkata. In 1859, the first power-looms were started in the same mill and the spinning as well as weaving was undertaken. It was an export-oriented industry and it made rapid progress. The number of jute mills increased from 24 in 1884 to 76 in 1918-19 and to 112 in 1947. This industry suffered a great setback as a result of partition of the country in 1947 because 81 per cent of the jute output went to Bangladesh (erstwhile East Pakistan) while 102 out of 112 jute mills remained in India. Consequently, acute shortage of raw jute was felt in India because it could not or rather would not get the same from Bangladesh due to its political differences with the-then Pakistan, and also probably, to institute its own measure of industrial hinter-land-scaping[727].

In India, many of the sick and inefficient mills had to be closed down due to shortage of raw material. At present, there are 73 mills in India. A relentless campaign to increase the production of raw jute by increasing area under jute cultivation in the Brahmaputra valley, West Bengal, Tarai and in East coastal areas and by increasing yield per hectare eased the situation to a great extent. The production of raw jute increased from 33 lakh bales (of 180 kg each) in 1950-51 to 103 lakh bales in 2003-04.

Progress of Jute Textile Industry[728]:

Year	1950-51	1960-61	1970-71	1980-81	1990-91	1996-97	1997-98	1998-99	1999-00
Production in thousand tonnes	837	1,071	1,060	1,392	1,430	1,401	1,678	1,587	1,591

It is clear from the above table that there are great variations in the production of jute textiles. It increased from 837 thousand tonnes in 1950-51 to 1,430 thousand tonnes in 1990-91, thereby recording a growth of 70.85 per cent in a span of forty years. The production declined to 1,401 thousand tonnes in 1996-97. However, varying trends have been observed thereafter. Data after 1999 – 2000 are not available. West Bengal has the largest concentration of jute industry. This state has 56 jute mills and 41,2b looms which respectively account for 76 per cent and 80 per cent of all India installation. Over 84 per cent of jute goods production of India comes from West Bengal. Andhra Pradesh is a distant second producing only 10 per cent of the Indian jute goods. Most of the mills are within a distance of 64 kilometres from Kolkata along the Hugli River. As a matter of fact, there is a narrow belt of jute mills which is 100 km long and 3 km wide along both the banks of Hugli River. Apart from Kolkata, the other important centres of jute textile industry are Titagarh (9 mills), Jagatdal (8 mills), Budge Budge (8 mills), Haora (8 mills), Bhadreswar (6 mills), Bally, Agarpara, Rishra, Serampara, Shibpur, Shyamnagar, Bansbaria, Kankinara, Uluberia, Naihati, Baidyahati and many others.

Following few factors have been responsible for high concentration of jute mills in Hugli basin[729].
(i) The Ganga-Brahmaputra delta grows about 90 per cent of India's jute and provides raw material to jute mills here.
(ii) Coal is obtained from Raniganj fields which are hardly 200 km away.
(iii) Cheap water transportation is available. The area is also served by a network of roads and railways.

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emergence of jute-specialized market towns along the delta's rivers and railways, where jute was bulked, assorted and packaged before being dispatched to metropolitan Calcutta. Third, it looks at how the commodity emerged as a political and intellectual concept, as imperialists, anti-colonial nationalists, post-colonial statesmen, intellectuals and poets imbued fibre with meaning – relating jute to ideas of poverty and prosperity, religious ethics and practice, economic development and modernization and territorial nationalism.

[727] Dipesh Chakrabarty's critique of transitions to capitalism ,and the consignment of nations and societies to the "waiting room of history," awaiting this transition, is apt. Chakrabarty argues that the story of capitalism and colonial societies should be seen as an open-ended process, constituted of two intertwined narratives – which he labels History 1 and History 2. History 1 is the story of capital transforming the world it encounters in its own image and History 2 is that of local culture and meanings which predate and survive the onslaught of capital, and subsequently subvert and interrupt the course of History 1. Chatterjee's categories provide a more useful and productive framework to study the history of capital in colonial societies than that of "transitions to capitalism." Chakrabarty, Dipesh, Provincializing Europe: Postcolonial Thought and Historical Difference , Princeton University Press: Princeton, 2000, Chapter 2.

[728] http://www.yourarticlelibrary.com/industries/production-and-distribution-of-jute-textiles-industry-in-india/19699/

[729] Ibid

(iv) Abundant water is available for processing, washing and dyeing jute.
(v) Humid climate is very convenient for spinning and weaving.
(vi) Kolkata is a big port which helps in the import of machinery and spare parts and in the export of finished jute products.
(vii) High density of population in West Bengal and in the neighbouring parts of Jharkhand and Bihar provides abundant cheap labour. Some labour comes from Uttar Pradesh also.
(viii) Big capitalists are living in and around Kolkata which makes easy flow of capital in this industry.
(ix) Banking and insurance facilities are also available in and around Kolkata.
(x) The early arrival of British merchants under the aegis of East India Company in Kolkata helped in setting this industry here. So Kolkata enjoys the advantage of an early start.
In addition to West Bengal, jute mills are also located at Guntur, Vishakhapatnam and Nelimarla, Chellivelsa, Eburu and Ongole in Andhra Pradesh; Kanpur, Shahjanwan and Gorakhpur in Uttar Pradesh; Purnea, Katihar, Samastipur, Darbhanga and Gaya in Bihar; Raigarh in Chhattisgarh and Cuttack in Orissa. Assam and Tripura also have one jute mill each.

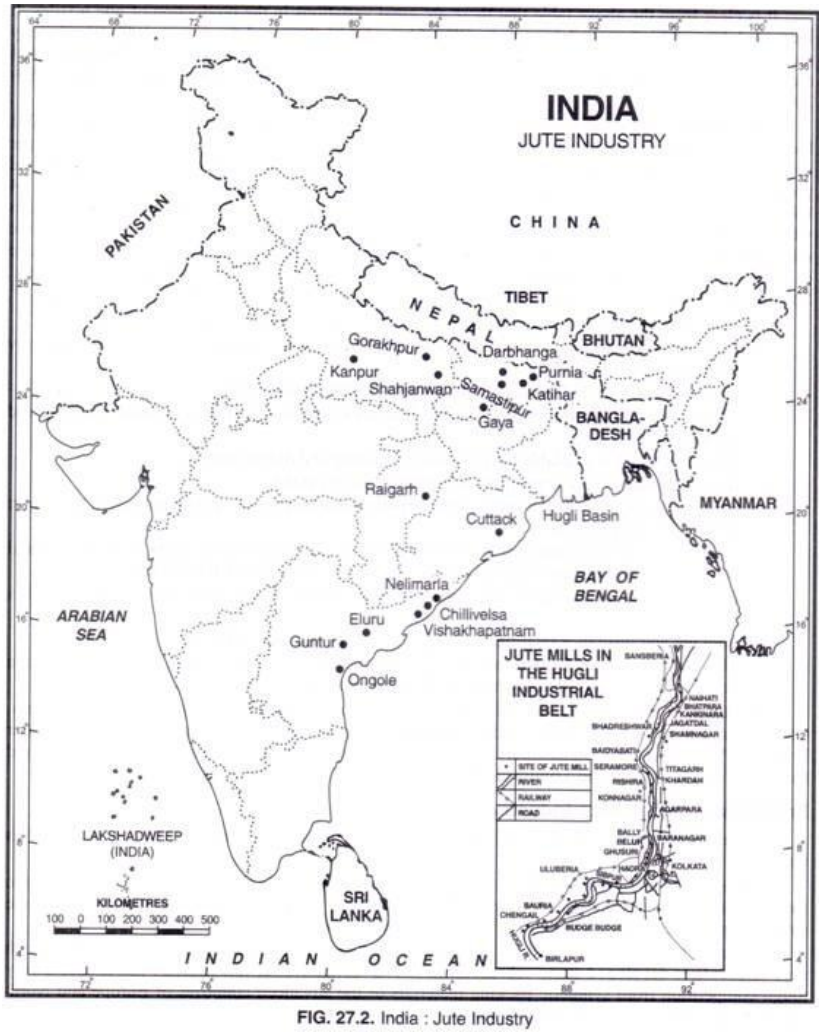

FIG. 27.2. India : Jute Industry

Figure 72: Location Map of Indian Jute Industry

Indian jute industry is facing some very serious problems. Some of these are briefly described as under:
1. Most of the jute-producing areas went to Bangladesh (erstwhile East Pakistan) resulting in acute shortage of raw jute. Although successful efforts have been made to increase the supply of raw jute since Independence, it still falls short of our current requirements.
2. The jute industry has to face a very tough competition from synthetic packing materials of the advanced countries of Europe and North America. As such the market for jute goods has shrunk.
3. The newly established mills and improved machines in Bangladesh are able to produce better quality goods and have an edge over the Indian jute products in the international markets.
4. The overall demand for jute products is gradually decreasing in the international market.

5. The input cost for jute products in India is quite high.

In order to solve the above-mentioned problems, the ways out include increasing the production of raw jute in India for which new areas are to be brought under jute cultivation. There is also an urgent need for replacing the old and obsolete machinery in order to compete quality wise. The National Jute Manufacturing Corporation has undertaken the modernisation of its units. Attempts are being made to diversify the product range, to improve the quality of goods, to reduce the cost and to develop new products.

It is traditionally an export oriented industry and its survival largely depends upon its export performance. The rise and fall of the industry is closely linked with demand for jute goods in the international and national market. India lost much of her market as a result of World War-II and owing to sharp rise in synthetic substitutes as packing materials. The following table shows that there has been sharp decline in the quantity of jute goods exported by India from 660 thousand tonnes in 1980-81 to 220 thousand tonnes in 1990-91. However, the exports picked up slightly in 1994-95 and 1995-96. The value of exports fell from Rs. 932 crore in 2000-01 to Rs. 612 crore in 2001-02. However, exports of jute goods made a quick recovery thereafter and stood at Rs. 1,113 crore in 2003-04.

Exports of Jute Products[730]:

Year	1960- 61	1970- 71	1980- 81	1990- 91	1995- 96	2000- 01	2001- 02	2002- 03	2003- 04
Quantity in thousand tonnes	790	560	660	220	233.1				
Value in Rs. crore	135	190	330	298	621	932	612	907	1,113

Some of the advanced countries are becoming conscious about the environmental degradation with the increasing use of non-biodegradable materials such as plastic bags for packing and are trying to discourage such a practice. This has once again turned the tide in favour of jute bags in some advanced countries and India‘s jute industry is poised for a big boost in the years to come. The main buyers of Indian jute products are the USA, Canada, Russia, UAR, Australia, U.K., Czech Republic, Slovakia, etc.

A closer look at the recent trends in the Jute Industry in India reveals that both factor deployment and utilisation and also factor productivity have increased in India.

Table 62: Structural Variables in Jute Industry of India (Values in Rs. Crore and Others in Numbers)[731]

Year	Number of Factories	Fixed Capital	Workers	NVA	Total Output	Total Wages
1991-92	579	691.48	1,92,158	645.98	2,248.08	425.70
1992-93	531	542.95	1,89,800	722.22	2,477.73	429.42
1993-94	558	682.95	1,71,274	666.02	2,318.65	504.69
1994-95	535	738.01	1,80,576	800.48	2,783.31	492.56
1995-96	549	1,072.69	2,50,347	1,014.00	3,895.24	560.38
1996-97	559	1,064.66	1,95,672	1,068.55	3,996.67	873.74
1997-98	563	1,159.36	2,11,827	1,149.68	3,733.25	740.22
1998-99	540	1,304.48	1,87,970	1,256.31	4,254.65	963.92
1999-2000	512	1,140.96	1,84,217	1,746.29	4,014.69	844.92
2000-01	570	1,364.30	1,96,025	1,876.28	4,490.06	864.31
2001-02	1221	6,218.30	2,72,051	2,499.24	14,527.21	938.72
2002-03	1382	7,521.47	2,63,761	3,373.05	16,152.77	1,336.22
2003-04	967	7,612.32	2,55,227	3,039.11	15,668.75	1,421.87
2004-05	740	5,108.94	2,23,191	2,555.10	13,394.71	1,319.67

Source: Various issues of *Annual Survey of Industries (ASI) – Summary Results for Factory Sectors*, published by Central Statistical Organisation.

[730] Ibid
[731] Source: Ibid

Table 63: Structural Rations Indicating Factor Productivity in Jute[732]

Year	Value Added Per Worker (Rs Th)	Value Added Per Capital	Workers Per Factory	Fixed Capital Per Factory (Rs Th)	Capital Intensity (Rs Th)
1991-92	0.38	0.93	332	136.64	0.10
1992-93	0.45	1.53	357	105.30	0.07
1993-94	0.39	0.98	307	122.39	0.10
1994-95	0.47	1.21	338	130.14	0.10
1995-96	0.40	1.03	456	174.46	0.10
1996-97	0.56	1.19	350	164.19	0.12
1997-98	0.47	1.00	376	179.07	0.12
1998-99	0.63	1.05	348	208.25	0.15
1999-2000	0.90	1.69	360	192.11	0.13
2000-01	0.90	1.60	344	194.59	0.14
2001-02	0.92	0.52	223	394.79	0.44
2002-03	1.19	0.54	191	418.65	0.55
2003-04	1.15	0.51	264	591.89	0.56
2004-05	1.07	0.65	302	493.14	0.41

Table 64: Growth Rate of Structural Ratios[733]

Equations	Variables	Value Added Per Worker	Value Added Per Capital	Workers Per Factory	Fixed Capital Per Factory	Capital Intensity
$Y_i = a + bt$	$\hat{\beta}$	0.068	-0.042	-8.416	32.350	0.036
	t-stat	9.025*	-1.741†	-2.180*	6.051*	4.875*
	$\bar{R}^2$	0.872	0.202	0.284	0.753	0.665
$\ln(Y_i) = a + bt$	$\hat{\beta}$	0.042	-0.023	-0.013	0.053	0.066
	t-stat	9.741*	-2.298*	-2.251*	8.403*	6.380*
	$\bar{R}^2$	0. 888	0.306	0. 297	0.855	0.772

* Significant at 5% level. † Insignificant at 5% level.

Table 65: Technical Coefficients of Indian Jute Industry[734]

Year	Capital Output Ratio	Value Added to Output
1991-92	0.31	0.29
1992-93	0.19	0.29
1993-94	0.29	0.29
1994-95	0.24	0.29
1995-96	0.25	0.26
1996-97	0.22	0.27
1997-98	0.31	0.31
1998-99	0.28	0.30
1999-2000	0.26	0.43
2000-01	0.26	0.42
2001-02	0.33	0.17
2002-03	0.39	0.21
2003-04	0.38	0.19
2004-05	0.29	0.19

[732] Source: Ibid
[733] Source: Ibid
[734] Source: Ibid

Table 66: Growth Rate of Technical Coefficients in India[735]

Equations	Variables	Capital Output Ratio	Value Added to Output
$Y_i = a + bt$	$\hat{\beta}$	0.008	-0.006
	t-stat	2.409*	-1.116†
	$\bar{R}^2$	0.326	0.094
$\ln(Y_i) = a + bt$	$\hat{\beta}$	0.011	-0.012
	t-stat	2.391*	-1.613†
	$\bar{R}^2$	0.323	0.178

* Significant at 5% level. † Insignificant at 5% level.

Table 67: Total Factor Productivity Growth Index in India[736]

Year	Translog Index of TFP
1991-92	98.3
1992-93	116.1
1993-94	100.0
1994-95	119.9
1995-96	101.7
1996-97	143.6
1997-98	122.1
1998-99	162.2
1999-2000	232.2
2000-01	232.7
2001-02	237.3
2002-03	304.9
2003-04	296.2
2004-05	274.8

5.3 The Departure of the British and the Introduction of the Marwari Trader

It was not that Marwaris were not there from before. But their presence started to be felt with the onslaught of the British Raj in Bengal.

Marwaris refer to a commercial and industrial community originating from Marwar, an old state of Jodhpur in Rajasthan. Immigrants from Rajasthan into Eastern India, particularly Bengal, established their credibility in commercial enterprises and emerged as the leading merchants and traders. Their friends and relatives, who joined them to help and open new firms, came to be known as Marwaris irrespective of their original homes, since they were either associated with the Marwaris or introduced by them. The credibility attached to the Marwari businessmen influenced other Rajasthani traders and merchants to introduce themselves as Marwaris. In the social and trade parlance of Calcutta and Dhaka of the British period all traders from North India passed for Marwaris. The Marwari diaspora to Bengal seems to have begun from the 17th century or even earlier. The pure Marwaris of Rajasthan belonged to several socio-religious groups, such as Agarwals, Maheshwaris, Oswals, Khandeshwals and Porwals. During the Nawabi period the Oswals seem to have established their dominance in Bengal trade and commerce. In some areas of trading, such as banking, grain, cloth, salt, and moneylending, their presence was very large.

Ever since the time of Emperor Akbar the Marwaris established their business houses outside Rajasthan, particularly in Bengal, Bihar and Orissa. It is known that some members of the Vaixya class first came to Bengal in the train of the Mughal Rajput army. Some of them settled here permanently and participated in local trade and moneylending. Murshid Quli Khan's malguzar system provided for securities from the revenue farmers, zamindars and taluqdars. Standing as jamin or security to government for malguzar clients became a great business in the early 18th century and the Marwaris were its principal beneficiaries. The jamini business reached its peak in the early phase of British rule.

[735] Source: Ibid
[736] Source: Ibid

The landholders, revenue farmers and ijaradars looked to the Marwaris for standing as their jamins to the government. Hajari Mull, engaged in revenue farming in almost all Bengal districts, was the most important Marwari house in Murshidabad and Calcutta in the last two decades of the 18th century. After the permanent settlement he also acquired extensive landed estates. Another great speculator was Dulalchand Singh (alias Dulsing), a Porwal Marwari, who bought large zamindari estates in Bengal districts. He lived in Dhaka where he established many markets. Many of his large estates in Bakarganj, Patuakhali and Comilla districts were co-shared by the Khwajas of Dhaka. Subsequently the Singh family entered jute trade.

It was banking and bank-related trade in which the Marwaris established their predominance. During the Nawabi period the Marwaris monopolised the mint and currency business, which were in the private sector. The famous house of Jagat Sheth, which had the monopoly of the mint and banking sectors of Bengal, Bihar and Orissa and which played a crucial role in the politics of Murshidabad Darbar, belonged to the Oswal group of the Marwaris. So were the great commercial and banking houses of Gopal Das and Banarasi Das, who were also Oswal Marwaris. They mainly dealt in hundis (bills of exchange) in long distance trade.

The three great nawabs of Bengal-Murshid Quli Khan, Shujauddin Khan and Alivardi khan, depended consistently on the Marwaris whenever they were in distress. The Marwaris were the main target of the Maratha marauders who raided Bengal several times during Alivardi's regime and it is estimated that from them the Marathas squeezed above three crores of rupees. Nawab mir qasim sought Marwari help in implementing his plan for rebuilding his army. Unable to get the expected help from the Jagat Sheths, Mir Qasim captured two chiefs of the House and killed them, declaring them responsible for the miseries of Bengal.
There was a massive migration of Marwaris in the 19th century and within four to five decades they gained control over the whole economy of the region. The Marwaris had set up commercial firms in the towns of East Bengal - Dhaka, Chittagong, Khulna, Naogaon, Mymensingh. They had established a near complete domination over indigenous finance and trade. The advancing Marwaris pushed the economic frontier of the hundi to areas where it had never operated-to Assam and to Arakan. In Akyab they dominated indigenous finance and trade, overshadowing the Nattukottai Chettiars, a monopoly made possible by the large Arakan trade with East Bengal. For instance, the large Marwari firm of Lakshminarayan Rambilash, with headquarters in Akyab, had branches in Calcutta, Rangoon, Khulna, Chittagong and Sandaway where they dealt in hundis and gave loans to traders and private persons. Six great Marwari bankers and merchants at Barabazar, Calcutta, namely Tarachand Ghanshyamdas, Bansilal Abirchand, Sadasuk Gambhirchand, Harsukhdas Balkissendas, Kothiwal Daga and Ramkissen Bagri, dominated the indigenous money market. From Barabazar these great Kothiwals financed the centres of Marwari banking and trade in East Bengal in Naogaon, Dhaka, Chittagong, Mymensingh etc.

Most of the shopkeepers of Calcutta and other Bengal towns in the 19th century belonged to the Shekhavati Agarwal group of Marwaris, who came from Jaipur. The opium and indigo trade in Bengal was a British monopoly, but its main financiers were the Marwaris. dwarkanath tagore had opened several indigo concerns with financial support from the Marwari houses of Sevaram Ramrikh Das and Tarachand Ghansyam Das.

European and Marwari firms dominated the East Bengal jute trade with Calcutta as headquarters. Dealers, peddlers and cultivators were the subordinate instruments of big Marwari firms that financed them and collected their produce. For example, Nathuram Ramkishan established Messrs. Ramkishandas Sivadajal in Calcutta in 1847. This firm dealt in jute, commission agency and rice and opened agencies in other parts of Bengal during the jute season. By 1900, more than one half of the jute balers of Calcutta were Marwaris; of the 74 balers on the rolls of the Jute Balers Association in Calcutta 49 were Marwaris. Gulabchandji established another firm in Calcutta in the 1930s where a flourishing business in banking, jute bailing and shipping was carried on. Several branches were opened in Rangpur and Dinajpur. There were also independent jute traders, such as the Lohia, Nag, Shethia, Tularam and Dugar families.

The exact number of Marwaris in Bengal districts and Calcutta is not known. It has been estimated that their number never reached above 200 thousand at any stage of their presence in Bengal. Though they belonged to the Hindu and Jain religions and though they had many castes among themselves, socially they lived together as a community. Almost all the Jains who settled in Bengal were xvetambar. Chief deities of the Hindu Marwaris are Ganesha and Laksmi. The social structure of the Marwaris was quite simple and had grown along the concept of the extended family. At the centre of the family was the father; he was the head of the family and controlled the family business. The females of their society had very little freedom. Compared to other Hindu societies the females were confined to their homes and lagged behind in all aspects of education. The Marwaris maintained the traditional panchayat (council of elders) system that they brought with them from their native land. The panchayat used to settle social and religious disputes and its decrees were binding on the part of the members. Influence of the local culture on the Marwaris is also evident. Amongst their religious ceremonies the most

attractive and most wonderful ones are Holi, Diwali, Rakshi and Karbachut. The Marwaris of Bengal were bi-lingual; amongst themselves they used the Marwari dialect, while with people outside their community they used Bangla. All Marwaris loved a rich diet. Both the Hindus and Jains were vegetarians.

In the early 20th century the Calcutta-based Marwari community was divided into two groups. One was highly orthodox in religion and largely pro-British and anti-nationalist, and controlled by the more traditional types of traders and agents (banians) engaged in the British firms. The other was reformist in religion and often nationalist. GD Birla, founder of the great House of Birla, led the nationalist group. This reformist group financially supported many Hindu reform movements. The Arya Samaj movement, for example, is said to have been entirely supported by the Marwari House of Ghanshyam Das.

The support of the Marwaris to the Congress is well known. MK Gandhi and the Nehrus, who received donations and hospitality from them, are said to have influenced them to undertake humanitarian and social welfare activities. Consequently, a series of Marwari-backed schools and colleges were established in Calcutta and other towns in the 1920s and 1930s. The Marwari Relief Society played a significant role in relief operations during the Great Famine of 1943. In the 1940s the Marwaris of Calcutta set up a number of hospitals, vagrant homes and charity houses. Numerically the conservative Marwaris were in the majority and they controlled the Marwari Association and Marwari Chamber of Commerce, the two major institutions of the Marwari community in Bengal. Even GD Birla, backed by the Congress and Hindu elite, was unable to get elected as chairman of the Marwari Association in 1923. The Marwari nominee for the Central Legislative Assembly from Calcutta was Keshoram Poddar, a British-backed conservative.

The dominance of the conservatives had one serious ill effect on the Hindu-Muslim relations. In the 1920s the conservative Marwari firms openly refused to maintain co-operative relations with the Muslims. The Marwari shopkeepers refused to sell goods to Muslim buyers. Marwari landlords refused to let their houses to Muslim tenants and Marwari traders replaced local Muslim dyers and tailors and weavers by Hindu upcountrymen. Muslim bandsmen, coachmen and shahises were also boycotted. In newspaper announcements it was urged that no good Marwari should keep Muslim employees in their establishments or have any business transactions with them, on religious grounds. Scholars believe that the Calcutta riot of 1926 was largely the outcome of such a communal outlook of the Marwaris.

The depression of 1929-30 and Partition of India in 1947 caused an exodus of Marwaris from East Bengal, but quite a substantial number of them stayed back and continued their business, mainly in the cloth and jute trade. The communal riot of 1964 and the wars of 1965 and 1971 caused the departure of the community from Bangladesh. At present there are only 700 Marwaris living in Bangladesh; the Tularams of Narayanganj and Dugars of Dhaka are the most known.

Now, Jute produced by peasant households traveled through the delta's river-ways and railways, westwards to the jute mills and seaports of Calcutta. En route to Calcutta, the fibres changed hands, traveled on ox-carts, country-boats, steamships and railway-wagons, and were bought and sold, stored, bulked, and assorted in the jute tract's river-port and railroad market towns. As it passed through layers of intermediary traders, jute also changed in form – from small lots of peasant produce of variable quality to standardized units of quantity, quality and price. The built-up capital through which jute circulated – steamships, railways, jetties, docks and warehouses – connected the delta's jute tracts to metropolitan Calcutta. At the turn of the twentieth century, Calcutta was home to half the world's jute mills and the bulk of jute presses in Bengal. The flow of fibre transformed eastern Bengal's jute tracts into Calcutta's hinterland and, conversely, Calcutta into the delta's metropolis.

The relationship between the hinterland and the metropolis was mediated through small towns – or the mofussil.[737] These small towns, housing about 2% of the total population, was estimated in the 1901 census to have grown by 12.7% in the last decade. Growth was most marked in the railway and river markets that specialized in the jute trade – the population of jute marts like Chandpur, Narayanganj, Jamalpur, and Madaripur had increased by more than 20% in the last decade, and Narayanganj's had doubled in the last two decades.

[737] Strictly speaking, as the Hobson-Jobson describes it, the mofussil was a relational term, from the perspective of Calcutta, the delta's small-towns were the mofussil, but from those small towns themselves, the surrounding countryside was the mofussil. The Hobson-Jobson definition of the mofussil is "The provinces – the country stations and districts, as conta-distinguished from 'the Presidency; or, relatively rural localities of district as contra-distinguished from the sudder or chief station, which is the residence of the district authorities." p. 570.

Amongst these towns, only Narayanganj had a population of more than 20,000. New mofussil towns had also emerged along recently constructed railway tracks, and were being enumerated for the first time in 1901: Akhaura in Tippera, and Domar, Haldibari and Nilphamari in Rangpur district. The 1901 census report – like most official publications of the period – celebrated the growth of small-towns as manifestations of the jute-tract's prosperity: "the country is prosperous and trade is increasing, and the most progressive towns are those connected with the export trade in jute."[738]

These small-towns were intermediate spaces between the metropolis and the hinterland. They were the settings for encounters between the hinterland and the metropolis. Peasant households visited these towns to sell their produce, purchase imported goods, attend fairs, contest lawsuits, register land tenure contracts, and so forth. In the towns, they encountered various agents of the metropolis – jute purchasers and other traders, pleaders and mukhtears, and government clerks. Three interactions between the hinterland and the metropolis took their mark in the mofussil – in transacting jute, in interacting with the state, and in nationalist politics.

Mofussil jute markets grew up along the delta's waterways and railways, along the routes connecting peasant farms to Calcutta. Small village-level traders known as farias or beparis sold fibres purchased from peasant smallholders to mahajans, more substantial capitalists usually acting as agents of jute balers in these markets. During the nineteenth century, intermediary jute traders invested in mofussil towns, building warehouses, river-docks, railway-sidings and kutcha presses – hand-powered screws that packed fibres into bales of 4 to 6 maunds (160 to 240 kilograms). The patterns of mofussil growth in the delta was underpinned by the overlaying of coal-powered transportation, railways and riversteamers, over the delta's existing infrastructure of oar and sail-powered boats during the late nineteenth century[739].

As was usually the case in the British Empire, colonial capital was accompanied by the colonial state. The mofussil towns housed not only the warehouses and baling presses of jute capitalists, but also the paraphernalia of the colonial government. The forward institutions of the colonial state in the mofussil were those of revenue extraction and law and order. Courthouses, police-stations, and land administration offices in mofussil towns were perhaps the most visible signs of colonial authority in the hinterland. By the early twentieth century, the colonial government had established branches of a different type of government institution – the developmental. The extension of the Agricultural Department, formed in 1885, into the hinterland was carried out at the behest of global jute capital, as the government published forecasts of the probable outturn of jute and attempted to "improve" peasant production by increasing yields and alleviating quality. The mofussil was a site for nationalist politics, especially as metropolitan nationalists attempted to mobilize the hinterland's peasant masses into the Swadeshi movement. Metropolitan activists introduced Swadeshi ideology into the hinterland through whistle-stop tours of eastern Bengal's mofussil towns, traveling on the very railways and steamers that conveyed jute and stopping to address public meetings in the very towns that served as centres of the jute trade. The core of eastern Bengal's Swadeshi activists were drawn from bhadralok, Hindu mofussil middle-classes – pleaders and mukhtears, school-teachers, doctors, clerks, and zamindari amlas residing in the mofussil. While mofussil towns were mostly Hindu and middle-class, the surrounding countryside was overwhelmingly Muslim and peasant. Attempts to enforce the Swadeshi economic program of boycott pitted the mofussil town against the surrounding countryside. These conflicts took place between the overlapping categories of Hindu and Muslim, bhadralok and peasant, and town and countryside.

5.4 Pre-Partition Communication Network and Circulation

In its journey from farm to factory, peasant produce stopped at the mofussil town, where it was bulked, stored, assorted and packed before being dispatched to Calcutta[740]. The distribution and growth of these market towns in the delta was driven by the overlaying of a coal-powered transport infrastructure of railways and river-steamers on top of the delta's existing infrastructure of sail and oar-powered boats. In the initial days of the jute trade, the bulk of Bengal's jute was conveyed to Calcutta by boats, entering Calcutta through the Nadia canal and to a far lesser extent through the Midnapore and Hidgellee canals[741].

[738] Government of India, Census of India, 1901, Part VI, pp. 31-33

[739] Ibid

[740] Ibid

[741] The massive rise in the jute trade during the late nineteenth century took place concurrently with the increased penetration of the colonial government and its institutions in the jute-producing hinterland.

The largest proportion of Calcutta's jute was consigned on boats in ganjes or large wholesale marts in Bengal. Sirajganj and Narayanganj emerged as the premier jute marts of Bengal in the 1870s. These towns were ideally located on the delta's river-routes to collect jute from the surrounding countryside and dispatch it to Calcutta. Sirajganj was on the banks of the Jamuna, the major tributary of the Brahmaputra river-system, and collected jute from northern Bengal and western Mymensingh. Narayanganj was on the confluence of the Buriganga and Dhaleswari rivers, and collected jute from eastern Mymensingh, Dacca, and Tippera. Further, these towns became the centres of operation for two different trading communities who played hugely important roles in the jute trade – the Marwaris and the Armenians. In Sirajganj, the jute trade was dominated by Marwari merchants who arrived in large numbers from western India in the late nineteenth century; in Narayanganj, trade was dominated by Armenian merchants who had been trading hides, skins, and salt in nearby Dacca.

Administrative and market mofussil towns did not, however, always overlap. The most important jute towns were not located in district headquarters, but in subdivisional headquarters – Narayanganj was a subdivisional town under Dacca, Sirajganj in Pabna, Chandpur in Tippera, and Madaripur in Faridpur. Significantly, the colonial government created the new subdivision of Narayanganj in 1882, only after the town had already emerged as a significant centre of the jute trade[742]. Some of the most important jute towns were not even sub-divisional headquarters – Akhaura's sub-divisional headquarter was Brahmanbaria and Domar's was Nilphamari.

Akhaura and Domar housed only railway offices and railway police, rather than the usual compliment of colonial services that were located in Brahmanbaria and Nilphamari[743]. The attempt to combine state institutions and trade facilities in Goalundo failed spectacularly, as the entire town was washed away in floods within five years of its establishment. After the flood, sub-divisional and railway officers were moved inland to the town of Rajbari, and Goalundo became a "wandering terminus." In 1908, Rajbari had a Deputy-Magistrate Collector (who combined judicial and revenue collection responsibilities), two Munsiffs (the lowest level judicial officer in the colonial government) and a jail accommodating up to 58 prisoners–though the subdivision was still called Goalundo[744].

The growth in mofussil towns during the late nineteenth century was not only driven by the growing facilities and built-up capital of the jute trade, but also by the expansion and diffusion of state administration into the delta. Perhaps the most visible manifestations of the colonial state penetration in the mofussil were courthouses and police stations. The expansion of colonial judiciary into the delta during the late nineteenth century was driven by peasant households' consumption of legal services, financed by revenues from jute sales. These courts were also used by indigenous capitalists in hinterland markets, though European jute capitalists tended to stay away, preferring to fight legal battles over hinterland transactions in metropolitan courts in Calcutta, rather than the district courts in the mofussil. When proposals to partition the administration of Bengal were floated in 1903, colonial jute capitalists supported the scheme with the caveat that Calcutta High Court would retain jurisdiction over the partitioned province.

In addition to the facilities of the jute trade, mofussil towns housed branches of the colonial state – their built structures and their personnel. The colonial administration manifested itself through hierarchy of administrative towns – the district headquarters, sub-divisional towns, and police stations. While police stations, or thanas, merely accommodated a constabulary force of the colonial police, district and sub-divisional towns included full complements of the state's law and order and revenue extraction institutions – courthouses, police stations, jails and the offices of land administration and revenue departments. These towns also accommodated the colonial "man on the spot" – district magistrates/collectors and sub-divisional officers, autocratic figures who had wideranging powers to govern portions of the hinterland. Railway development and riversteamer services also led to an expansion of the state into the hinterland. River-port and railway towns housed railway administration, ticketing offices, and the railway and river police.

[742] Report on the State of Police in the Lower Provinces , 1882, Calcutta: 1883 p. 4

[743] Ibid; In 1907, Akhaura was made into a Union, the lowest unit of local government.. Akhaura Union was more of a village than small-town institution – its membership was drawn from surrounding villages and the Board had no permanent structures in the town. Report on the Administration of Eastern Bengal and Assam , 1906-07 , Shillong: 1908, p. 35

[744] Ibid; W.W. Hunter, et. al., The Imperial Gazetteer of India , Vol. XII, Oxford: 1908, p. 279

Sirajganj and Narayanganj were served by smaller river-ports scattered throughout the region. Pabna, Mymensingh (or Nasirabad), Kishoreganj, Jamalpur, Munshiganj, Dacca, Bhairab Bazaar, Brahmanbaria and Chandpur were smaller but still significant river-ports in the delta's jute trade, though most often fibres were consigned to Narayanganj or Sirajganj rather than direct to Calcutta. The notable exception was Madaripur, in Faridpur district and on the banks of the Kumar, close to the Sundarbans route to Calcutta. Madaripur was a depot for the jute produced in Faridpur and an important jute mart that, between 1877 and 1880, consigned an annual average of 450,000 maunds jute directly to Calcutta[745].

Sirajganj and Narayanganj's importance as river-mart preceded the rise of jute as a major global commodity in the 1860s. In 1854, an American missionary described a brief visit to Sirajganj: "As we approached Serajgunge [traveling from Pabna, up the Jamuna] the forests of masts reminded me of the shipping of New York or Liverpool. We were ten hours and half passing by them, as they were moored to the bank, two, three, or five deep. I computed them at the time above 600, but was afterwards informed they were more than a thousand.[746]" In the late 1860s, Sirajganj was considered to be the "emporium of Bengal jute." Sirajganj's preeminent position in the hinterland's jute trade declined from the 1880s onwards, as river-routes were overlaid with railways and country-boats displaced by river-steamers. In 1862, the Eastern Bengal Railway, consisting of a line from Sealdah station in Calcutta to Kushtia was opened. In 1870, the Eastern Bengal Railway opened a 45-mile extension to Goalundo, on the confluence of the Brahmaputra and Meghna river systems, in an attempt to capture Bengal's riverine trade. The Eastern Bengal Railway also operated a steamer service connecting Goalundo to the important jute towns of Narayanganj and Chandpur to the east and Sirajganj to the north. The rivers, however, did not prove cooperative – substantial portions of the railway and the town itself was washed away during floods in 1875. After that, Goalundo was no longer a fixed space, but a "wandering terminus" shifting frequently to avoid the unpredictable and unstoppable rivers. The town consisted solely of "a very large bazar and railway and steamers officers' quarters which follow the terminus in its wanderings.[747]"

Through its location at the terminus of the region's largest rivers, Goalundo became the central transshipment point for the delta's jute[748]. Jute from inland marts traveled through Goalundo en route to Calcutta. Though country-boats passed through Goalundo, their cargo was not necessarily transferred to railway wagons. The railway would not displace country boats until the 1890s, only after tracks penetrated deeper into the countryside. Between 1870 and 1872, more than half of Calcutta's jute arrived by country-boat: 8.5 million maunds by country-boats, 6 million by railway, and 2 million by river steamer.[749] The Report on the Internal Trade of Bengal for 1876-77 noted the inability of railways to displace country-boats with some concern:

"it is evident that the railway has not succeeded in displacing the waterways of Bengal as the favoured channel for the supply of this important staple to Calcutta. And yet almost the whole of this jute passes by the railway station of Goalundo."[750] However, coal and steam would replace oar and sail, as railway lines and river-steamer

[745] Ibid; Government of Bengal, Reports on the Internal Trade of Bengal , 1877-80.

[746] Ibid; "Letter from Dr. Peck," The Missionary Magazine, XXXIV (6), June, 1854 p. 164

[747] Ibid; W.W. Hunter, et. al., Imperial Gazetteer of India , Vol. 12, Oxford: 1908, p. 279. In 1908, after numerous shifts, Goalundo was located 7 miles from its original location 1865 location. Further, enormous sums were expended in dredging the Padma near the rail-terminus, in an effort to prevent the rivers from displacing excessively.

[748] Ibid; Also, In addition to legal institutions, the state penetrated the hinterland through its police force. The Indian Police Commission of 1860 created an administrative structure for a mofussil police force, with a District Superintendent in charge of the district; an Inspector over a several police stations, and the Head Daroga in charge of a police station. (Report of the Indian Police Commission, London: 1905, p. 11). The colonial police force was augmented steadily over the remainder of the nineteenth century, with the establishment of new police stations and the creation of a railway and – more modest – river police. The mofussil police force was thoroughly incapable of preventing or investigating crime. As David Washbrook has argued about late nineteenth century India: "the essential development of an efficient and centrally-disciplined police force, to protect 'legal' rights, safeguard the emancipation of the individual from community constraint and impose the rule of law, was neglected." (Washbrook, David, "Law, State and Agrarian Society in Colonial India," MAS , 15(3), 1981, p. 677)

[749] Ibid; Kerr, Report on Jute , 1873, p. 59

[750] Ibid; Reports on the Internal Trade of Bengal for the year 1876-77, Calcutta, Government of Bengal: 1877, p. 69. In 1872-73, George Burnett reported that there were two ways to send jute from Sirajganj to Calcutta: "the steamers of the Eastern Bengal Railway, and the rail itself from Goalundo to Calcutta, at six annas per maund, while by native boats it costs

services were extended throughout the delta. Between 1876-77 and 1889-90, arrivals of jute in Calcutta by boat rose from 3.8 million maunds to 4.5 million maunds. On the other hand, arrivals by railway more than doubled from 3.4 million to 8.4 million maunds and by river-steamer almost quadrupled from 860,000 to 3 million maunds. The next major colonial railway project was the Northern Bengal State Railway opened in 1878 and connecting Calcutta with Assam and traversing the jute districts of northern Bengal, particularly Rangpur. Within two years of the line opening, the government of Bengal proclaimed that "the easy communication afforded by the railway has given a powerful impetus to the development of the jute trade in this district [Rangpur]."[751] By 1880, two Calcutta firms had opened agencies in Rangpur and Domar, hitherto a relatively small hinterland town and over the following years many more agencies would follow. During the 1880s, quantities of jute consigned in towns along the Northern Bengal State Railway increased rapidly: in Rangpur itself from 18,000 maunds in 1879-80 to 241,024 maunds in 1889-90, in Domar from 186,000 maunds to 326,674 maunds, and in Haldibari from 44,000 to 292,592. By the early twentieth century, Domar was described as "a large juteexporting centre, containing jute presses."[752] The emergence of the jute trade in these towns meant a corresponding diminution of Sirajganj's trade, as the Rangpur jute that was previously dispatched to Calcutta via Sirajganj was now consigned directly to the metropolis in railway wagons.

Table 68: Arrivals of Jute in Calcutta (by maunds)

	By boat	*By rail*	*By steamer*
1876-77	3,839,404	3,382,406	857,829
1877-78	4,784,000	3,978,000	1,072,000
1878-79	5,802,593	3,008,233	1,207,921
1879-80	4,455,549	4,331,058	1,480,696
1880-81	4,086,302	3,701,097	1,339,809
1881-82	4,569,560	5,783,536	4,569,560
1882-83	5,973,703	7,001,350	2,085,968
1883-84	4,908,379	3,252,194	1,888,244
1884-85	4,910,687	4,875,739	2,756,718
1885-86	4,113,237	4,543,907	2,959,478
1886-87	3,661,176	5,289,909	2,788,585
1887-88	4,012,692	6,772,599	2,959,382
1888-89	4,818,743	7,428,638	3,218,564
1889-90	4,491,833	8,398,930	3,053,984

In 1885, the Dacca section of the Eastern Bengal Railway, connecting Narayanganj and Mymensingh was opened. With the opening of the Dacca section of the EBR, Narayanganj gained in importance as a jute depot. It was connected both to Calcutta and hinterland markets by steam powered transport technologies. The river-steamer trade between Narayanganj and Calcutta increased rapidly. In 1889-90, Narayanganj sent 1,585,000 maunds of jute to Calcutta by river-steamers, while Sirajganj sent just 945,000 maunds. Sirajganj had, however, retained its importance as a centre of the country-boat trade: that same year, Sirajganj sent more than 780,000 maunds of jute to Calcuta by country-boat against the mere 165,000 maunds dispatched from Narayanganj. As railways and river-steamers displaced country-boats in the hinterland's jute trade Narayanganj eclipsed Sirajganj as east Bengal's main jute emporium. Sirajganj was not connected to the railway network until 1915, with the opening of the Sara-Sirajganj line. By this point, Narayanganj had already eclipsed Sirajganj as the premier jute entrepot of the Bengal delta. Sirajganj's decline as Bengal's pre-eminent jute emporium was not solely due to competition from railways. As the imperial gazetteer of India commented in 1908: "Sirajganj has of late somewhat declined in importance owing to the damage done by the earthquake of 1897, and to a change in the

three to four annas per maund, but occupies thirty to forty days in transit." Burnett, George, The Jute-Growing Districts and Markets of India with Notes of a Tour, 1872-73, (Reprinted from the Dundee Advertiser), Dundee, 1873, p. 15

[751] Ibid; Report on the Internal Trade of Bengal for the year 1879-80 , Calcutta: 1880, p. 63

[752] Ibid; W.W. Hunter, et. al., The Imperial Gazetteer of India , Vol. XI, Oxford: 1908, p. 367

course of the Brahmaputra, which is now three miles distant from the town." The earthquake had destroyed the Serajgunge Jute Company, the only jute manufacturing concern in eastern Bengal prior to 1947[753].

The combination of steamer and railway services connecting Narayanganj to both the jute-tracts of Dacca and Mymensingh to the north and Calcutta to the west led to the rapid growth of this river port. By the turn of the century Narayanganj had displaced Sirajganj as east Bengal's premier jute mart. Narayanganj's population had more than doubled between 1881 and 1901, and stood at 24,472 people. In 1908, there were 53 jute packaging factories employing 73 presses and employing 6,000 workers in Narayanganj[754]. On the other hand, there were only 14 presses in Sirajganj and another 5 more in the neighbouring jute town of Bera[755]. While Narayanganj's population had doubled between 1881 and 1901, Sirajganj's population had increased from 21,037 to only 23,114[756].

Unlike in Sirajganj, where Marwari traders from Rajasthan dominated the jute trade, European capital concentrated in Narayanganj. This, perhaps, explains why Narayanganj was widely considered the model colonial "upcountry" market town[757].

According to the Imperial Gazetteer of India of 1908: "Narayanganj has the appearance of a Western rather than of an Eastern town, and has not unjustly been called the model municipality of Bengal.[758]" European traders formed the Narayanganj Chamber of Commerce in 1904, and until 1912 represented "the jute interest" in the Governor of Bengal's Legislative Council. The dominance of the Europeandominated NCC in local municipal politics, to the exclusion of Indian traders, lasted
into the 1930s. In 1926, Tarit Bhushan Roy of the Bengal Mahajan Sabha, an association of mofussil Bengali traders and financiers, complained in the Legislative Council that the Narayanganj Chamber of Commerce dominated the Narayanganj Municipal Board despite the fact that the Indian commercial community paid about 1/3rd of municipal taxes[759].

The last major colonial railway project in eastern Bengal was the Assam Bengal Railway, opened in 1892, connecting the southeastern port of Chittagong with Assam's tea plantations. The branch line from Laksham to Chandpur, an important jute trading station on the banks of the Meghna, was opened in 1903. Chandpur was already an important jute-trading town, and the terminus of the EBR steamers running to Narayanganj and Goalundo. The Census Report for 1901 ascribed the 37% growth in the population of Chandpur subdivision (not just the town) to "the development of trade in Chandpur town.[760]" In proposing the branch line in 1895, the ABR stated that it would make Chittagong the "port for all jute from Narainganj and the country north of that place."[761] Calcutta jute interests, represented by the Bengal Chamber of Commerce, the Indian Jute Mills Association, and the Calcutta Baled Jute Association, opposed the Chandpur branch as its object was to "compete with a long-established private enterprise."[762]

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[753] Ibid; Hunter, W.W., et. al., The Imperial Gazetteer of India , Vol. 23, Oxford: 1908, p. 17.

[754] Ibid; Hunter, W.W., et. al., Imperial Gazetteer of India , Vol. 23, Oxford: 1908, p. 373

[755] Ibid; Hunter, W.W., et. a., Imperial Gazetteer of India , Vol. 19, Oxford: 1908, p. 301

[756] Ibid; Census of India, 1901, Volume 6, Part 1, p. 19

[757] Ibid; Rumer Godden's 1946 novel The River , and Jean Renoir's 1951 film based on it, is depicts the social life of a British family in Narayanganj, whose income earner is employed at a jute press.

[758] Ibid; Hunter, W.W., et. a., Imperial Gazetteer of India , Vol. 18, Oxford: 1908, p. 301

[759] Ibid; Roy's request for one seat for the Indian commercial community on the municipal board was refused. BLC, Vol. XX, No. 3, p. 112

[760] Ibid; Census of India, 1901, Volume 6, Part 1, p. 79. Chandpur was not officially recognized as a town and the census figures did not include the urban population.

[761] Ibid; Quoted in "Assam-Bengal Railway," Herapath's Railway Journal, Vol. 60, Sept. 9, 1898, p. 935

[762] Ibid; Quoted in ibid.

The ABR captured a sizeable portion of the jute trade, in 1903-04, their wagons carried 45,000 tons (about 1,115,000 maunds) of jute[763]. However, Calcutta jute interests' fears did not materialize. Though Chittagong's exports of jute increased somewhat, the bulk of Chandpur's jute trade was with Calcutta. The EBR ran two steamers daily from Chandpur to Narayanganj and Goalundo. The steamers would arrive from Calcutta in the morning; after their arrival, two trains would depart – one north for Assam and the other south for Chittagong; and the steamers would return to Goalundo and Narayanganj the following morning[764]. The overlaying of river-steamers and railways spurred the growth of Chandpur as a jute mart: by 1910, there were seven European and two Indian firms operating jute presses in the town[765].

The Assam Bengal Railway also led to the growth of Akhaura, a town equally served by the railway and the Titas, a tributary of the Meghna. In 1901 it was reported that Akhaura was "coming into importance as the railway station for Brahmanbaria subdivision" and by 1908, jute presses had been established in the town[766]. In April 1910, a branch-line of the ABR from Akhaura to Ashuganj on the banks of the Meghna and opposite the important jute mart of Bhairab Bazaar was opened. Akhaura became the railway junction town of eastern Bengal, connecting Tippera's jute tracts to Narayanganj and to Calcutta. In 1937, the King George VI Railway Bridge across the river Meghna – connecting the Ashuganj and Bhairab Bazaar stations – was opened to traffic. The Assam Bengal Railway was now directly connected to the Dacca section of the Eastern Bengal Railway, and to the hinterland's premiere jute emporium, Narayanganj. By the time the railway bridge opened, a series of significant jute trading stations had emerged along the ABR's tracks, notably in Chandpur, Akhaura, Brahmanbaria and Ashuganj.

The overlaying of different transport infrastructures and the enormous growth in the jute trade in the late nineteenth century led to distinctive patterns of small-town growth in the jute hinterland. While certain jute marts were physically larger and dealt with greater quantities of fibre – notably Narayanganj and to a lesser degree Chandpur and Sirajganj – the overall pattern was one of diffusion, as purchasing agencies were established deeper inside the hinterland. Diffusion resulted from increasing competition amongst jute purchasers. As the Narayanganj Chamber of Commerce wrote to the Government of Bengal in 1916, "With increasing competition [Narayanganj] balers went further afield and established buying stations in smaller places in the interior.[767]" The NCC referred solely to large European jute baling firms, who according to an estimate in the Capital operated at least 500 purchasing stations in eastern Bengal[768]. The hinterland trade, however, was dominated by indigenous jute merchants known as mahajans rather than European purchasing agencies. The majority of mahajans were Marwaris from Rajasthan and there were some Bengalis Hindus, particularly from the Saha caste. Like the European balers, mahajans also went "further afield" as the volume of trade increased and competition intensified. Marwari traders were usually the first to begin operations in towns just opened by railway lines or steamer connections and they dominated the jute trade in towns along the Northern Bengal State Railway, in Rangpur, Domar, and Haldibari.

Another aspect of the growth of mofussil market-towns during the late nineteenth century was the establishment of kutcha baling presses – hand-powered screws that would pack jute into bales of about five maunds or 200 kilograms. In the 1870s, Calcutta received almost solely "hanked" or "drummed" jute – "stricks of fibre" that had been "rolled into the shape of a drum and tied with three strings.[769]"

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[763] Ibid; Hunter, W.W., et. al., Imperial Gazetteer of India , Vol. 23, Oxford: 1908, p. 384

[764] Ibid; BLC, Vol. III, 1921, p. 321

[765] Ibid; Webster, J.E., Bengal District Gazetteer, Tippera, Calcutta 1910, p. 55. In 1947, after partition, the only hydraulic baling presses in the newly created territory of East Pakistan were in Narayanganj and Chandpur.

[766] Ibid; Census of India, 1901, Volume 6, Part 1, p. 31; W.W. Hunter, et. al. , Imperial Gazetteer of India , Vol. 23, Oxford, 1908 p. 384

[767] From Narayanganj Chamber of Commerce to Commissioner, Dacca Division, 6th July, 1916, in GoB, Agri Dept, September 1916, Proc A, Agri, Agri, List 14, Bundle 30, NAB

[768] Ibid; "The Jute Trade in Bengal," Capital , 6th May 1915, reprinted in GoB, Agri Dept, Sept. 1916, NAB

[769] Burnett, George, The Jute-Growing Districts and Markets of India with Notes of a Tour, 1872-73 , (Reprinted from the Dundee Advertiser), Dundee, 1873, p. 10

By the early 1900, almost all of Calcutta's imports of jute from eastern Bengal arrived kutcha baled. Narayanganj had the largest number of kutcha presses in the delta and there were also pressing facilities in smaller jute marts throughout the hinterland. Further, Marwari merchants (and a few Bengali traders) moved into the kutcha baling trade during the late nineteenth century. In the early years of the jute trade, baling was a preserve of European capital; by 1900, the majority of jute-baling firms were Marwari concerns.[770] Between 1870 and 1900, kutcha baling had transformed from a primarily metropolitan and European to a mostly mofussil and mostly Indian business.
Mofussil or upcountry market towns provided the settings for encounters between farias and beparis – village-level petty traders – and mahajans or balers' agents.

The mahajan operated either on his own account or on the account of a jute baling firm and either owned warehouses, or rented one from an aratdar – literally warehouse owner. Balers' agents, on the other hand, were salaried employees of Calcutta or Narayaganj-based baling firms. These mostly Bengali men were appointed in either the Calcutta headquarters or Narayanganj offices of jute baling firms for a monthly wage to conduct the firms' purchases in a mofussil market[771]. A 1915 article in the Capital, the mouthpiece of Calcutta jute interests, complained that "purchasing Babus" augmented their incomes by cheating their white bosses. The "theft," the Capital claimed, amounted to more 4,000 rupees per purchasing agent[772].

The balers' agent, as the Registrar of Cooperative Societies argued in 1927, was in fact another intermediary trader between farm and factory instead of simply the balers' representative "as his salary is not fixed on the principle that it represents the whole of his remuneration.[773]" Farias and beparis were village-level jute traders, often peasant households with larger landholdings who had invested accumulated capital from cultivation into trading jute. The district officer in Jalpaiguri, in northern Bengal, described "the paikars … [as] generally well-to-do Muhammadans of this district.[774]" According to the Narayanganj Chamber of Commerce "beparis were generally the large boat owners of their villages.[775]" Farias and beparis were familiar and local individuals: J.M. Mitra,
Registrar of the Co-operative Societies of Bengal, described farias and beparis as "familiar figures in the village. The faria is usually a resident of the village and is well-known to the cultivators."[776] At the start of the jute season, in July and August, farias and beparis rowed their country boats between peasant homesteads and rural hats buying up jute to fill the hold of their boats. Once their boat was filled to capacity, the bepari would row it to the nearest riverine market town and usually sell their entire cargo to a particular mahajan. Beparis operated either on their own accounts, or on advances from a more substantial merchant in nearby market towns. Mahajan's advanced money to beparis on the "condition … that the latter must bring to the mahajans all the jute they can get from the raiyat. The money is not realized from season to season, but is allowed to be in the hands of the beparis, one bepari sometimes having an advance of Rs. 5,000 or Rs. 10,000, and occasionally no less than Rs. 20,000.[777]" In other words, advance contracts were meant to secure the mahajan's supplies of fibre, not squeeze profits out of beparis by specifying sales prices or by extracting interest payments. The transaction often took place in "floating bazaars," where the mahajans' and agents' boats maneuvered through a throng of beparis' jute-laden boats. Negotiations were conducted through dalals or brokers representing the faria. The buyer would be given a sample of the fibre and prices would then be negotiated. In many hinterland bazaars, dalals and the mahajans would bargain in silence and in secret, drawing the Bengali character for numbers as

[770] Ibid; Timberg, The Marwaris: From Traders to Industrialists, Delhi: 1978, p. 57

[771] Ibid; In 1915, they were paid 25 to 30 rupees per month, according to an article in the Capital . "The Jute Trade in Bengal," Capital , 6th May 1915, reprinted in GoB, Agri Dept, Sept. 1916, NAB.

[772] Ibid; "The Jute Trade in Bengal," Capital , 6th May 1915, reprinted in GoB, Agri Dept, Sept. 1916, NAB.

[773] Ibid; "A Note by Registrar, Co-operative Societies, Bengal, on Marketing of Agriculture Produce" in Agriculture and Industries, Agriculture, March 1927, List #14, Bundle #24, NAB

[774] Ibid; Collector of Jalpaiguri to Divisional Commissioner, Rajshahi, 20th June 1916, in Agriculture Dept, Agriculture Branch, Proc A, List 14, Bundle 30, NAB.

[775] Ibid; Narayanganj Chamber of Commerce to Commissioner, Dacca, 6th July1916, ibid.

[776] Ibid; J.M. Mitra, Registrar, Co-op Societies, Bengal, to Rev. Dept, GoB, 19th July 1916, ibid.

[777] Ibid; Chaudhuri, Jute in Bengal, p. 77

prices on each other's palms, which were hidden under cloth. If an agreement was reached, the dalal would hand the mahajan a sample, and the mahajan's assistant would record the agreement and the faria's particulars. The faria would return to the mahajan's or aratdar's warehouse with his entire boat-load of jute, where quality would be usually disputed and prices renegotiated. Jute would be weighed out – though the purchasers' maund was often more than the standard 40 kg. Further, a variety of deductions in weight and/or price would be charged to the bepari. The mahajan's workers would then make up drums of jute – by doubling up and rolling together a maund of jute stricks and trying the whole together with rope. Jute would be transported to Calcutta and mofussil baling presses in these one-maund drums.

Colonial capitalists viewed these hinterland transactions with intermingled fascination and anxiety. The teeming masses of jute-laden beparis' boats along riverbanks and the hustle of floating bazaars as buyers' boats made their way through the crowd was the stuff of the colonial exotic – a traveller's fantasy of India. At the same time, the hinterland market was a murky space, where inscrutable natives operated in indecipherable and potentially dangerous ways. What was taking place underneath the cloth? What exactly was a maund? What were the charges and deductions made in transactions? While drawn by the exotic, the travellers' gaze could not penetrate through the activity and felt that important things were being concealed from their sight. Managers of British jute baling and manufacturing firms were particularly fascinated by the system of hand signals in negotiating prices. The silent negotiations and the hidden hands captured British anxieties about impenetrable and indecipherable mofussil markets. Below, I cite two instances of colonial capital's anxieties of hinterland transactions traders, the first from 1873 and the second from 1915. In the winter of 1872-73, George Burnett, a Dundee "jute expert" who had recently arrived in Calcutta to assist in establishing the Champdany jute mills, undertook a tour of the jute-growing districts. The account of his tour was published in the pages of the Dundee Advertiser and re-printed as a pamphlet titled The Jute- Growing Districts and Markets of India. Burnett's descriptions of jute transactions in Sirajganj combined the travellers' gaze – "the floating bazaar is an interesting and amusing scene" – with capitalist anxieties. His account dwells at length on how hand signals keep the seller and onlookers ignorant of prices, on how variable weights and the array of charges and deductions inflate the prices paid by mills, and how the mahajan's drums "serves only to conceal the defects" and "renders … the trade … liable to the deception arising from concealed defects."[778] Since Burnett's tour of Sirajganj, the volume of jute traded in hinterland markets increased tremendously, hinterland markets were diffused throughout the delta, and balers dispatched paid employees to conduct operations in remote purchasing stations. This expansion had not allayed colonial capital's anxieties[779].

In May 1915, an article titled "The Jute Trade in Bengal: Methods of Business" was published in Capital, the mouthpiece of Calcutta's British jute interests. The article focused on the "purchasing Babu," who "at the most moderate estimate of robbery" was stealing 4,000 rupees from his European bosses. In the Capital's portrait, the "purchasing Babu" was knowledgeable about the hinterland markets' arcane ways and could manipulate weights and qualities against the interests of their European bosses in Calcutta. In the article's account of the transaction the bepari had the upper hand in transactions with the purchasing babu. As an imaginary balers' agents tells the author of the article, "present day Beparis very shrewd; if weighman weigh excess, he catch scale and stop if, and if I do "teri beri" he come with big bamboo to smash my head! He rough Mahomedan, I poor dal bhat Bengali Babu, what I do to him?"[780] Unable to do "teri beri" with "rough" Muslim bepari, the "cunning native purchasers" cheated their European bosses – by short-weighting them and misreporting purchasing prices. As the imaginary Babu informs the author: "Sahib in my hand, I no in Sahib hand! He not know Bengali man. We can buy and sell Sahib, his father, grandfather, and his fourteen generations, and he not understand how!"[781]

Jute manufacturers depended on peasant smallholders and indigenous capitalists in the deltaic markets to deliver their raw materials in sufficient quantities, of suitable qualities, and at remunerative prices. Manufacturers' anxieties about jute cultivation and trade in the hinterland increased as capital was poured into jute mills in Dundee, Calcutta, continental Europe, and the USA. Would cultivators be able to meet the increased consumption of the mills? Would the quality of fibre deteriorate, driving up production costs and decreasing the value of the manufactured product? Would cultivators and middlemen drive up prices of raw materials, cutting down on mills' profitability or allowing jute-substitutes into the market? Anxious about the impenetrable and

[778] Ibid; Burnett, George, The Jute-Growing Districts and Markets of India with Notes of a Tour, 1872-73, (Reprinted from the Dundee Advertiser), Dundee, 1873, pp. 8-9

[779] Ibid

[780] Local dialect of broken English; ibid

[781] Ibid; "The Jute Trade in Bengal," Capital , 6th May 1915, reprinted in GoB, Agri Dept, Sept. 1916, NAB.

indecipherable hinterland and the wiles of cunning indigenous intermediaries, colonial capitalists turned to the colonial state.

Colonial jute capitalists lobbied the government to intervene into jute cultivation and trade in the hinterland throughout the late nineteenth and early twentieth centuries. Capitalists urged the government to improve the plant and its cultivation, provide crop forecasts, extend jute acreage, regulate hinterland markets, and to fix quality grades. In 1874, jute spinners in Dunkirk urged the Government of India for "attention [to] … three special points, viz., the establishment of a Government scale of marks or brands, the frequent change of seed and greater care in the preparation of jute for the market."[782] In October 1885, the Dundee Chamber of Commerce lobbied the Government of Bengal to furnish "statistics of the probable outturn of the jute crop … between the seasons of sowing and reaping."[783]

The Calcutta Baled Jute Association (an association of raw jute exporters) the Dundee Jute Importers' Association petitioned the government to "improve" peasant cultivation so as to ensure better quality fibre[784]. Between 1906 and 1914, as global jute manufacturing capacity rose sharply, a variety of international jute interests lobbied the colonial government to oversee the extension of jute cultivation so as to avoid shortfalls in supplies to the growing numbers of mills across the world[785]. In their lobbying to improve quality and quantity of peasant production, jute capitalists characterized jute cultivators as Burnett had done – as lazy, careless, and unresponsive to markets.

The government was generally responsive to capitalists' demands to intervene in peasant production. Burnett's 1873 memorandum was received sympathetically by Campbell, the Lieutenant-Governor. Burnett's programme of "fostering the jute trade" fit in with Campbell's theory of "positive government," characterized by Peter Robb as a form of liberal developmentalism[786]. Upon receiving Burnett's memorandum, Campbell issued an "Official Note" on jute, expressing his desire for information about "Bengal's greatest commercial staple … where and how it is grown; from what plants; what are the qualities and varieties; how it is prepared for the market; how brought to market; and through what hands it passes, &c., &c." More complete information about jute cultivation and trade in the hinterland would, Cambell argued, underpin a programme of positive government in the hinterland, as the state took on measures to "improve" cultivation and trade in the hinterland.

"The Americans are actively prosecuting the experimental growth of Jute," Campbell said, "while we are, as a Government, doing nothing to extend it." He wanted to know "whether the quality of the fibre can be improved by careful preparation, and what are the best processes for its preparation." He also stated that "the necessities of the Jute trade must have a very great influence on all our plans for roads, railways, and canals.[787]"

Campbell also acted promptly on Burnett's recommendation to establish experimental jute farms in the interior of the jute tracts. Just four days after receiving Burnett's memorandum, Campbell's office sent a letter to the Commissioner of Dacca Division informing him of "the desires of His Honor ... to see a farm established in this division for the experimental cultivation of jute and preparation of the fibre for market[788]." By the 4th of

[782] Ibid; From the India Office in London to the Governor General of India in Council, 26/11/1874, Report drawn up by the Vice-Counsel at Dunkirk on the Jute Trade of that place , Revenue and Agriculture, Fibres and Silk, January, 1875, Nos. 1/3

[783] Ibid; "Crop Reports: Notes and Orders, 20th January, 1894, Agricultural Bundle, April 1894, NAB

[784] Ibid; Report on the extension of Jute Cultivation in India by Mr. R.S. Finlow, Jute specialist to the Government of Eastern Bengal and Assam, Revenue and Agriculture, Agriculture, January 1907, Proc. A, Agri Dept, Agri Branch, List 14, Bundle 22.

[785] Ibid; The Dundee Chamber of Commerce, the European Jute Association, the American Trade Consul in India, and the Indian Jute Mills Association, in addition to individual businessmen, particularly Marcus Koch in Calcutta, wrote a series of letters to the Government urging special measures to increase the cultivation of jute.

[786] Ibid; Robb, Peter, "Law and Agrarian Society in India: The Case of Bihar and the Nineteenth Century Tenancy Debate," MAS , 22(2), 1988, pp. 319-354

[787] Ibid; Campbell's note, January 23, 1872, Agriculture Department, GoB, Proc A, Agri Dept, Agri Branch, List 14, Bundle 4, NAB

[788] Ibid; A. Abercrombie, Commissioner of Dacca, to General Department, GoB, 8th February, 1873, Agriculture Department, GoB, Proc A, Agri Dept, Agri Branch, List 14, Bundle 4, NAB

February, D.R. Lyall, the Collector of Dacca described by George Burnett as "energetic and intelligent," had selected a plot of eighty bighas near the Dacca cantonment and had estimated a budget for establishing an experimental jute farm there[789]. The project was approved in less than a week and 1000 rupees were sanctioned for initial expenses and 3,336 rupees for working expenses[790].

By the early twentieth century, the state was actively implementing two of Burnett's three recommendations – publishing crop forecasts and improving the quality and yield of the jute plant. In 1885, the government of Bengal created an Agricultural Department with the primary purpose of "collect[ing] and embody[ing] in convenient forms of the statistics of vital, agricultural and economic facts" and bring about "the general improvement of Indian agriculture with a view to increasing the food-supply and general resources of the people.[791]" These functions had been recommended by the Famine Commissioners' report of 1880, which had focused on forecasting food shortages and increasing food supply. The Agricultural Department of Bengal was a product of devastating famines in southern and western India during the late 1870s, and particularly of the colonial government's face-saving measures in response to the moral crisis created by famine[792].

5.5 Pre-Partition Politics

The tremendous growth in jute cultivation and trade during the late nineteenth century led to a particular configuration of the spaces of metropolitan Calcutta, the agrarian hinterland and mofussil towns. The circulations of ever-increasing volumes of jute between the delta's farms and Calcutta's factories and seaport had carved out this spatial configuration. These relationships were also constituted by the spatial practices of colonial administration, as branches of the colonial state were established in district and sub-divisional towns. In 1905, during a period of high prices and rapid increases in jute cultivation and trade, the government partitioned the province of Bengal – separating the administration of the hinterland from that of the metropolis.

Curzon's spatial rearrangement of the Bengal administration was informed by the configurations of hinterland and metropolis that had been wrought by the circulations of jute. The plan was not merely a cynical ploy to divide and rule South Asia's Hindus and Muslims, as has been alleged by Indian nationalist historiography.

It was also a well thought out territorial plan. The new province of Eastern Bengal and Assam was comprised of the jute tracts of the delta and the tea plantations of the hills, and was provided with a more proximate provincial capital in Dacca and a more "natural" outlet to the sea through Chittagong[793]. Curzon's plan was an attempt to solve the rising administrative burden on metropolitan Calcutta as the scale of state operations and functions in the deltaic hinterland expanded. The government's oft-repeated explanation for partition was that Bengal was too large a province to be under a single administration. Further, partition was a developmental plan for the under-developed hinterland – an attempt to increase and improve state administration, revenue collection, enforcement of law and order, extraction of resources, and transportation infrastructure in the relatively "backward" delta.
Economically and administratively, the spatial re-arrangement of the administration
of Bengal made sense to Curzon and his colleagues.
Opposition to the partition focused on preserving Calcutta's position as the delta's metropolis. When the government announced its plans to partition Bengal in 1903, a flurry of petitions poured in from eastern Bengal protesting the separation of hinterland from metropolis. For the petitioners, partition implied the severance of

[789] Ibid; D.R. Lyall, Collector of Dacca, to Commissioner of Dacca, 4th February, 1873, Agriculture Department, GoB, Proc A, Agri Dept, Agri Branch, List 14, Bundle 4, NAB

[790] Ibid; H.J.S. Cotton, Asst. Secy to GoB, to Commissioner of Dacca, 13th February, 1873, Agriculture Department, GoB, Proc A, Agri Dept, Agri Branch, List 14, Bundle 4, NAB

[791] Ibid; GoB to GoI, proposing the establishment of an Agricultural Dept in Bengal, 1st June, 1883; in Agricultural Deparmtent, May 1885, GoB, Proc A, Agri Dept, Agri Branch, List 14, Bundle 9, NAB

[792] Ibid; The Famine Commission and the much celebrated Famine Code was the colonial government's response to the devastating famines of the late 1870s and early 1880s in southern and western India. These famines had led to the dominant theme of Indian nationalist thought in the late nineteenth century – the poverty debate. In the nationalist framing of the debate, the very legitimacy of empire rested on the question: had British rule impoverished India?

[793] Ibid; The idea that Chittagong was a natural outlet for the delta's produce had been floated since the 1870s, and was premised on the north to south flow of the Brahmaputra and the Meghna, and the easier river route from Narayanganj to Chittagong.

ties with a well-developed metropolis that served as the seat of commerce, culture, and administration for eastern Bengal. The "loss of Calcutta," as many petitioners pointed out, would lead to economic dislocation and civilizational decline – the latter exacerbated by its attachment to Assam, seen as "uncivilized" and home to "savages[794]." Petitioners wrote at length about Calcutta's civilizing effect on the backward hinterland, due to Calcutta's Bengali literary scene, headquarters of government administration, education system, and opportunities for middle-class careers. As a memorial from Noakhali argued, their district's connections with Calcutta had enabled "the most backward district in Bengal … to steadily work up to the high ideal set up by other enlightened parts of Bengal." The petitioners feared that the transfer to Assam, "a backward province with a lower form of administration" would destroy Noakhali's civilizational progress[795].

These concerns about civilizational decline from the loss of Calcutta were accompanied by fears of economic dislocation from the loss of Calcutta as seat of commerce. In the eyes of the petitioners, the hinterland had prospered from its material connections with this great "Metropolis of India," to use a phrase from a memorial from Fatehpur, Mymensingh. Opponents of partition feared that the severance of commercial ties with Calcutta would impoverish Bengal. Mahim Chandra Bhaumik from Mymensingh wrote: "Calcutta is a great centre of commerce, where people of almost every country in the world are making large profits by the import and export of goods. No other place in Bengal or Assam can be so convenient to a trader or offer so lucrative a market to him as Calcutta. On its transfer to Assam, East Bengal will lose its commercial prosperity[796]."

Eastern Bengal's traders and zamindars were among the most vocal and active opponents of partition. Many of them had invested considerable sums of money in Calcutta, particularly in Hatkhola bazaar, the largest wholesale jute market in the metropolis. In a December 1905 report, the government noted: "the most ardent workers in spreading the agitation [against partition] from Calcutta were the brothers of the Roy family of Bhagyakul, who in addition to being land-owners in Dacca have large trade interests, particularly in jute[797]." The Bhagyakul Roys operated a steamer service between eastern Bengal and Calcutta and had considerable investments in Hatkhola bazaar. Sita Nath Roy was president of the Congress-affiliated Bengal National Chamber of Commerce and wrote and spoke at length against the partition proposal. The petitions received by the colonial government from eastern Bengal pleaded the case for Dhaka and Mymensingh traders and their investments in Calcutta. The following petition from Sahadevpur in Tangail was emblematic of an oft-repeated concern: In Calcutta, a very large number of merchants from Dacca and Mymensingh carry on trade in which they have made large investments. They have built houses in Calcutta by spending lakhs of rupees. If they are compelled to remove all these from Calcutta to Chittagong, they will have to undergo very heavy loss. … All the jute is sent to Calcutta. But if they are to send the jute to Chittagong, their expenses will be much greater and their profits will be greatly reduced[798].

While eastern Bengal's hinterland jute traders, led by the Roy family of Bhagyakul, wholeheartedly opposed Curzon's spatial rearrangement of the province, European jute capital lent his partition plans conditional support. The Indian Jute Mills Association did not think that partition would affect their mills' supplies of raw material: "the bulk of the crop will be attracted to Calcutta, regardless of any rearrangement, or re-distribution, of the provinces in which it is grown."[799] The Bengal Chamber of Commerce noted that a simple administrative

[794] The petitioners attitudes towards Assam are telling of Bengali cultural chauvinism. As Rajanikanta Ray from Iswargunge wrote in a petition dated January 14, 1904, "being associated with the Assamese, who are savages .. we shall be subjected to endless miseries by their evil company." Petition from the residents of certain districts of Eastern Bengal protesting against the proposed partition of Bengal, Home Public, 193/215 Part B, April, 1904

[795] Ibid; Petitioners from Noakhali, n.d., ibid.

[796] ibid; Mahim Chadra Bhaumik, Gayhata, Mymensingh January 17, 1904, ibid.

[797] 80 "Report on the Agitation against the Partition of Bengal", 17th December, 1903, in State of Affairs in Eastern Bengal and Assam and Bengal in connection with the partition and the swadeshi movement, Home, Public-A, Nos. 169-186, June 1906, NAI

[798] Ibid; Petition from the residents of certain districts of Eastern Bengal protesting against the proposed partition of Bengal, Home Public, 193/215 Part B, April, 1904, NAI

[799] Ibid; From the IJMA to the BCC, January 29th, 1904, Representation from the Bengal Chamber of Commerce and the European and Ango-Indian Defence Association regarding the jurisdiction of the High Court, Calcutta over the new Province of Eastern Bengal and Assam, Home, Public, nos.19-23, Part A, October 1905, NAI

partition would not lead to a diversion of trade: "trade will always follow the cheaper route, regardless of the jurisdiction under which it is carried on[800]." The BCC offered the partition plan conditional support. First, they said they would oppose state subsidies to divert trade away from Calcutta to Chittagong: "[the BCC] would strongly deprecate any attempt to force trade in the direction of Chittagong by the expenditure of State revenues in creating and maintaining what would be distinctly unfair competition between the Assam-Bengal Railway and the existing means of communication both by rail and river between the jute and tea districts and Calcutta[801]." Second, the BCC insisted that the Calcutta High Court should continue to maintain juridical authority over the newly created province of Eastern Bengal and Assam. They refused to fight their legal battles in the hinterland. The second of these objections was more serious. "The Bengal Chamber of Commerce," the government concluded, "saw no objection from a commercial point of view to the transfer … but strongly objected to the proposals generally without a guarantee that the jurisdiction of the High Court over the transferred districts would not be interfered with in the slightest degree[802]." Curzon readily provided the Chamber its guarantee. Curzon's 1905 partition of Bengal and the opposition to it was informed by spatial ideas about the relationship between the eastern Bengal hinterland and metropolitan Calcutta. While the colonial government talked up plans of developing Dhaka and Chittagong and providing better government services in the hinterland, opponents of partition in eastern Bengal spoke of the "loss of Calcutta." The hinterland's connections with metropolitan Calcutta, anti-partition petitioners argued, had provided commercial prosperity and civilization to the backward delta, and severing that connection would bring about impoverishment and cultural "degeneration." Supporters and detractors of Curzon's partition did not distinguish mofussil towns from the rest of the hinterland; eastern Bengal's small-towns and villages were not differentiated in arguments about the positive or negative effects of partition. The only exceptions were Dhaka, which was to be catapulted from district town to provincial capital, and Chittagong, which was to be developed as a seaport. The importance of the mofussil in the partition of 1905 was not as a conceptual spatial category, but as the stage for the anti-partition Swadeshi movements, as the meeting place between metropolitan nationalists and eastern Bengal's peasant masses.

For peasant households who experienced floods, disease, and market shocks, there was only one safety net and that came at a high price – emergency loans from moneylenders. Farmers who with a favourable climate and commodity markets make a bare subsistence living would be pushed into debt in unfavourable years. As climate and market shocks increased in frequency and intensity after WWI, levels of debt rose rapidly. The sharp increase in indebtedness was, in the words of the Provincial Banking Enquiry Committee, "a mark of distress." The authors of the report argued "there is a kind of poverty, which while not amounting to insolvency, nevertheless makes for precarious and uncertain living. It is this latter class of poverty, which is the real cause of indebtedness among agriculturists in Bengal[803]."

Debt was incurred as a regular part of peasant production, particularly in the case of jute cultivation where hired labour was paid in cash rather than food-grain. Cultivators borrowed cash in April and May to hire labour to thin and weed jute fields and then again in July and August to harvest and prepare the crop. Around the same time, cultivators would be running out of their stores of grain, and would be forced to purchase subsistence food from markets. Interest rates rose sharply during those months. In Munshiganj subdivision in Dacca district, monthly interest rates on "petty loans" were at their lowest between November and January – 3 per cent per month – and then steadily rose from February, and interest rates up to 16% per month were charged during May and June, just before the jute and aus harvests[804]. Interest rates were correlated not only with the financial requirements of

[800] Ibid; From the BCC to the Judicial Dept, GoB, March 19th, 1904, in Representation from the Bengal Chamber of Commerce and the European and Ango-Indian Defence Association regarding the jurisdiction of the High Court, Calcutta over the new Province of Eastern Bengal and Assam, Home, Public, nos.19-23, Part A, October 1905, NAI

[801] Ibid; From the BCC to the Judicial Dept, GoB, March 19th, 1904, ibid.

[802] Ibid; "Report on the Agitation against the Partition of Bengal," February 8, 1906, in State of Affairs in Eastern Bengal and Assam and Bengal in connection with the partition and the swadeshi movement, Home, Public-A, Nos. 169-186, June 1906

[803] Ibid; 31 BPBEC, Vol. I, pp. 73-74

[804] Quoted in ibid; Evidence of S. Basu, SDO Munshiganj, to the BPBEC. Basu provided the following table of variation in interest rates, BPBEC, Vol. II, Part I, 1929-1930, p. 194

peasant production, but also the availability of liquid cash in the delta. Interest rates were lowest during the jute and aman harvests because cash would flow into the delta to pay for fibre and grain during these months.

Debt was also incurred during market shocks and ecological disasters. Peasant households took loans to tide them over emergencies - if crops failed due to floods or drought, plough cattle died, household members fell sick or died, prices of their produce fell, or of their consumer goods rose. As the frequency of such incidents multiplied during and after WWI, so did levels of peasant indebtedness. Emaduddin Ahmed, Chairman of the Rajshahi District Board testified to the Royal Commission on Agriculture in 1926 that "the highly lowering down of the prices of jute" was one of the causes of agricultural indebtedness[805]. M. Fariduddin, Khas Mahal Officer in Faridpur testified to the Banking Enquiry Committee in 1929:"when they [cultivators] do not get a good harvest they have to incur debts to meet their ordinary wants[806]." Interest rates on these "distress" loans were much higher. In his evidence to the Banking Enquiry Committee, Bhabesh Chandra Roy, SDO of Naogaon in Rajshahi, reported that interest rates varied proportionately according to the "urgent necessity of the borrower." Umesh Chandra Chakladar, Vice-Chairman of the Mymensingh District Board, said that interest rates rose according to the "exigencies of the borrower." Further, Chakladar reported that if the monsoon rains failed or were delayed, "credit is invariably dear in every quarter[807]." Mohammad Khayer Ali's long poem about the floods in North Bengal in 1922, Bonya Kahini (Flood Event) was especially critical of moneylenders who taking advantage of the situation raised their interest rates too high: "A few moneylenders take advantage/and increase interest rates very high … All the mahajans of the country/They are sucking the blood of farmers[808]."

Moneylenders were not, however, simply taking cynical advantage of their borrowers' desperation – though undoubtedly many were. Ecological and market shocks led to a sharp increase in the demand for loans across the board, and consequently drove up interest rates. Economic volatility and ecological shocks led to a massive increase in peasant indebtedness during the 1920s. For the most part, peasant households obtained loans from professional moneylenders – mahajans who combined moneylending with rent-collection or trading[809]. Dadans, or produce loans in exchange for standing crops increased in frequency during and after WWI[810]. Professional moneylenders – trader mahajans and talukdar-mahajans – however, were not generally interested in taking over rights to peasant lands, but preferred to keep them in debt bondage with regular payments of interest on existing loans. There were, however, increasing incidents of cultivators converted into sharecroppers, or bargadars. Muazzam Hossain, Deputy Collector in Mymensingh testified to the Banking Enquiry Committee in 1926 that

	General Loans (Monthly interest rates)	Petty loans (Monthly interest rates)
Agrahayan	2%	3%
Paush	2%	3%
Magh	2%	3%
Phalgoon	3%	4%
Chaitra	5%	6%
Baishakh	6%	7%
Jaishtha	7 to 8%	Anything upto 16%

[805] Ibid; RCA, Vol. 4, p. 558.

[806] Ibid; BPBEC, Vol. II, Part I, p. 217

[807] Ibid; BPBEC, Vol. II, Part I, Evidence of Bhabesh Chandra Roy, SDO, Naogaon, p. 187; Evidence of Umesh Chandra Chakladar, Vice-Chairman, Mymensingh District Board, p. 282

[808] Ibid; "Kono kono mahajan shujog bujhia/shudder har otyadhik diyechhe bariya … Desher je shomosto ache mahajan/Krishaker rokto shob korichhe shoshon." Ali, Md. Khayer, Bonya Kahini , Calcutta, 1922.

[809] Ibid; Sugata Bose distinguishes between "talukdar-mahjans" and "trader-mahajans," the former group being the largest by far in Bose, Sugata, Agrarian Bengal: Economy, Social Structure and Politics, 1919-1947 , Cambridge: Cambridge University Press, 1986.

[810] Ibid

in the eastern parts of the district "a very large proportion of the raiyats … now work as bargadars[811]." B.B. Dutt testified that in Brahmanbaria, the jute-growing subdivision of Tippera, "good farmers were being converted into bargadars[812]."

The great depression and prolonged low prices of agricultural produce hit the land-poor and indebted peasantry of the jute tracts hard. The 1930 jute season opened with a sharp drop in prices. Prices of fibre fell from close to Rs. 9 per maund on average between 1926 and 1929 to about Rs. 3 per maund. Unlike previous price falls, jute prices did not recover until the outbreak of WWII: for the entire 1930s average prices were almost half that of the 1920s[813]. Rice prices fell sharply in 1931 and did not recover until the beginning of WWII. On average, the price of rice during the 1930s was about half the average of the 1920s. This prolonged depression in prices was devastating for the delta's market-dependent jute and rice cultivators.

Omkar Goswami has calculated that permanently-settled, occupancy ryots with three acres of land – far more than the average landholding in the delta – were simply not able to make ends meet during the 1930s[814]. The Survey and Settlement Report on Rangpur presented several peasant household budgets from the decade. A family with six acres of land in possession was living just "above starvation", earning Rs. 150 from the produce of land. "In normal times," the report noted, "it should be reasonably prosperous." A family with almost thirteen acres of land was living in "comfort," but as the report noted hardly in luxury: "[their] expenditure is all in necessities." This family "would be normally prosperous but has been badly hit by the slump in price of jute[815]."

In times of difficulty, peasant households usually turned to moneylenders. However, the depression had resulted in the drying up of cash flows from overseas commodity purchasers, and this led to a liquidity crisis in the countryside. Not only were moneylenders unwilling to advance further loans, but they were also trying to recoup outstanding debt. The mahajans were divesting from the countryside in droves. Unable to obtain emergency loans, peasant smallholders sold off whatever valuables that they possessed and, ultimately, arable lands. The 1930s witnessed an astounding rise in sales of land, even as land prices tumbled. Former peasant proprietors were converted into under-tenants, sharecroppers, or agricultural wage labour.

5.6 Partition and West Pakistan-induced (Bombay? Karachi?) Industrialization in East Bengal

In 1943 and 1944, around 3 million people died in Bengal from starvation and hunger-related causes[816]. The jute tracts of eastern and northern Bengal were hit hardest by famine. The most immediate cause of famine was a sharp rise in the price of rice in late 1942 and early 1943. Rice prices began to rise in November 1942, from Rs. 8/8/- a maund and reached about Rs. 12/8/- in early January[817]. Between January and March 1943, rice prices rose steeply across Bengal, increasing from Rs. 12/4/- to Rs. 31/- in Faridpur and from Rs. 9/8/- to Rs. 25/- in Tippera[818]. Hunger was most acute between March and November 1943, but famine mortality continued into 1944, as starvation, disease and government mismanagement of post-famine food distribution programs took their full toll[819].

[811] Ibid; BPBEC, Vol. 2. ,p. 237

[812] Ibid; BPBEC, Vol. 2., p. 534

[813] Ibid; Goswami, Industry, Trade, and Peasant Society , pp. 153-154

[814] Ibid; Goswami, Omkar, "Agriculture in Slump: The Peasant Economy of East and North Bengal in the 1930s," Indian Economic and Social History Review, 21, 1984, p. 351

[815] Ibid; Rangpur SSR, pp. 20-22

[816] Ibid; Amartya Sen puts the figure at 2.7 to 3 million and Paul Greenough at between 3.2 and 3.8 million.

[817] Ibid; FIC, p. 28

[818] Ibid; FIC, p. 40

[819] The Famine Inquiry Commission Report of 1945 and Mahalanobis, et. al.'s statistical study of the "Aftereffects of the Bengal Famine of 1943" - the two most thorough investigations into the famine in the 1940s – does not mention of jute. As Sugata Bose has remarked, Amartya Sen's pioneering study of the Bengal famine does not consider terms of trade between

Famine was the deathblow to the political reputation of an already beleaguered Chief Minister. In March 1943, John Herbert, Bengal's autocratic imperial governor, forced Haq's resignation on grounds of incompetence and loss of legitimacy. Just prior to his forced resignation, Haq had delivered a forceful speech condemning the Governor and the colonial bureaucracy for the impending humanitarian crisis and the hugely unpopular boat-denial and rice-denial policies of the government. In early 1942, after the Japanese invasion of Burma, the government seized boats that could carry ten or more passengers and procured rice in coastal districts - to deny food-stocks and transportation to an invading Japanese army from across the Bay of Bengal. In speeches after his forced resignation, Haq pinned the blame for famine on the colonial Governor and the "whims and caprices of hardened bureaucrats to many of whom autocratic ideals are bound up with the very breath of their lives[820]."

Without absolving or assigning blame and responsibility for causing famine, it is worth remembering that the root cause of the famine was the unequal rise in commodity prices during World War II and the worsening exchange between rice and other commodities – especially labour. One way of thinking about the state's "failure" in famine is, therefore, to consider the government's role in commodity markets, and its ability or lack thereof to influence commodity prices.

The sharp drop in commodity prices in the great depression had sparked considerable global debate on what governments could and should do to control commodity prices. In Bengal, the discussion focused on jute, the "life-blood of Bengal's economy." Various ideas of government intervention into jute markets between 1930 and 1936, prior to the political reforms of Government of India Act jeopardized the natural market forces and price signals available in the jute markets[821]. The Montagu-Chelmsford era provincial government's sole

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rice and jute, though he does look at exchanges between rice and wheat, mustard-oil, cloth, bamboo umbrellas, milk, fish and haircuts. Bose has argued that this strange neglect of the region's most significant cash crop in the scholarly literature means that "there is no explanation of the ways in which the famine affected the whole spectrum of the poor in the Bengal countryside." Bose, Agrarian Bengal , p. 94.

[820] Ibid; BLA, LXV, 1943, p. 46

[821] The solitary measure undertaken by government to raise jute prices was a scheme of voluntary restriction – a state-sponsored propaganda campaign urging cultivators in the delta to sow less jute. This was risk-free government action on the cheap and fell far short of the much more comprehensive state interventions championed by anti-colonial nationalists. And even then the state's voluntary restriction campaign was slow to get underway. In the March and April 1931 sowing season, it was limited to distributing just three pamphlets – two urging a reduction in the area under jute and the third suggesting sugarcane as an alternative to jute – in the delta's jute tracts (BLC, Vol. XXXVI, No. 2, 1931, p. 175). The reduction in acreage in 1931 – by almost 50% - was almost certainly due to the disastrous collapse in prices in 1930 rather than the three pamphlets, but this did not stop K.G.M. Faroqui from proclaiming that the government's campaign was successful. However, as acreage steadied and prices stagnated in following years, it became difficult to continue claiming success.

The provincial government responded by intensifying its propaganda scheme. During the sowing seasons – March and April – of each year during the 1930s, the government conducted an intensive anti-jute propaganda campaign in the delta's jute tracts. In March 1935, Faroqui informed the Legislative Council that 1,084 officials and 40,384 non-officials had participated in anti-jute propaganda (BLC, Vol. XLV, No. 1, 1935, p. 432
) District-level administrations competed with each other over the success of their restriction programmes.(The Collector of Tipperah took particular pride in the success of the restriction program in his district, as he noted in a circular distributed during the sowing season of 1934. Enclosed in, Thomas, Duff & Co, Calcutta, to Mr. Batchelor, Thomas Duff & Co., 17th February, 1936, MS/86/V/7/2, DUA.) Government ministers and prominent provincial politicians – men like Faroqui and Azizul Huque, Minister of Education – toured the jute tracts extensively and spoke to cultivators on the need to reduce cultivation (In a lunch meeting at the Calcutta Club with Sir Alexander Murray, a Director of Thomas Duff & Co visiting from Dundee, Education Minister Azizul Huque announced his "determined object of doing all he can to influence the ryot to curtail sowings." rom Thomas, Duff & Co, Calcutta, to Mr. Batchelor, Thomas Duff & Co., 30th March, 1936, MS/86/V/7/2, DUA). Further, state propaganda message was spread through a wider variety of media than just printed leaflets. In 1934 Jute Commission recommended the use of ""wireless, cinema and magic lanterns" in anti-jute propaganda (Jute Commission Report , 1934. 9). Government distributed posters with captions like: "Intelligence is the gift of God. Utilize properly and you will get plenty. If you cultivate like a fool you will have to suffer afterwards" and "Who is the fool who says wealth comes in abundance by cultivating Jute. Did people die of starvation when there was no cultivation of Jute in our land?"(Enclosed in from Thomas, Duff & Co, Calcutta, to Mr. Mason, Thomas Duff & Co., 11th March, 1937, MS/86/V/7/3, DUA). These captions show the affinity between government propaganda and the anti-jute boyans discussed in the previous chapter. "Restrictionism," which emerged as an international economic concept in the aftermath of the depression, took its particular form in Bengal from well-established and local anti-jute discourse.

measure was a "voluntary restriction scheme" – a government-run propaganda campaign to persuade cultivators to produce less jute[822]. Nationalists of all stripes pilloried the provincial government for its lack of action. A wide variety of schemes of government involvement in the jute trade were aired by various stripes of politicians in Bengal. The critique of government's inaction constituted a nationalist vision of a more pro-active state, actively intervening in markets for the good of the nation and the nation's peasants.

Faced with widespread criticisms for its failures to raise jute prices, the colonial government responded with the classic ploy of bureaucratic delay[823]: they established a committee to investigate the jute trade and propose legislative solutions. The terms of reference of the committee was to consider regulating the cultivation of jute, the marketing of the fibre, the scope and constitution of a Jute Committee, the threat of substitutes to jute, and the possibilities of other uses of the fibre to expand markets. The committee included five representatives of various chambers of commerce, three representatives from the legislative council, four civil servants from the colonial government, and a professor of economics from Presidency College.

The thirteen members could not agree on a course of action and produced a bewildering array of reports and minutes of dissents. The provincial government, however, embarked on price stabilization during a particularly turbulent period in jute markets. Britain declared war on Germany on September 10 1939, barely a month after the provincial government's August 12 press communiqué. Jute markets responded immediately, with prices soaring in expectation of heavy war requirements of jute. Over the following years, jute prices fluctuated wildly, buffeted by war-related events, news, and rumours. Varying expectations of the extent of Britain and the allies' war requirements of jute manufactures drove prices both up and down. News from the war-front of victories and defeats caused markets to fall or rise spectacularly. The arrival of war closer to home, with the Japanese invasion of Burma, caused transport and coal shortages which, in turn, affected prices. The provincial government's attempts to stabilize prices during wartime turbulence were tragically unsuccessful. Though jute prices had increased during the war period, the price of rice rose far more sharply. The worsening terms of trade between jute and rice severely affected the viability of jute cultivating households' market-base subsistence livelihoods. In the winter of 1942-43, hunger, starvation and death stalked the delta's jute tracts[824].

Continuing on a previous section, the nationalist project of mobilization – an attempt to enlist the hinterland in the nationalist project – was conducted from the metropolis and through the mofussil[825]. Mobilization often consisted of whistle-stop tours of mofussil towns by charismatic nationalist leaders. The hinterland's small

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Intensive propaganda failed to raise jute prices. Jute production did not decrease below that of 1931 levels and, in fact increased in 1933, as jute prices stabilized around Rs. 5 per maund. While still barely profitable, jute was a more paying cash crop than rice and, despite the state's championing of alternative cashcrops, the low-lying alluvial floodplains that formed most of the jute tracts were not suitable for sugar-cane or tobacco. More significantly, reducing output was unlikely to raise prices. Jute mills had taken advantage of the unusually low prices of 1931-32 to build up enormous stocks of jute, and could stay away from markets for extended periods. In 1935, after four consecutive years of propaganda and persistently low fibre prices, K.G.M. Faroqui admitted to the legislature that restriction was not affecting futures market prices.

[822] One of the most widely discussed topics in Bengal, in the aftermath of the great depression, was what governments should and could do to raise the prices of fibre? The Montagu-Chemsford era government was not, however, willing to take any substantive measures. Their main response to the depression was fiscal retrenchment – cutting down expenditure in line with the sharp falls in government revenue from the various jute-related taxes and from peasants' non-payment of rents. The sharpest cuts were in the so-called nation-building departments – agriculture, irrigation, and local government. On the other hand, in the face of Congress's Civil Disobedience Program and rising revolutionary terrorism – highlighted by the daring Chittagong armoury raid in April 1930 – the cash-strapped colonial government increased expenditure on police and prisons. Far from offering material assistance to those affected – aside from token disbursements of small loans to a handful – the colonial government retrenched.

[823] Ibid; Measures to improve and develop the growing and marketing and manufacture of jute and to control its production according to the needs of the world market." BLC, Vol. XXXVI, No. 2, 1930, p. 119. Also, in "Second Quarterly General Meeting," Journal of the BNCC , p. 73

[824] Ibid; From Thomas, Duff & Co, Calcutta, to Mr. Mason, Thomas Duff & Co., January 30, 1940, MS/86/V/7/7, DUA. 203

[825] Ibid; The focus on the peasant insurgent is probably due to Ranajit Guha's brilliant study of peasant insurgencies: Elementary Aspects of Peasant Insurgency in Colonial India , New Delhi: Oxford University Press, 1983

towns also provided settings for peasant politics, which often consisted of groups of peasants from the countryside attacking agents and symbols of economic exploitation in the towns. Further, and most significantly, the mofussil market town emerged as a distinctive centre of intellectual production and political activism, influenced but certainly not determined by metropolitan nationalism. Mofussil ideas of jute production and peasant livelihoods were in the political ascendancy during the 1920s and 1930s, and constituted a significant challenge to metropolitan and bourgeois nationalism.

The Government of India Act of 1935 increased the number of mofussil constituencies and considerably expanded the franchise. The populist Krishak Praja Party was the main vehicle of peasant participation in electoral and representative politics in the 1930s. Drawing its support primarily from the mofussil, the KPP scored significant electoral victories in the 1936 elections in rural, hinterland constituencies on a campaign promising legislative reforms of land tenure and credit markets. Joya Chatterji has described the KPP's electoral triumph as the "emergence of the mofussil in Bengal politics[826]."

However, the 1942-43 famine was the deathblow to A.K. Fazlul Haq's political reputation and image[827]. Conditions that led to three million people dying of starvation and hunger-related causes had emerged under the watch of the man who had promised rice and daal for everyone, who used to be considered the champion of the Bengal peasantry. His governments had notably failed to support jute prices and were powerless to prevent spiraling rice prices in the winter and spring of 1942-3 or to persuade the IJMA to remove its maximum prices in 1943. Admittedly, his government's attempts to regulate prices between 1939 and 1943 seemed misguided. Perhaps even, as his political opponents alleged, they were corrupt. The government's attempts to set prices in hinterland spot markets by manipulating futures markets were always doomed to fail. Persuading, cajoling and bullying jute mills to agreeing to minimum prices was a high-risk strategy. Once the government lost its only bargaining chips – the threat of concrete action against manufacturing interests – mills were free to determine prices in their interests, rather than that of cultivators. As the failure to bargain for reduced jute acreage in 1942 demonstrated, Haq and his colleagues were poor negotiators against the IJMA and the central Government of India. Fazlul Haq's failures, however, do have to be placed in a colonial context, in the very limited powers and resources of the provincial government created by the 1935 Government of India Act. Fazlul Haq's governments lacked the authority or the resources to take meaningful and concerted measures to set commodity prices. In speeches after his forced resignation, Haq tried to absolve himself and his cabinet from responsibility for the famine by claiming that real authority resided with the colonial bureaucracy: "The Ministers have been given a mockery of authority, and the steel frame of the Imperial Services still remain intact, dominating the entire administration and casting somber shadows over the activities of Ministers." Regardless of the constraints under which he had operated, the 1943 famine
destroyed Fazlul Haq's image as the champion of the Bengal peasantry. His loss of legitimacy left a void in Bengal's representative and electoral politics. Who would claim the support and votes of the Bengal peasantry? After 1943, the Muslim League, under the leadership of the Suhrawardy-Abul Hashim faction and with the assistance of mofussil Muslim politicians who had abandoned the Krishak Praja Party, built up its organization and infrastructure in the rural hinterland. More significantly, the League propagated an idea of Pakistan as peasant utopia – where social and economic relations were governed by Islamic morality, cultivators received a fair price for their produce, and no one starved[828]. The vision of Pakistan as peasant utopia found fertile ground in post-famine delta. Bengal's mostly Muslim-cultivators voted in overwhelming numbers for the Muslim League in 1946 elections, which the League had converted into a referendum on Pakistan. The Krishak Praja Party virtually disappeared.

The idea of Pakistan was not solely the preserve of metropolitan intellectuals and politicians – it was also a peasant idea, worked out in the mofussil and in the context of party politics and electoral campaigns. The delta's inhabitants voted in overwhelming numbers for the Muslim League in the provincial elections of 1946, which the League had converted into a referendum on Pakistan. The Muslim League contested the election with slogans like "Land Belongs to the Plough," "Abolish Zamindari Without Compensation," "Labourers will be

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[826] Chatterji, Joya, Bengal Divided: Hindu Communalism and Partition, 1932-1947 , Cambridge: Cambridge University Press, 1994. See especially Chapter 2 titled "The Emergence of the Mofussil in Bengal Politics," pp. 55-102

[827] Ibid; In a letter from Andrew Yule & Co, to G.M. Farrie, Acting Adviser on Jute Supplies to the Government of India, Yule & Co stated that they could make profits at prices ranging from Rs. 14 to Rs. 19 per maund for raw jute, "at current prices they make a loss of Rs. 8 per ton, and current costs of jute are rising."

[828] Ibid; BLA, Vol. LXV, 1943, pp. 45-46

Owners," and "Pakistan for Peasants and Labourers[829]." Pakistan was portrayed a post-famine peasant utopia, a land without hunger. Pakistan was to be the "land of eternal Eid,[830]" the Muslim festival celebrating the end of Ramadan[831]. The campaign worked – as evidenced not only by the Muslim League's electoral victory, but also the fanfare and enthusiasm with which the delta's inhabitants celebrated the birth of Pakistan on August 14, 1947. In the immediate post-partition years, these hinterland ideas of Pakistan came into conflict with the post-colonial projects of state building, as the new Pakistani state attempted to impose their authority and control over commodity production and circulation. The Pakistani state's territorial inheritance comprised solely the impoverished agrarian jute tracts, shorn of the metropolitan and industrial centres of western Bengal. Upon this hinterland without a metropolis, the Pakistani state undertook an ambitious project of industrialization and economic modernization. In order to carry out this project, the government imposed territorial and national sovereignty over jute, attempting to transform the former commodity of empire into a national resource producing revenue for the state. This statist project the heightened regulation and policing of the production and circulation of fibre that translated into the everyday harassment of its citizenry, and occasionally took the form of state-sponsored violence. Ahmed Kamal has chronicled the brutal and violent suppression of peasant movements by the post-colonial Pakistani government in East Bengal's jute tracts. In East Pakistan, he argues, the "state" turned against the "nation" and the vision of Pakistan as peasant utopia died a cruel and swift death in the Bengal delta[832].

On August 14 and 15, 1947, just as cultivators were bringing their jute crop into market, the post-colonial nation-states of Pakistan and India came into existence[833]. A 4,000-kilometre line carved out the Bengal delta and incorporated it into the territory of Pakistan. East Pakistan produced 75% of the world's jute, but more than 90% of that produce was dispatched westward, across the delta and over partition lines, to Calcutta, now part of India. Calcutta was the undisputed metropolis of Bengal jute. Mills to the north of the city, along the banks of the Hooghly, consumed more than half the annual produce; most of the hydraulic presses that compressed fibres into bales for export were in Calcutta; and jute was exported through the docks and jetties of Calcutta's seaport. Barely 10% of the region's jute was exported through the woefully underdeveloped port in Chittagong – the only seaport in East Pakistan.

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[829] Abul Mansur Ahmed, Amar Dekha Rajnitir Panchash Bochhor , Dhaka: Srijan Publishers, 1988, p. 248

[830] In contesting the 1946 elections the Muslim League adopted the slogans and symbols of the praja movement. In an editorial in the Millat just prior to the 1946 elections, Abul Mansur Ahmed wrote: "today the Muslim League is the carrier and conductor (dharok ebong bahok) of the krishak praja movement." (Quoted in Rashid, Haron-or, The Foreshadowing of Bangladesh: Bengali Muslim League and Muslim Politics, 1936-1947 , Dhaka: Asiatic Society of Bangladesh, 1987, p. 206). The League had incorporated the praja cause into the idea of Pakistan: as Ahmed argued, "the Praja movement has been fully realized in the Pakistan movement." In the idea of Pakistan, Ahmed saw the combination of two promises: "Muslim unity (shonghoti) and the economic freedom of the masses (jonoshadaroner arthik mukti)." (Haron-or-Rashid and Taj-ul – Islam Hashemi provide political accounts of the contest for the Muslim League leadership between Suhrawardy/Hashim faction against Nazimuddin/Ispahani group during the early 1940s. Rashid, The Foreshadowing of Bangladesh , and Hashmi, Pakistan as Peasant Utopia). "Pakistan will be the ordinary people's (jonoshadharon) state, where zamindars and the rich will have no place," Ahmed stated, "the Pakistan demand is a symbol of Muslim mass aspiration (gono-akangkha)." Pakistan's promise of economic emancipation, Ahmed argued, extended to all of India's oppressed: "Pakistan's message is of the right to selfdetermination (atmo-niyontron); it may have been uttered by Muslims, but it is the demand of all of India's oppressed people's (nirjatito jati). It is true that Bengal's praja movement was started solely by Muslims, but the movement is that of all of Bengal's oppressed masses."(Ahmed, Abul Mansur, "Banglay Muslim Rajnitir Potobhumi o Porichoy," Millat , 1946.)

[831] Hashmi, Tajul Islam, Pakistan as a Peasant Utopia: The Communalization of Class Politics in East Bengal, 1920-1947 , Boulder, Co: Westview Press, 1992. Ahmed Kamal provides a more focused discussion of the various utopian ideas that east Bengalis attached to the idea of Pakistan in, Kamal, Ahmed, "A Land of Eternal Eid: Independence, People and Politics in East Bengal," Dhaka University Studies 46, June 1989.

[832] Kamal, Ahmed, State against the Nation: The Decline of the Muslim League in pre-independence Bangladesh, 1947-1954, Dhaka: University Press Limited, 2009. See also Ahmed Kamal's article on the violent suppression of the nankar movement by the state in East Pakistan, "Peasant Rebellions and the Muslim League Government in East Bengal, 1947-54," in Chakrabarty, Majumdar and Sartori (ed.) From the Colonial to the Postcolonial: India and Pakistan in Transition , New Delhi: Oxford University Press, 2007.

[833] Ibid

Partition and independence had separated the jute tracts from its industrial and commercial centre; East Pakistan was a hinterland without a metropolis. Jute was also produced to the north and east of East Pakistan, in Cooch Behar, Assam, and Tripura. In 1945-46, Assam produced 1.5 million bales, Cooch Behar 36,000 bales and Tripura 25,000 bales[834]. In order to reach Calcutta, jute from these regions had to cross partition lines twice – once into Pakistan and then out of Pakistan into India. Further, there were Indian enclaves in Pakistan and Pakistani enclaves in India, particularly along the border between Cooch Behar and Rangpur in north Bengal – 74 Pakistani enclaves were located within India, and 123 Indian enclaves in Pakistan[835]. These enclaves included the astounding example of the world's only counter-counter enclave – a portion of India, surrounded by Pakistan, surrounded by India, surrounded by Pakistan. The transport of jute out of these enclaves into Calcutta also necessitated multiple crossings of freshly drawn boundary lines.

The partition of Bengal also cut across established internal trade routes of the region. The Calcutta-Goalundo railway line was split in two – a portion in India, running from Calcutta to the border with East Pakistan in Jessore and a portion in East Pakistan from the Jessore border to Goalundo. The northern Bengal railway was cut into three between West Bengal, East Pakistan, and Assam. The Assam Bengal Railway was severed in two, a length in Assam running to the border with Sylhet and a second length running from the Sylhet/Assam border to Chittagong port. Partition lines also divided the steamer route between East Bengal and Calcutta passing through the Sundarbans, the vast mangrove jungle at the mouths of the Ganges.

This arbitrary line through the mud and water of the delta, which not only carved out new nation-states but also severed the jute tracts from their primary market, could not have come at a worse time. August was the beginning of the jute season, when approximately five million peasant households were about to bring fibres produced on about two million acres of land onto market. Trade, however, was not disrupted. In the British haste to depart India, there was no time to work out a trade and payments agreement between India and Pakistan. The two states agreed to a "standstill agreement," whereby neither would interfere with bilateral trade until a more comprehensive agreement could be worked out. In the months immediately following partition, trade between the hinterland and the metropolis continued as before: jute prices barely registered a blip and more jute was transported to metropolitan Calcutta than in the previous pre-partition year.
This situation would not last. The post-colonial nation-states of India and Pakistan would assert their sovereignty over flows of commodities, capital and people across their territorial limits. In doing so, they would imbue arbitrary partition lines with meaning. It is interesting to note the post-colonial Pakistani state's attempts to monitor, police, regulate, and tax the production and circulation of fibre within the jute hinterland. Post-colonial states strived to assert sovereignty over fibre in a larger attempt to establish post-colonial nations as a modern, territorial and national economy. In pursuit of this project, the Pakistani government established customs offices, regulated currency exchanges, monitored the "national loyalties" of jute traders and merchants, and kick-started a jute baling and milling industry in the Bengal delta. Economic activities that subverted the post-colonial nation-state's sovereignty over fibre was criminalized as smuggling or black-marketeering and punished harshly. Jute cultivators and traders in East Pakistan experienced the state's efforts to assert sovereignty over fibre as harassment and oppression. The delta's mostly-Muslim jute cultivators had enthusiastically supported Pakistan in the years leading up to partition. They voted in overwhelming numbers for the Muslim League in the provincial elections of 1946, which the League contested as a referendum on Pakistan.

They celebrated the creation of Pakistan on August 14, 1947 with much fanfare. The Bengal peasantry did not, however, necessarily subscribe to an idea of Pakistan as a territorially bounded national economy; instead, they saw in Pakistan the promise of peasant economic emancipation[836]. Pakistan was envisioned as a place where

[834] Ibid; Vakil, C.N. (ed.) Economic Consequences of Divided India: A Study of the Economy of India and Pakistan , Bombay: 1950, p. 264

[835] Ibid; Schendel, Willem Van, The Bengal Borderland: Beyond State and Nation in South Asia , London: Anthem, 2005, p. 23

[836] Ibid; Taj-ul Islam Hashmi argues that elite Muslims in Bengal convinced cultivators that Pakistan would be a land of plenty, free from exploitation of Hindu zamindars and moneylenders. In his phrase, Pakistan carried the promise of "peasant utopia": Hashmi, Taj ul-Islam, Pakistan as Peasant Utopia: The Communalization of Class Politics in Bengal: 1920-1947, Boulder: Westview Press, 1992. Ahmed Kamal has argued that the peasant vision of Pakistan included not only economic emancipation, but also the promise of a society founded on a peasant moral economy, rather than state laws and law enforcement agencies. Kamal, Ahmed, "A Land of Eternal Eid: Independence, People and Politics in East Bengal," The Dhaka University Studies, 46(1), 1989.

hunger did not rear its ugly head, the state was not oppressive, landlords and moneylenders did not siphon away earnings, and cultivators received fair prices for their produce. However, as the post-colonial Pakistani state attempted to give meaning to their territorial limits, assert control over flows of jute – in other words, create a modern, national economy – it became a source of harassment. Far from the embodiment of a peasant utopia, the Pakistani state became an entity to be avoided and evaded.

Two ideas of Pakistan coexisted in eastern Bengal in the years leading up to partition: (a) Pakistan as the promise of Muslim peasantry's economic emancipation, and (b) Pakistan as a territorial and national economy, with resources and revenues capable of supporting a modern nation-state with all its trappings. During the years leading up to partition and independence, there were many ideas of Pakistan[837]. In Ayesha Jalal's formulation, South Asia's Muslims negotiated their territorial Indian identity with their extra-territorial Muslim identity in a variety of ways[838].

The two ideas coexisted prior to partition and the actual formation of the state but came increasingly into conflict after 1947, particularly as the post-colonial state attempted to create a national economy[839]. The villainy of colonial capital, particularly of jute mill-owners, also figured prominently in the pages of the Millat. When jute prices began to rise once more at the opening of the 1946 jute season, the IJMA pressured the central and provincial governments to maintain wartime controls over fibre prices. In July 1946, an article titled "Jute cultivators are on their way to the graveyard and profiteers are scheming" argued that "farias, mahajans, and mill owners are playing games with the life and death of jute cultivators." The primary villains of the piece were "white jute millowners" (shetango mill-malik), who cheated cultivators of a "just price" (nyajyo mulya) and impoverished them while enriching themselves[840]. Pakistan, hence, was not only the promise of peasant economic emancipation, but also of freedom from shamrajyobadi-pujibadi, or imperialist-capitalism.

This pro-peasant, anti-imperialist Pakistan, at least in the eyes of the League's leaders, depended upon their control over a strong state, capable of ensuring food security, just prices for produce, and taking on the landlords, moneylenders, and traders who exploited cultivators. Such a state would be dependent upon its territorial and national economy, to provide the revenues and resources for ambitious post-colonial projects of state and nation formation. For Pakistan's promoters, the partitioned hinterland of East Bengal fell far short of such a territorial economy. In June 1947, in an interview with the United Press of India after the Muslim League accepted Mountbatten's partition proposal, Abul Hashim warned of the new nation's dangerous reliance on jute and its probable future as a colonized economy of the United States of America, the new imperial power: Eastern Pakistan will be mainly reliant on jute. This is probably the most densely populated region in the entire world. … At anytime, artificial jute might be invented and, if that happens, it will be a disaster for jute cultivation … In this situation, Eastern Pakistan will probably develop as a good market for American manufactured goods. America might give us loans and we will have to buy American cigarettes and other goods to repay those loans[841].

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[837] Pakistan's promoters in Bengal imagined a greater East Pakistan, consisting not only of the entirety of Bengal but also all of Assam and, for some, parts of Bihar and Orissa. In 1944, members of the Bengal Muslim League mooted two very similar proposals for a greater East Pakistan. In an internal Muslim League memorandum, Raghib Ahsan proposed a scheme titled a "Confederacy of East Pakistan and Adibasistan." In Ahsan's scheme, East Pakistan would include all of Bengal and Assam and would form a confederation with Adibasistan, composed of adjoining "tribal" areas of Bihar. Simultaneously, Mujibur Rehman Khan, president of the Eastern Pakistan Renaissance Society in Calcutta, published a pamphlet titled Eastern Pakistan: Its Population, Delimitation and Economics. Similar to Ahsan, Khan proposed a greater East Pakistan comprised of the entirety of Bengal and Assam, though he did not discuss the formation of an "Adibasistan."

Sources:
i. Haron-or-Rashid's The Foreshadoing of Bangladesh , pp. 169-171
ii. Mujibur Rehman Khan, Eastern Pakistan: Its Population, Delimitation, and Economics , East Pakistan Renaissance Society, Calcutta: 1944

[838] Jalal, Ayesha, Self and Sovereignty: Individual and Community in South Asian Islam since 1850 , New York: Routledge, 2000

[839] "Jamidari Pratha'r Bilupti," Millat , July 4, 1946, p. 2

[840] Ibid; The villainy of the shetango mill-malik was a dominant theme in the pages of the Millat, particularly after the IJMA moved to extend war-time controls during the opening of the 1946 season. See, for example, "Pat'er Bajar," Millat , 10 Ashwin, 1354, and "Fatka bajarer je potobhumikay patchashider rokto biki-kini hoiya thhaey," Millat , 4 Paush, 1353,

[841] "British porikolpona keno grihito hoilo," Millat , June 13, 1947, p. 1

It is also important to note how the central Pakistani state asserted territorial and national sovereignty over fibre: first, by policing flows of jute across its territorial limits and, second, by monitoring the nationality and loyalty of firms engaged in the jute trade. The delta's citizenry experienced the post-colonial state's interventions into jute as harassment and oppression, and they responded with evasion and avoidance.

The Muslim League contested the 1946 provincial elections across India, the first since 1936, as a referendum on Pakistan – to vote for or against the Muslim League was to vote for or against Pakistan. Their electoral success in reserved Muslim constituencies was in sharp contrast to the failures of 1936 and demonstrated the popularity of the Pakistan cause. The idea of Pakistan was, however, construed differently in electoral campaigns in different provinces. As David Gilmartin has argued, in the Punjab elections, Muslim League candidates portrayed Pakistan as a place of "Muslim unity and moral order."[842] In agrarian Bengal, on the other hand, the Muslim League promoted Pakistan as the land of peasant utopia, carrying the promise of the post-famine Muslim peasantry's economic emancipation.

Rehman and Ahsan justified this expansive Eastern Pakistan not on the grounds of Muslim majority – though Rehman juggled numbers – but on the notion of a national economic territory capable of supporting a modern and modernizing state[843]. As Ahsan stated, "it is one thing to constitute a seperate province within the orbit of an Empire … and it is quite a different thing to constitute a separate, sovereign and independent state, responsible for its own defense, internal and external security, financial solvency and economic self-sufficiency[844]." Assam was included not because it had a Muslim majority – it did not – but because of its cultivable lands and mineral resources. As Khan said, "Eastern Pakistan must have sufficient land for its large population and Assam will give it full scope for expansion and because Assam has abundant forest and natural resources such as coal, petroleum, etc, East Pakistan must include Assam to be financially and economically strong[845]." The plan to partition Bengal according to Hindu and Muslim-majority districts was a blow to these aspirations of a strong nation-state based on a resourcerich territory. A viable modern nation-state created and maintained out of this territory's resources was unimaginable to contemporaries who described the delta as an "overcrowded rural slum." A territorial and national economy comprised solely of eastern Bengal – and shorn of metropolitan Calcutta, the jute mills along the Hooghly, western Bengal's mineral reserves, and outlets for emigration to Assam – was widely considered unviable. In a conference of provincial governors, it was stated that "economically [East Bengal] could not survive as all the coal mines, the minerals and the factories are in western Bengal, so are the jute processing mills with two exceptions[846]." In 1943, O.H.K. Spate, a geographer at the London School of Economics, wrote gloomily about the economic prospects of "Bangistan" composed solely of the delta's jute tracts: "If partition left this metropolis [Calcutta] out of Bangistan, the economic situation of the remnant state would not be enviable – a small territory suffering from severe agrarian overcrowding, cut off from the sources of power and raw materials on which Bengal's industries have flourished, and by the very communal hypothesis to which it owed its existence unable to seek relief in emigration[847]."

The movement to partition Bengal - the "Banga-bhanga andalon" – was condemned in the Millat in the months preceding partition. Articles in the Millat alleged that the Banga-bhanga andolon was a plot by "imperialist-capitalists" hatched in conspiracy with their Congress allies. This plot would maintain imperialist-capitalists' "control and ownership" (sholo anna malikana) over the wealth they had built up in Calcutta and its environs over two centuries of exploiting Bengali peasants and workers[848]. By denying the Muslim and peasant state of Pakistan control over industrial and commercial Calcutta, partition would enable the continued exploitation of

[842] Gilmartin, David, "A Magnificent Gift: Muslim Nationalism and the Election Process in Colonial Punjab," Comparative Studies in Society and History , 40(3), July 1998, pp. 415-436

[843] Ibid

[844] Ibid; Quoted in Rashid, Harun, The Foreshadowing of Bangladesh , p. 169

[845] Mujibur Rehman Khan, Eastern Pakistan: Its Population, Delimitation, and Economics, p. 8

[846] 18 "Ninth Miscellaneous Meeting," in Mansergh, Transfer of Power , Vol. X, 1981, pp. 261-64,

[847] Ibid; Spate, O.H.K. "Geographical Aspects of Pakistan Considered," The Geographical Journal , 102(3), September 1943, p. 129

[848] ibid; "Bongo-bhongo andolon," Millat , April 11, 1947

imperialist capitalists after the formal end of British Empire. Partition was the last ploy by Islam's global enemy – the British Empire – to keep Muslims impoverished and powerless, a deathblow to the aspirations of Muslim economic emancipation[849].

Articles in the Millat alleged that the Congress and the Hindu Mahasabha were playing into imperialist capitalist hands; in their desire to build a "caste-Hindu Raj" in western Bengal, they were ensuring the continuance of imperialist domination. Bengali Muslim leaders mounted a last-ditch attempt to avert partition by proposing a united independent Bengal. Suhrawardy and Abul Hashim joined with Sarat Chandra Bose, who rebelled against the Congress high command, to propose a United Independent Bengal. Suhrawardy argued that Bengal was indivisible because of its "economic integrity, mutual reliance and the necessity of creating a strong workable state[850]." Jinnah gave the scheme his tacit support, as he considered a partitioned Bengal useless: "If Bengal remains united … I should be delighted. What is the use of Bengal without Calcutta; they had much better to remain united and independent. I am sure they would be on friendly terms with us[851]."

The British desire to depart India as quickly as possible prevented alternatives to partition from coming to fruition. On June 4, 1947, Mountbatten announced that if Muslim League wished for Pakistan, they would have to accept the partition of Bengal and the Punjab. The following issue of the Millat ran an editorial titled "Crippled Pakistan" (Pongu Pakistan), echoing Jinnah's famous quote of a "maimed, mutilated, and moth-eaten" Pakistan[852]. "According to the British government's announcement, Bengal will be partitioned (dikhondito)," the editorial announced, "and of this partitioned Bengal, the wealthiest, most advanced, and resource-rich portion will be snatched away from Bengali Muslim hands and given to a few self-interested friends of the British." The partition plan was, the editorial alleged, was intended to "squeeze Bengal's Muslims into one corner of Bengal and to crush them to death." The "crippled (pongu) Pakistan" would be an economic disaster with a bleak future; partition was a "fearsome cloud over the lives Bengali Muslims[853]." Despite their misgivings, the Bengal Muslim League accepted Mountbatten's partition plan. Upon their return to Calcutta, the provincial Muslim League announced preparations for partition. Suhrawardy, whose political base was in metropolitan Calcutta, reportedly starting scouting out a new constituency in Jessore. The Dacca Medical College, it was announced, would serve as government headquarters until new buildings were erected. Private individuals were barred from acquiring land in parts of Chittagong town that was to be set aside for the expansion of the port[854]. The mood in the Bengal Muslim League was, however, gloomy. As Abul Hashim stated, they had accepted partition not out of "satisfaction and hope but out of fear and helplessness[855]."

While newly created citizens celebrated the nation for its promise of economic emancipation, the newly created state grappled with the exigencies of state building and modernization – a task that many considered impossible given the new nation's territorial inheritance[856]. However, the bureaucrats and politicians who had taken control of government were optimistic. O.H.K. Spate noted in January of 1948: "Morally, to judge from many conversations with young Muslim officials flocking into Western Pakistan there is a good spirit among them – a realization of the enormous difficulties, the shortages of resources and of technical cadres, but a determination to tackle them resolutely."[857] While many thought that post-colonial Pakistan would not even be able to survive,

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[849] ibid; "Matlabajerai Bongo-Bhonger Awaj Tulechhey," Millat , May 16, 1947, p. 1.

[850] Ibid; Cited in Haron-or-Rashid, Foreshadowing of Bangladesh , p. 231

[851] Ibid; "Record of an interview between Jinnah and Mountbatten, 26 April, 1947," Transfer of Power, Vol. X, pp. 451-454.

[852] Ibid; Jinnah's quote is from September 1944 when, in talks with the Gandhi, he rejected C. Rajagopalachari's formula of dividing India into Muslim and Hindu majority districts.

[853] Ibid; "Pongu Pakistan," Millat, June 6, 1947, p. 2

[854] Ibid; "League Council British ghoshona maniya loilen," Millat, June 13, 1947, p. 1

[855] Ibid; "British porikolpona keno grihito hoilo," Millat , June 13, 1947, p. 1

[856] Ibid; Provash Chandra Lahiry, India Partitioned and Minorities in Pakistan , Calcutta, 1964, p. 1

[857] Ibid; The unequal share of the spoils of partition between India and Pakistan, and Pakistan's underdeveloped territorial inheritance made it doubtful whether the state would be able to financially sustain itself, much less undertake the tasks of state and nation-building. Jalal, Ayesha, The State of Martial Rule: The Origins of Pakistan's Political Economy of Defence , Cambridge: Cambridge University Press, 1990 details the uneven distribution of the spoils of partition and the difficulties under which the new state labored.

much less thrive, bureaucrats in the new capital of Karachi announced a program of rapid industrialization and economic modernization, in order to bring "improvements in the standard of life of the people … by harnessing, to the maximum extent possible, the forces and treasures of nature in the service of people by providing gainful and legitimate employment and by assuring freedom from want, equality of opportunity, and a more equitable distribution of wealth[858]."

Post-colonial state-builders' optimism stemmed in part from the Bengal delta's jute. In August 1948, exactly a year after partition, the Pakistani government's Publicity Department issued a pamphlet titled The Golden Fibre. The pamphlet celebrated eastern Bengal's "virtual monopoly" over jute, and "practical monopoly" over "finer varieties of jute." cultivation of this important global commodity. Prepartition fears of economic unviability were reversed: "the emergence of Pakistan as a separate sovereign state has substantially altered the position of India … While Pakistan has emerged with 80% of the world's jute and 100% of the best varieties of the fibre, India has only about 18 to 20% of the jute fibre which is quite insufficient to feed her mills which number more than a hundred[859]." The pamphlet proceeded to outline Pakistan's plans in the expansion of baling capacity, Chittagong port's cargo handling facilities, and in kick-starting a jute manufacturing industry in East Bengal. The Bengal delta's jute was Pakistan's "golden fibre," a national resource that would support the new nation's economy and finance ambitious industrialization and economic modernization programmes.

Pakistan's national economy was critically dependent on primary commodity exports, especially those of jute and cotton and, to a lesser extent, of tea and hides and skins. Export duties on primary commodities contributed the lion's share of state revenue and, even more significantly, brought in foreign currency. The postcolonial state building project relied on foreign hard currency to finance imports of capital goods, military stores, and consumer goods. Pakistan benefited from high global commodity prices in the years following 1947, particularly during the Korean War commodity boom of 1950-51[860]. The high prices of its chief commodity exports enabled Pakistan to maintain a favourable balance of trade position and to finance economic and industrial development while maintaining a liberal trade regime. A pamphlet celebrating the first five years' of Pakistan in 1952 stated: "a favourable balance of trade position … has, of course, been a cornerstone of Pakistan's economy.[861]" The Commerce Minister, Fazlur Rahman, underscored Pakistan's reliance on jute and cotton in a broadcast on Radio Pakistan in February 1952: Immediately after partition it was realized that Pakistan's internal economy as well as the external financial position will depend almost entirely upon the two major cash crops of jute and cotton. All our defense stores, capital equipment, materials required for industrial consumption and essential consumer goods had to be paid for out of our earnings of foreign exchange from the exports of jute and cotton… the export duties on jute and cotton … constitute the single biggest source of internal revenue of the Central and Provincial Governments. In fact the entire fabric of Pakistan's economy is woven with these two fibres[862].

This Pakistani national economy did not, however, simply come into existence with the creation of the nation on August 14, 1947. The Pakistani state deliberately and actively weaved the "fabric of Pakistan's economy" out of its territorial inheritance. The project of transforming commodities of empire into national resources entailed the assertion of territorial and national sovereignty over commodities. The state policed flows of jute across territorial boundaries, monitored jute transactions, and taxed cultivators, traders, and manufacturers. They erected customs offices, created and staffed government institutions, established processes of documentation and inspection. A closer look at two aspects of the post-colonial state's assertion of sovereignty over the former commodity of empire: policing and controlling flows of jute across territorial borders and monitoring and regulating the national loyalties of jute traders.

Source: Spate, O.H.K., "The Partition of India and the Prospects of Pakistan," Geographical Review , 38(1), January 1948, p. 29

[858] Ibid; Fazlur Rahman, Industrial Development in Pakistan , Karachi, October 1948, p. 8

[859] Hayat, Aslam The Golden Fibre , Karachi: Dept of Advertising, Films and Publications, Government of Pakistan, 1950, p. 9

[860] Ibid; The value of Pakistan's exports in 1950-51 was $406 million as opposed to $171 million in 1949-50. Talbot, Ian, Pakistan: A Modern History , London: C. Hurst, 2009, p. 137

[861] Ibid; Just a Peep at Pakistan, New York: Consulate General of Pakistan, 1953, p. 20

[862] Ibid; "Jute Bargaining Factor with Bharat: Rahman on steps taken to sell more," Dawn , August 28, 1952, in MSS Eur F158/580A, IOR.

This wonderful dissertation from which the following section draws heavily closely draws on analogies from the history of the yore. On October 13, 1947, after two months of unobstructed flows of jute between East Bengal and Calcutta, the Government of Pakistan wrote to their counterparts in India complaining that they were not receiving their legitimate share of the export duty on jute[863]. The Pakistani government pointed out the injustice that "India is likely to receive over 90% of the jute revenue, although only 27% of the jute is grown in that Dominion." They proposed that Pakistan should receive "at least 75% of the export duty on 5.9 million bales" as its legitimate share. The Government of India prevaricated in their response, arguing that any agreement on jute would have to await a comprehensive trade and payments agreement. They stated that it would "scarcely be fair to question its equity isolating any particular source of revenue … in regard to which one party may feel that it had any special claim[864]." The newly created Pakistani government desperately needed revenue, and was not willing to forego the export duty. On November 13, 1947, Liaqat Ali Khan, the Prime Minister of Pakistan, wrote directly to Jawaharlal Nehru announcing that, "in the interests of their revenue my Government now feel compelled most reluctantly to charge export duty on jute leaving borders of East Bengal both by sea and land." This was a momentous announcement: for the first time since its creation, Pakistan was to enforce arbitrarily drawn partition lines. Significantly, the decision to assert sovereignty over flows of fibre across its territory was driven by concerns of national economy – specifically, the desire for state revenue[865].

The Pakistani government hurriedly setup customs check-posts and appointed land-customs officers in thirteen key jute-trading towns, located on rail and steamer routes connecting the delta to Calcutta. The Central Board of Revenue in Karachi announced that "customs on raw jute exported from the Dominion of Pakistan by land" would be collected at river-ports like Chandpur, Narayanjganj, Sirajganj, Munshiganj, Dacca and railway towns like Sarishabari, Hajiganj, Bera, and Ishwardi. In these towns, the government hurriedly setup customs offices, appointed customs officials, and distributed the forms, receipts and the paperwork involved in customs collections. None of these towns were located on the physical border, which was still not demarcated. The government found it easier to police jute bulked on steamer flats and railway wagons in jute-trading towns, rather than smaller quantities loaded on country-boats and ox-carts along its borders.

In September 1948, when the governments of India and Pakistan signed a trade and payments agreement, Pakistan's jute export duty remained in place. The two governments specified their requirements of essential commodities from each other. India wanted 5.5 million bales of raw jute and 900,000 bales of raw cotton from Pakistan; Pakistan wanted 3.4 million tons of coal, 400,000 bales of cotton cloth and yarn, and 50,000 tons of jute manufactures from India. This trade would take place at "free" or market prices, between private merchants and traders. Under a separate payments agreement, the governments also agreed that Pakistani and Indian rupees should be of equal value, and balances of payments up to 150 million rupees should be settled in local currencies, the next 150 million rupees above it in "free sterling," and the remainder in "blocked sterling." The two governments taxed a variety of commodities in mutual trade, despite agreeing that "saving regard to economic considerations, both Dominions should try to reduce the number of commodities which when moving from one Dominion to the other shall be subject to an import or export duty[866]." Customs duties formed a significant proportion of pre-partition India's state revenue, and revenue-hungry post-colonial governments were not willing to forego revenue from their mutual trade. India imposed duties on exports of cotton and jute manufactures and Pakistan on exports of raw cotton and jute. The two governments levied duties on commodities traded exclusively across Bengal's partition lines – Pakistan on exports of fish and bamboo to India, and their Indian counterparts on imports of raw tobacco[867]. Post-colonial Pakistan and India's efforts to impose territorial sovereignty over their economies were also informed by their desire for economic independence and autonomy. Both governments pursued plans to reduce their dependence on each other – India on Pakistan for raw materials and food-grains, Pakistan on India for markets for its agricultural produce.

[863] Ibid; "Aide-Memoire," From High Commissioner of Pakistan in India to Finance Minister, GoI, October 13, 1947 in Ministry of External Affairs, OSV Branch, File No. 9-5/47-OSV, NAI.

[864] Ibid; "Aide-Memoire," from Secy, Ministry of Finance, GoI, to High Commissioner of Pakistan in India, October 20, 1947 in Ministry of External Affairs, OSV Branch, File No. 9-5/47-OSV, NAI.

[865] Ibid

[866] Ibid; "Report on Trade," Ministry of Commerce and Industry, Jute Branch, 28-Pak(15)/52, NAI

[867] Ibid; Summary of meeting between Ghulam Ahmed, Finance Minister Pakistan and Commerce Minister, India, April 8, 1949 in Cabinet Secretariat[Economic Wing]/Economic Committee of the Cabinet, 15, 27, ECC(49), NAI.

Pakistan tried to build up East Bengal's jute baling, manufacturing, and shipping capacities so as to displace flows of jute from Calcutta. The Indian government tried to increase jute cultivation within its borders, with some success: India's output of raw jute increased from 1.6 million bales in 1946-47, to 2 million in 1947-48 and 2.8 million in 1948-49[868]. The provincial governments of Assam, West Bengal, Bihar and Orissa distributed jute seeds and provided advice and technical assistance to cultivators to encourage them to grow jute. India also announced the construction of the Assam Link railway, a single-track narrow gauge railway line connecting Calcutta with jute and tea-tracts in Cooch Behar, Assam, and Tripura without passing through Pakistan. When the two governments' met to extend the trade and payments agreement in May 1949, Pakistan's trade surplus with India – the result of high commodity prices – emerged as the major issue. Under the terms of the payments agreement, Pakistan's surplus with India did not translate into hard currency, pound sterling or US dollars, but into Indian rupees that could only be used to purchase goods from India. When Indian and Pakistani trade delegates met at Karachi, the Pakistan State Bank was holding close to 140 million Indian rupees that it was unable to spend on anything but imports from India. The Pakistani trade negotiators insisted that Pakistan's holdings of Indian rupees should be settled in free sterling before a new payments agreement could be negotiated[869]. They demanded that subsequent payments agreements, trade balances should be payable in sterling. The Indian delegation responded: "India was not in a position to take on unlimited liability for payment in current sterling[870]."

Each government held the other responsible for the trade imbalance. Abdul Qadir, leading the Pakistani delegation, argued "India was not selling goods to Pakistan although the latter was very anxious to purchase." B.K. Nehru leadings the Indians said "India was keen to sell goods to Pakistan but the latter was not keen to buy." The main issue was over Pakistan's purchases of cotton cloth from India – Pakistan was importing the bulk of their cloth from Japan because, Pakistani delegates claimed, Indian cloth was more expensive and of poorer quality. Neither side budged during the first round of negotiations, and they decided to reconvene in June. In the second round of negotiations, the dispute was resolved in India's favour: balance of payments up to 150 million rupees would still be settled in local currencies. The Indian delegation argued that Pakistan did not push for a new payments agreement as they forecast a much reduced trade surplus with India. Jute prices were falling and India's increased domestic production meant that they required less Pakistan jute.

The Indian government's "victory" at these trade negotiations was, however, short-lived. The second India-Pakistan trade agreement came into effect on September 1, 1949. Little over two weeks later, all official trade between Pakistan and India came to an abrupt halt. On September 19, following the devaluation of the British pound, India devalued its rupee and Pakistan did not. The exchange rate stood at 144 Indian rupees for a 100 Pakistani rupees. India refused to honour the new Pakistani rupee and official Indo-Pak trade came to an abrupt standstill. Official trade resumed in April 1950, when the two governments signed new and much limited trade agreement. The devaluation crisis and trade stoppage of 1949 and 1950, rather than the political partition of 1947, rent asunder the formerly united economic space of British India.

The devaluation crisis finally severed the jute commodity chain linking the deltaic hinterland and metropolitan Calcutta. In the aftermath of the crisis, both India and Pakistan stepped up efforts to reduce their dependency on the other. As India increased domestic jute cultivation and Pakistan expanded manufacturing capacity, the two formerly complementary economies began to compete with each other for international markets for jute manufactures. During the 1950s, the two governments openly discriminated against the other, engaging in frequent economic warfare. The Pakistan government imposed a License Duty payable only on sales of jute to India, and imposed higher export duties on exports of kutcha bales, only sold to India. India, for its part, imposed a surcharge on exports of coal to energy-starved Pakistan. When the Indian trade delegation accused their Pakistani counterparts of discrimination in raw jute exports in July, 1952, the Pakistani delegates countered that, "this was, in fact, not an act of discrimination, but merely a matter of their commercial policy calculated to help the sale of raw jute … India, having progressed towards self-sufficiency in raw jute, could only consume a small part of the raw jute which Pakistan had to sell. Therefore, Pakistan had no option but to offer jute to

[868] Ibid; "Estimates of Abolition of Control," in Cabinet Secretariat[Economic Wing]/Economic Committee of the Cabinet, File No. 6/1/ECC/50, NAI

[869] Ibid; "Detailed Record of the Inter-Dominion Discussions Held at Karachi on the 23rd May, 1949", in Cabinet Secretariat[Economic Wing]/ECC, 15, 27 ECC(49), NAI

[870] Ibid; "Detailed Record of the Inter-Dominion Discussions Held at Karachi on the 23rd May, 1949", in Cabinet Secretariat[Economic Wing]/ECC, 15, 27 ECC(49), NAI

India's competitors at cheaper prices so that the latter could stand in competition with India in the American market[871]."

It is also noteworthy to draw the dynamic of harassment and evasion that took place at every level of the jute commodity chain, from substantial jute exporters down to impoverished jute cultivators[872]. Also, examining how provincial politicians in East Bengal contested the Karachi-based central government's assumption of revenue and power over jute – it is found that contesting sovereignty over fibre, however, provincial politicians continued to operate in the paradigm of the modern nation-state with territorial and national sovereignty over the production and flows of commodities within its borders.

The Marwari and Hindu traders who dominated Bengal's hinterland jute trade were particularly suspicious in the government's eyes. The trope of "Indian Big Business" conspiring to sabotage East Pakistan was a dominant theme during the post-partition years. In July 1949, An editorial in Dawn, a Karachi-based daily and official mouth-piece of the Pakistan government, blamed the fall of jute prices at the start of the season on the operations of Indian Big Business. They pointed the finger of blame at "big Marwari business interests in Dacca and other places who, acting as the agents of jute manufacturers in India, are engaged in speculation in jute crops in order to force down prices." The Dawn urged the government to take the issue headon, "with prompt and energetic action" instead of "shilly-shallying." "Tendering advice to the Big Business in India is as futile as preaching the gospel to an angry bison[873]." The fear of Marwari and Hindu businesses serving Indian interests and actively trying to undermine the Pakistani economy persisted throughout the 1950s. It was out of such concerns, that the Pakistani government sought to monitor and regulate the national loyalties and activities of jute traders. In April 1949, the East Bengal legislature passed the "Jute Dealers' Registration Act." Ostensibly meant to standardize weights and measures and prevent illegal exactions in hinterland markets, the central feature of the Act was to make it compulsory for all jute dealers to be registered. The Act became a means of controlling the national loyalties of jute dealers, as merchants and corporations whose Pakistani loyalties were suspect – mainly because they were Hindu – were frequently denied licenses or had their licenses canceled[874]. Marwari firms were also denied access to state facilities and contracts. During the devaluation crisis, in an attempt to shore up jute prices, the National Bank of Pakistan provided credit on easy terms to dealers to purchase fibre. Only registered firms were eligible for state credit and, beyond that, the Pakistan Jute Board drew up lists of authorized buyers. Only three Marwari firms were included in the list[875].

While targeting Marwari and so-called Hindu capital, the post-colonial Pakistani government sought to reassure European and American capital that their investments were safe. However, as the India Pakistan British Association, the leading organization of British commercial interests in South Asia, commented in January 1958, in response to a government announcement that only firms 25% owned by Pakistani citizens would be registered as jute dealers: "the old pretext that it is the Marwaris the policy is aimed at and not other foreign interests is wearing a bit thin[876]."

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[871] Ibid; "Note for the Economic Committee of the Cabinet – Indo Pakistan Trade Agreement," July 23, 1952, in Ministry of Com & Ind, Jute Branch, 28-Pak (15)/52

[872] In addition to asserting territorial sovereignty over flows of jute across borderlines, the Pakistani government tried to police the national loyalties of traders and corporations engaged in the jute trade. The development discourse of the postcolonial Pakistani state envisioned private capitalists as the state's development partners, cooperating with the state in the ambitious projects of nation and state building. The post-colonial state looked to private entrepreneurs to invest much needed capital in kick-starting a jute-manufacturing sector in East Pakistan – in erecting mill-buildings, and importing machinery. In return, the state gave these privileged firms access to cheap credit, public contracts, privileged information, and policy-making. The close partnership of state and capital in carrying out an ambitious industrialization program meant that the state was anxious about the national loyalties of capital – fearful of the flight of capital and the possible sabotage of Pakistan's budding national economy by "foreign" capitalists.

[873] Ibid; Dawn, "Editorial: Jute Prices," July 6, 1949, in MSS Eur F158/580A, IOR.

[874] Ibid; "Meeting of the Economic Committee of the Cabinet," November 6, 1949, in Cabinet Secretariat (Economic Wing)/ Economic Committee of Cabinet, 6(II) ECC/50, NAI

[875] Ibid; "Meeting of the Economic Committee of the Cabinet," November 6, 1949, in Cabinet Secretariat (Economic Wing)/ Economic Committee of Cabinet, 6(II) ECC/50, NAI

[876] ibid; India Pakistan British Association, "Confidential Report on Pakistan for January 1958," in Jute: Pakistan, 1949-67, MSS Eur F158/580A, IOR. In the face of strong opposition from western capital, this policy was subsequently abandoned.

While the Marwari and Hindu traders who had dominated the hinterland trade prior to partition were suspect, a group of Calcutta-based Muslim business families emerged as the state's development partners – primarily, through investing capital into East Pakistan's jute manufacturing. Foremost amongst these firms were the Ispahani and Adamjee business families, prominent Calcutta-based jute exporters in pre-partition Bengal. In the years preceding partition, the Ispahanis and Adamjees had been the Bengal Muslim League's chief financiers and leading lights of the Muslim Chamber of Commerce, a business association closely aligned with the League. After partition, both families moved substantial capital into East Pakistan, particularly into its jute-manufacturing sector. The Ispahanis took a leading role in East Pakistan's economy and politics. H.G. Smith, a Dundee jute businessman who visited Pakistan in late 1948, wrote: "M.M. Ispahani [the patriarch of the family] was in early after partition with ambitious plans as befitting a Moslem with the most influential Pakistan Government contacts[877]."

In the first months after partition, the Ispahanis had established three large warehouses in Chittagong – according to Smith, "of immense trading value" – and had imported second-hand machinery from Dundee to establish a 500-loom jute mill, also in Chittagong. The Ispahanis plans were dwarfed by the ambitions of the Adamjees, who announced plans to build a 3,000-loom jute mill near Narayanganj: it would be largest mill in the world, displacing the Ludlow Jute Mills in Massachusetts. By February 1952, the Adamjees had installed 2,000 looms, of which 1,200 were in production. Visiting the project site, G.A. Mason, one of the directors of the Thomas Duff mills in Calcutta wrote: "it is certainly a tremendous project and covers a vast area[878]." By the late 1950s, the Adamjee Mills were operating all 3,000 looms and employing 20,000 workers, and was the largest mill in the world. It became the symbol of the statist enterprise of creating a modern and industrial economy in the agrarian delta[879].

In return for investing their capital and entrepreneurship into building East Pakistan's industrial sector literally from scratch, these business families were granted close and privileged access to the colonial government. M.M. Ispahani, the patriarch of the Ispahani family, emerged as one of the most prominent public figures in postcolonial Pakistan. M.M. Ispahani was a close adviser of the government, a longstanding member of the Jute Board, and a founding-member of the Pakistan Jute
Association[880]. However, the post-colonial state felt compelled to impose its vision of territorial sovereignty on even these most Pakistani firms. Prior to partition, the Adamjee and Ispahani businesses were headquartered in Calcutta and it did not make immediate sense to relocate headquarters from Calcutta to East Bengal. In October, 1953, the Jute Board complained to the Pakistan Jute Association that a "good deal of business in Pakistan jute was being done through firms in Calcutta and, in fact, supporting documents submitted with EPC [Export Control Procedure] forms were copies of telegrams [of jute orders] received at Calcutta." The Jute Board threatened that EPC forms would not be issued for businesses concluded through Calcutta. The Association agreed in principle but asked for time to implement measures: their member firms had to make arrangements and build up their organizational capacity in order to finalize orders in their East Pakistan offices. The PJA also expressed concerns about whether the East Pakistan Telegraph system could handle the volume of jute orders. The Jute Board granted a temporary allowance of three months and promised that the Posts and Telegraphs Department would "strengthen their organization to cope with the expected increase in traffic[881]."

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[877] Ibid; "H.G. Smith Travel Reports: reports from India and Eastern Pakistan, 1948 and 1954-56," MS/86/XIX/7/8, Dundee University Archives.

[878] Ibid; Walton, Calcutta to Kidd, Dundee, April 4, 1952 in "Correspondence of Directors while visiting mills in India, 6 July 1946 to 4 August 1952, MS 86/V/7/35, DUA

[879] Ibid; Fittingly, the Adamjee jute mills was also the centre of labour unrest in the newly-industrialized region. The Adamjee mill riots of 1954 – which took the form of clashes between Bengali and Bihari labourers in the factory – resulted in about 300 deaths. Park, Richard and Wheeler, Richard, "East Bengal Under Governor's Rule," Far Eastern Survey , 23(9), September 1954, pp. 129-134, provides a sketchy and progovernment account of the riots.

[880] Ibid; Ispahani was particularly close to the Jute Board, the government institution where control and authority was centralized. He served as one of the three members of the Board since its formation in 1949, and was involved in its day to day operations. 52 In his evidence to the Agriculture Enquiry Committee, Chowdhury Afsar Ali, Member of the Jute Board stated that "Myself and Mr. Ispahani always attend daily [Jute Board meetings] and we dispose of the work so far as it lies within our authority." "Proceedings of Sub-Committee III of the Agricultural Enquiry Committee held on 6/12/51 at the East Bengal Secretariat, Dacca at 10 AM" in Proceedings in East Bengal (including evidence on jute and tea), 1951, MSS Eur F235/360, IOR.

[881] Ibid; The Pakistan Jute Association, Annual Report for the year 1953-54, Narayanganj, 1954, p. 23

The Bengal delta's jute traders, even those with strong pro-Pakistani credentials, experienced efforts to impose territorial and national sovereignty over fibe as bureaucratic harassment. Members of the Pakistan Jute Association complained that steamers carrying jute from Narayanganj to Calcutta had to pass through six customs or police checks, and that the steamer journey takes 60% longer than it did in pre-partition days. At each customs or police check, the shipment was stopped, inspected and the traders were harassed[882]. Jute shippers' exports were monitored through a complex system of documentation and inspections, that the PJA described as "cumbersome, complicated and time-consuming[883]." In 1954, B.A. Boldy, the President of the Pakistan Jute Association complained: "the export control procedure for jute which has been allowed to just grow since partition without a systematic overhaul, has become so unwieldy as to render it almost unworkable." He proceeded to detail the delays and difficulties involved in exporting jute through official channels: The procedure for obtaining State Bank permission to export through EPC forms, and obtaining export licenses from the Jute Board has become lengthy and unwieldy, it is still difficult to get the State Bank to allow remittances to buyers to their legitimate claims. The Customs Department … are delaying consignments where there is the slightest reason. All these difficulties are … having effect on consumers of jute causing confusion and uncertainty not only within Pakistan but also in the trade and industry all over the world[884].

Jute firms responded to state harassment by falsifying paperwork: "underinvoicing" and "grade manipulation" was rife in jute exports. Firms under-reported the value of exports in official documents, claiming that smaller quantities and/or poorer quality of fibre than the actual consignment. They then collected the difference between the officially reported value and the actually received value for themselves, denying the state the full amount of customs duties and hard currency.

The state frequently took extraordinary measures in punishing firms suspected of falsifying papers. In November 1954, the government cancelled the licenses of thirteen firms, stating in a press release that "they were forced to take this measure owing to the alarming proportions that malpractices in the jute trade, such as underinvoicing, under-grading and registration of bogus contracts were assuming, resulting in loss of foreign exchange to the State and making it increasingly difficult for reputable shippers to carry on normal trade[885]."

Even such punitive measures did not put an end to practices of underinvoicing and grade manipulation. Avoidance, evasion and corruption was so widespread that, in May 1955, H.A. Luke, the Chairman of the Calcutta Jute Brokers and Dealers Association wrote to the Indian government not to protest Pakistani trade policy, because "if the Pakistani authorities rigorously enforced their rules about currency exchange and correct grading, India would have to pay more for Pakistani jute than she has done in the past[886]." He added, "If one takes the prices current in Pakistan, adds the cost of transport, insurance, export duty, etc. and converts into Indian currency at the Pakistani rate of exchange, it is obvious that Pakistani jute cannot be sold in India at the prices at which it is sold, unless there is undergrading or exchange manipulation or some such irregularity[887]." This dynamic of harassment, evasion and punishment was not limited to merchants with means in the export trade, but extended down to petty traders and cultivators. When the Jute Dealers Registration Act was floored in the Legislative Assembly, Mir Ahmed Ali, a member of the ruling Muslim League from a rural, jute growing constituency, asked that the Act exclude farias and beparis. He said, "If the Act does not exclude those who do business with less money, who buy and sell less than 100 maunds of jute, these people will be oppressed (zuloom). I am saying these few words so that these poor people are not made to suffer and the police don't go after them … Please remember Pakistan is a country of the poor.[888]" Farias, beparis, and cultivators were just as

[882] Ibid; The Pakistan Jute Association, Annual Report for the year 1953-54, Narayanganj: 1954, p. 10

[883] Ibid; The Pakistan Jute Association, Annual Report for the year 1956-57, Narayanganj: 1957, p. 7

[884] Ibid; The Pakistan Jute Association, Annual Report for the year 1953-54, Narayanganj: 1954, p. 13

[885] Ibid; The Pakistan Jute Association, Annual Report for the Year, 1954-55, Narayanganj, 1955, p. 55

[886] Ibid; "Note by Mr. H.A. Luke, Chairman, Calcutta Jute Brokers & Dealers Association," in Ministry of Commerce and Industry, Jute (Pakistan) Section, File No. 28-Jute/55Pak, NAI.

[887] Ibid; "Note by Mr. H.A. Luke, Chairman, Calcutta Jute Brokers & Dealers Association," in Ministry of Commerce and Industry, Jute (Pakistan) Section, File No. 28-Jute/55Pak, NAI.

[888] Ibid; EBLA, Vol. III, No. 4, p. 219

adept at evading the post-colonial state as the more substantial capitalists at the top of the commodity chain. Far from the embodiment of peasant economic emancipation, post-colonial Pakistan was a source of harassment and oppression, an entity to be avoided and evaded[889].

These transactions in smuggled jute were financed by black-market currency exchanges. The over-valuation of the Pakistani rupee, following Britain and India's devaluation, had created a substantial black-market for the Pakistan rupee. In these unofficial markets, the Pakistani rupee traded at well under its official value. Within a month of devaluation a "free market on a strictly cash basis in Indian and Pakistani currency had sprung up in Calcutta at rates varying from Rs. 100 to Rs. 115 (Indian) to Rs. 100 (Pakistan)[890]." Rates for "Hundi transactions" – promisory notes – varied from Rs. 105 to Rs. 115 Indian to Rs. 100 Pakistan. Currency black markets sprung up all along the East Pakistan-India border in order to finance the illicit trade between the regions. In currency black markets in border areas the Pakistani rupee traded at par with the Indian rupee, and the value of the Pakistani rupee increased further from the border.

The Pakistani government sought to crack down on smuggling. Unofficial trade denied the Pakistani state export duties and foreign currency earnings and it weakened the Pakistani government's bargaining position in trade negotiation with India. Pakistan sought to put pressure on India by starving their jute mills of raw materials. On their part, the Indian government sought to maintain flows of fibre and to remove barriers to smuggling. In November 1949, Rajaram Rao, the Collector of Land Customs, informed the Indian government's committee on Indo-Eastern Pakistan trade that "the only [Government of India] restriction in regard to jute smuggled into the Indian Union was insistence on the execution of a bond from the parties that sales would be made only to duly licensed purchasers. The committee were inclined to the view that no restrictions of any kind should be placed on the flow of jute across the border from Pakistan into India[891]."

In response to increased smuggling, the Pakistani government intensified its surveillance of jute-laden steamers and railway wagons in East Pakistan's market towns. In November 1949, the steamer companies claimed that between 700,000 and 800,000 maunds of raw jute loaded on to flats were being held up at Khulna. The Pakistani government refused to release flats without proof that payments for the jute, including that of export duties, had been made in Pakistani rupees at official exchange. The steamer companies complained that it was difficult to provide these documents as the seized jute was made up of small consignments purchased in small

[889] When the devaluation of September 1949 put a stop to official trade between India and Pakistan, smuggling flourished. According to jute traders' estimates, 600,000 bales of jute were smuggled out of Pakistan in the first months of the trade stoppage – that is, transported to India without paying any customs and by exchanging currencies on the black market. ("The Economic Situation in Pakistan: Anxiety over Jute and Cotton" February 15, 1950 in MSS Eur F158/580A, IOR.).

During the 1950s and the 1960s, the Indian and Pakistani Jute Mills Association included an estimate of the amount of jute smuggled out of Pakistan into India – these estimates ranged from 300,000 to 900,000 bales annually. Smuggling took place along East Pakistan's twisted and Undemarcated border, on country-boats and ox-carts. P. Das Gupta, the Government of India's trade commissioner in Dacca, stated in a report on December, 1949: "On the Sylhet border, it would be quite true to say, that jute is smuggled into Assam and re-booked to Calcutta in bond through Pakistan." (P. Das Gupta, Asst. Indian Govt, Trade Commissioner in Eastern Pak, Dacca to C.C. Desai, Secy, GoI, Commerce Ministry, 14 December, 1949, Cabinet Secretariat [Economic Wing]/ECC, 15(108)-P/49, NAI)

Further, according to Das Gupta, the border districts of Khulna and Jessore in the southwest and close to Calcutta, "have gained some notoriety for smuggling to India." (P. Das Gupta, Asst. Indian Govt, Trade Commissioner in Eastern Pak, Dacca to C.C. Desai, Secy, GoI, Commerce Ministry, 14 December, 1949, Cabinet Secretariat [Economic Wing]/ECC, 15(108)-P/49, NAI)

Smuggling from Jessore and Khulna increased during the drier winter months, as waters receded and rural roads became usable by ox-carts. On December 8, 1949, the Indian government reported that smuggling "was expected to increase in a few weeks time with the drying up of the roadways which were at present impassable. It was estimated that 2 to 3 lakhs bales in all would move into India by this means." ("Twelfth Meeting of the Committee Appointed to review Indo-Eastern Pakistan Trade," December 8, 1949, in Cabinet Secretariat[Economic Wing]/ECC, 15(108)-P/49, NAI)

[890] Ibid; Source: "Twelfth Meeting of the Committee Appointed to review Indo-Eastern Pakistan Trade," December 8, 1949, in Cabinet Secretariat[Economic Wing]/ECC, 15(108)-P/49, NAI and "Sixth Meeting of the Committee Appointed to review Indo-Eastern Pakistan Trade," October 27, 1949, in Cabinet Secretariat[Economic Wing]/ECC, 15(108)-P/49, NAI

[891] Ibid; Tenth Meeting of the Committee Appointed to review Indo-Eastern Pakistan Trade," November 24, 1949, in Cabinet Secretariat[Economic Wing]/ECC, 15(108)-P/49, NAI

trading towns scattered throughout the delta.[892] The procedure was considered to be so "complex and difficult" that the Pakistani government never actually received a written request for the release of jute, though the IJMA sent several representatives to meet with Pakistani authorities, including Ghulam Faruque, the Chairman of the all-powerful Jute Board.[893] The government also seized consignments of "India to India" jute – that is jute from Assam, Tripura or Cooch Behar – traveling through its territory. On

December 22, 1949, the Indian Government was informed that "24 flats loaded with 3,45,116 mds (or 69,023 bales) of "India to India" jute were being held up at Khulna by the Pakistan authorities. It was also reported that Pakistan proposed to appoint a Jute expert for inspecting every consignment with a view to determining whether the jute was of Indian or Pakistan origin[894]." The steamer companies responded by stopping loading jute for Calcutta in river-ports in Assam. Jute was stuck in Tipperah, unable to find transport through Pakistan. Pakistan's barriers to the transit trade led to a rapid build up of raw jute in Tipperah and "some parties had found it worth their while to shift jute by air from Tipperah State to Calcutta[895]."

While the state found it much easier found it much easier to police jute bulked on railway wagons and steamer flats in market towns, they found it much more difficult to police the nation's largely undemarcated borders. The government attempted to control sales and movements of jute in border regions. In November 1949, the Jute Board appointed agents to buy up all jute within ten miles of Pakistan's international boundary to prevent smuggling – the Ispahanis received the bulk of the contract. In subsequent years, the government intensified these controls. In 1953, the provincial government of East Bengal assumed the power to ban jute cultivation outright in parts of East Bengal for "improved quality, to prevent smuggling, and to bring more money to cultivators[896]." In 1954, the government issued orders banning the movement of jute within five miles of the border, with only the Jute Board authorized to arrange for purchases of jute. All of these measures were experienced as oppression and harassment for the delta's citizenry. In October, 1954, Probhash Chandra Lahiry, the Congress member from Rajshahi, complained that jute could not move "to the bazaars of the interior of the country" as the Jute Board had not, as yet, arranged for purchases of jute from those areas[897].

In addition to such measures, the government also stepped up its efforts to police its borders – primarily through the East Pakistan Rifles, reconstituted from the colonial Eastern Frontier Rifles. In 1951, the EPR seized three jute-laden country boats at the Assam/Mymensingh border, near Kaliarchar thana[898]. Later that year, the Officer-in-Charge of the Fulbari police station, at the Rangpur-Cooch Behar border, prevented a number of jute-laden ox-carts from going to India. The Indian government alleged that about 6000 maunds of jute from an Indian enclave in East Pakistan could not be transported "on account of harassment caused at the Rangpur border to the cartmen carrying jute by the East Bengal Police of the Fulbari police station[899]."

These measures, however, were not sufficient to put an end to smuggling, and the increasingly desperate state adopted more and more draconian measures. In February 1952, the civilian government called in the army – with "shoot-to-kill" orders – to put a stop to smuggling. This measure was justified on the grounds of national

[892] Ibid; Eighth Meeting of the Committee Appointed to review Indo-Eastern Pakistan Trade," November 10, 1949, in Cabinet Secretariat[Economic Wing]/ECC, 15(108)-P/49, NAI

[893] Ibid; P. Das Gupta, Asst. Indian Gov Trade Comm in Eastern Pak, Dacca to C.C. Desai, Secy, GoI, Commerce Ministry, 14 December, 1949, in Cabinet Secretariat[Economic Wing]/ECC, 15(108)-P/49, NAI

[894] Ibid; "Thirteenth Meeting of the Committee Appointed to review Indo-Eastern Pakistan Trade," December 15, 1949, in Cabinet Secretariat[Economic Wing]/ECC, 15(108)-P/49, NAI

[895] Ibid; "Fifth Meeting of the Committee Appointed to review Indo-Eastern Pakistan Trade," October 20, 1949, in Cabinet Secretariat[Economic Wing]/ECC, 15(108)-P/49, NAI. See also "Measures to move raw jute from Tipperah State," in Com & Ind/Jute/12(24)-FTE/49, September 1950, NAI.

[896] Ibid; EBLA, Vol. X, No. 1, 1953, p. 225

[897] Ibid; EBLA, Vol, IX, No. 1, 1952, Dacca, 1954, p. 45

[898] Ibid; Ministry of External Affairs, BL Branch, File No. R/52/19319/202, NAI

[899] Ibid; From S.N. Chatterjee, Dept Secy, Govt of West Bengal to Depy Secy, Home (Political) Dept, Govt of East Bengal, 27th August, 1950, in Min of Com & Ind, Tariff (B) Branch, GoI, File No. 52(16)TB/53, NAI

security, the economic and existential threat posed by India. In a speech in February 1952, Fazlur Rahman, Pakistan's Commerce Minister argued that "Instead of coming to an agreement with us,India is banking on smuggling jute from Pakistan. … this therefore has thrown a challenge to the integrity of our people and the efficiency of our administration … The issue is made one of national prestige and honour[900]." The India Pakistan British Association catalogued the draconian anti-smuggling measures taken by the Pakistani state in 1952: The Government are certainly taking determined steps to stop the smuggling of jute which has undermined the strength of their bargaining power with India. During the past two years, smuggled jute has done much to keep some of the Indian mills going. The Army has been called in to help deal with smugglers and orders are practically on a "shoot at sight" basis. The National Bank of Pakistan has advanced Rs 50 lakhs to the cooperative societies in East Pakistan and these societies, and some private firms, are to buy up all jute within five miles of the frontier. After six weeks, even possession of jute within the five-mile belt will be an offence[901].

Even army intervention could not stop smuggling. The government of Pakistan called in the army once again to prevent smuggling in late 1957 – the military's anti-smuggling mission was appropriately titled "Operation Close Door." Defending the decision to call in the army, then prime minister of the East Pakistan provincial government, Ataur Rahman Khan said, "I considered it [smuggling] to be a war. It was one of the greatest menaces trying to strangulate East Pakistan[902]." The military's anti-smuggling drive led to accusations on the floor of the East Pakistan Legislative Assembly of "indignities, harassment, physical assault inflicted upon licensed businessmen and traders and citizens holding responsible positions[903]." Fazlul Quader Chowdhury defended the army in the Assembly, pointing to its success in preventing smuggling – the army had seized 50,000 maunds or 10,000 bales of jute during the operation. 10,000 bales, however, was only a fraction of the several hundred thousand bales smuggled to India annually.

5.7 Liberation War and Post-War Pseudo-Employment

This dynamic of harassment, evasion and punishment extended further down the jute commodity chain, down to the primary producers. In 1948, in a desperate attempt to raise revenue, the cash-strapped provincial government of East Bengal announced a tax of 1 rupee per acre on jute cultivation. The provincial government of East Bengal had inherited the onerous and expensive task of regulating the acreage of jute by issuing licenses to individual jute cultivators. In 1948, the Finance Ministry estimated that over 5 million licenses were to be issued at a total cost of 5.6 million rupees. They suggested, "the cultivators may perhaps pay a portion of the cost of the Jute Staff maintained for their benefit[904]." They estimated a license fee of 4 annas per quarter of acre of land sown with jute would provide the government with about 2 million rupees. At a meeting of the provincial government of East Bengal's Council of Ministers, with the Prime Minister Nazimuddin presiding, it was decided to bring the Finance Ministry's proposal into action by Ordinance, bypassing the legislature[905]. On February 26 1948, the government promulgated the Bengal Jute Regulation (Amendment) Ordinance 1948 stating that "no grower of jute … shall be granted a license unless he applies in writing to the licensing officer … and that no such appliance shall be entertained unless it bears a court-fee stamp calculated at [four annas for every quarter acre of jute][906]."

The ordinance was renewed in 1949, again through promulgation bypassing the Legislative Assembly. Jute regulation and the accompanying tax were extended to Sylhet district, formerly a part of Assam where jute cultivation had been unregulated prior to partition. In February 1950, after two years of collecting license fees, a

[900] Ibid; "Jute Bargaining Factor with Bharat: Rahman on steps taken to sell more," Dawn , August 28, 1952, in MSS Eur F158/580A, IOR.

[901] Ibid; IPBA, "Confidential Report on Pakistan, August, 1952," in MSS Eur F158/580A, IOR.

[902] Ibid; Ataur Rahman Khan, EPLA, Vol. XVIII, No. 2, 17-19 March, 1958, p. 51

[903] Ibid; Monoranjan Dhar, EPLA, Vol, XVIII, No. 1, 13-15 March, 1958, p. 20

[904] Ibid; "Memorandum – Finance Department," in Jute Regulation Dept, Bundle 1, NAB.

[905] Ibid; "Excerpt from the minutes of proceedings of the meeting of the Council of Ministers, 15th January, 1948," in Jute Regulation Department, Bundle 1, NAB.

[906] Ibid; "The Dacca Gazette, East Bengal Jute Regulation Amendment Ordinance, 1948," in Jute Regulation Department, Bundle 1, NAB.

bill was finally introduced on the floor of the legislative assembly. Tofazzal Ali, Agriculture Minister of the provincial government introduced the Bill, stating that "in the interests of the national economy that the cultivators should also pay a portion of the cost [of regulating acreage] in the shape of a jute license fee[907]." Tofazzal Ali did not think that the fee was excessive: "I, for one, hailing from a rural area of this province, having been in constant touch with the jute growers, make bold to submit that this fee will not be a burden on the growers to an extent that they will find difficult to bear[908]."

The jute license fee proved an extremely difficult tax to collect. In between 1948 and 1950, the government's collection of license fees fell far below expectations. The Director of Agriculture wrote in September 1949 that "it now appears that a large sum on that account [of the Jute License fee] for both years [1948 and 1949] still remains unrealized. In majority of cases this was due to the intentional defaults of the growers." In 1950, the Jute Regulation Department wrote a long note explaining why "the collection of license fees have been so far very unsatisfactory in most of the districts." The reasons offered by the Department were the exodus of Hindu growers and Hindu government employees, "economic distresss among the people," the "scarcity of Pakistani small coins in Mufassal areas," and the nondisposal of prosecution cases against cultivators for not paying fees in the previous two years.

The collection of the license fee was indeed an onerous task. The distribution of 5 million licenses required a lot of paper, and paper was scarce in East Bengal. In January 1949, S. Abdullah, the Director of Agriculture in East Bengal wrote that they would be delays in issuing licenses because "there is almost no chance of getting from the Government Press the Jute Regulation forms sent for printing[909]." Further, the administrative hierarchy of the new government was weak. In April 1949, the Chairman of the Goalmari Jute Committee wrote to the Jute Regulation Department of the Government of East Bengal, stating that they had collected up to 60% of the license fee, and asked if the government would extend the allotted time period for collections. The telegram stated that "partial collection … will create serious disturbances[910]." The Jute department wrote back somewhat irritably that the period had been extended till June, and there should be no confusion about full collection. The main problem with the collection of license fees was, however, that cultivators simply evaded and avoided them – they "intentionally" or "willfully" defaulted on payments. The Jute Department felt that this was due to "some parties … making anti-propaganda against collection of jute license fees which as a result is badly suffering in certain areas[911]." "Anti-propaganda" was met with "counterpropaganda." In April, 1949, the Directorate of Agriculture requested a 150 rupees to print and distribute propaganda leaflets in jute tracts in rural Bengal "to make counter-propaganda" – 100 rupees for Mymensingh and 50 rupees for other parts of Bengal. The following year, the department requested 965 rupees for distribution of pamphlets throughout the delta. The pamphlet distributed in Mymensingh, signed by the District Agricultural Officer and District Magistrate of Mymensingh, stated, "it is regrettable that in some place Pakistan's bitter enemies (ghorotor shotru) are misinforming simple believing peasants (shorol, bishwashi chashigon), who are hesitating to pay the license fee.[912]"

The pamphlets also announced punishments for cultivators who sowed jute without paying license fees, warning that failure to pay the license fee in time would result in six months imprisonment or a 350 rupees fine. In the summer of 1949, the department prosecuted cultivators across the jute tracts for not paying the license fee. The government, however, was concerned that strict punishments would result in agrarian unrest. In August, 1949, when touring the jute-growing sub-division of Gaibandha in Rangpur, "certain people complained" to the provincial Minister of Relief "that cases have been instituted against cultivators who did not pay 'jute licence fee', and in some cases the court has fined the accused. The local grievance that it is a hardship on the part of the

[907] Ibid; EBLA, Vol. IV, No. 5, 1949, Dacca, 1949, p. 48

[908] Ibid; EBLA, Vol. IV, No. 5, 1949, Dacca, 1949, p. 48

[909] Ibid; S. Abdullah, Director of Agriculture, to Joint Secy, Dept of Agri & Co-op, GoEB, January 20, 1949, in Jute Regulation Department, Bundle 1, NAB.

[910] Ibid; "Collection of Jute License Fees – Telegram from Chairman Goalmari Jute Committee, September 1949, Jute Regulation Dept, Bundle 1, NAB.

[911] Ibid; S. Hedayatullah, Director of Agriculture, to Joint Secy, Dept of Agri & Co-op, GoEB, April 9, 1949, in Jute Regulation Dept, Bundle 1, NAB.

[912] Ibid; "Joruri Ghoshona", Jute Regulation Dept, Bundle 1, NAB.

cultivators[913]." To prevent these grievances from boiling over into agrarian unrest, the government proposed that prosecutions would be withdrawn "in cases … in which the persons prosecuted pay up the license fee and apologise[914]." The Jute Department tasked with collecting license fees, however, felt that lenience would only encourage evasion. The Director of Agriculture wrote that that the withdrawal of prosecution cases "likely result in serious consequences and regulation of jute cultivation would become meaningless and collection of license fees would in course of time be impossible … Once this is given out that the growers can get out of prosecution only by paying the licence fee it would be impossible to control such a large number of them[915]."

In an effort to put more pressure on cultivators to pay license fees, the Agricultural Directorate requested permission to prosecute cultivators under the Pubic Demands Recovery Act. Under this act, the Department would be able to confiscate the cultivators' property in punishment for non-payment of license fees. They "hoped that the mere fact of the grant of permission … would have a salutary effect on growers and it may not be necessary to have recourse to that procedure in large scale[916]." In the end, the government chose not to confiscate property, though the debate underlined the repressive tendencies of the post-colonial state as it set about realizing revenue from jute and the dynamics of harassment, evasion and punishment that characterized state and society relations throughout the jute commodity chain.

Far from the agent of peasant economic emancipation, the post-colonial Pakistani state was a source of harassment and oppression, an entity to be avoided and evaded. Ahmed Kamal has argued that in East Pakistan, during the years following independence and partition, the "state" turned against the "nation," brutally suppressing peasant movements over sharecropper rights, water management, and food distribution[917]. This violent oppression of its agrarian citizenry, Kamal argues, extinguished the aspiration of Pakistan as peasant utopia leading to the resounding electoral defeat of the Muslim League in 1954[918].

The disillusionment with Pakistan also arose out of the government's everyday harassment of jute cultivators and petty traders, as the postcolonial state sought to extract revenue and exert authority over fibre.

In its attempts to impose sovereignty over jute, the central government concentrated political power over fibre in the central capital in Karachi. The provincial government of East Pakistan contested the central government's assumption of jute revenue and control and authority over fibre. East Bengal's politician's claimed jute for the province. Though they made this claim in the name of East Bengal's impoverished jute cultivators, provincial politicians did not put forward an alternative vision of the relationship of state and commodity, to the assertion state sovereignty over fibre and the harassment that it entailed. Instead, they feuded with the central government over the distribution of jute revenue and government power over the production and circulation of fibre.

The distribution of the Jute Export Duty was an early point of dissent between the central and the provincial. Under the Niemeyer Award, pre-partition Bengal received 62.5% of the export duty, while the central government in Delhi the remaining 37.5%. Although the award was continued after partition, the centre delayed in making payments to the province and was arbitrary in deciding how much the province should receive. In 1948-49, the award was supposed to have provided east Bengal with close to 55 million rupees, but the centre unilaterally reduced Bengal's award to 34 million rupees[919]. Nurul Amin, the Muslim League's Chief Minister

[913] Ibid; Note by Malik, August 20, 1949, Jute Regulation Dept, Bundle 1, NAB.

[914] Ibid; M.A. Majid, Joint Secy, Agri Dept, to Director, Agriculture, Jute Regulation Dept, August 2, 1949, Bundle 1, NAB.

[915] Ibid; S. Hedayatullah,, Director of Agriculture, to Secy, Dept of Agri, Coop, Relief, August 11, 1948, Jute Regulation Dept, Bundle 1, NAB.

[916] Ibid; Director of Agriculture to Secy, Agri, Coop, Relief Dept, GoEB, September 17, 1949, Jute Regulation Dept, Bundle 1, NAB.

[917] Ibid and put in here with an emphasis. Kamal's argument is an important corrective to the dominant narrative of Bangladeshi nationalism, demonstrating that the movement was not solely an urban and middle-class but had subaltern roots, particularly in the widespread political and economic discontent amongst East Bengal's peasantry.

[918] Ibid; The ruling Muslim Leauge was routed. The United Front, a coalition of opposition parties, won 228 out of 304 seats, while the League managed only seven.

[919] Ibid; Hamidul Haq Chowdhury, East Bengal's provincial finance minister between 1947 and 1949, speech at the Legislative Assembly on February 17, 1952. EBLA, Vol. V., No. 1, 1951, Dacca, 1952, p. 438

in Bengal, complained bitterly that the centre had not granted the province its share of the jute export duty, and promised that "I will fight on and on till our Province's claim is accepted[920]." Bengal's politicians, even the ruling Muslim League, complained bitterly about the centre's refusal to grant the province its share of jute revenue. In 1951, Hamidul Haq Chowdhury, the provincial Finance Minister between 1947 and 1949, claimed that the centre had denied East Bengal close to a billion rupees in Jute Export Duty between 1948 and 1951. While the figure was an exaggeration, Chowdhury's claim shows the depth of feeling regarding the centre's appropriation of jute revenue[921].

The province's complaints about its financial relationship with the centre were not limited to jute. The central government balanced its budget by squeezing the provincial governments, which ran budget deficits even while cutting down on development and welfare programs[922]. The provincial government complained at length about the centre taking the entirety of East Bengal's income tax revenues and a share of its sales tax. They were critical of the centre's discontinuance of subventions to the province from the pre-partition years. The government of undivided India used to subsidize half the cost of Grow More Food schemes in postfamine Bengal – mostly small-scale irrigation and drainage projects in rural Bengal. Post-partition, the provincial government of East Bengal asked Karachi to continue these subsidies, estimated at 600,000 to 800,000 rupees annually, but as the Muslim League Minister Hassan Ali said in 1949, "I am sorry to say that [the centre] have not agreed to the proposal[923]."

In addition to the distribution of revenue, East Pakistan's political representatives protested the concentration of power and authority over jute in the central government, particularly in the Jute Board, the Karachi-based government institution that had acquired absolute power over fibre. The Jute Board was created in October 1949, in order to cope with the sudden disappearance of Pakistan's jute markets after the devaluation crisis. The Board was constituted of senior bureaucrats from the central government in Karachi and prominent jute traders. M.M. Ispahani was a long-standing member of the Jute Board and closely involved in its day-to-day operations. After its creation, the Jute Board assumed authority and control over all aspects of the jute trade: fixing prices, deciding acreage, regulating warehouses and baling presses, issuing export licenses, negotiating with overseas markets and so forth. As Afsar Ali Chowdhury, one of the members of the Jute Board, testified to the Agricultural Enquiry Committee in 1951: "The Board took the entire conrol of the marketing activities here. It took control of the baling presses. It took control of the godowns in which jute was kept. The Government of India was reluctant to establish continued and normal trade relations with Pakistan and the Jute Board of necessity had to take the entire control of jute[924]."

East Bengal's politicians, particularly members of the opposition in the Legislative Assembly, complained bitterly about the centre and the bureaucracy's assumption of absolute authority over fibre through the Jute Board. In March 1951 Manoranjan Dhar, leader of the opposition Pakistan Congress in the East Bengal Assembly, stated that the provincial government had lost even the ability to speak about jute: "for the last two years we have been raising the question of jute, but the
only answer that has been hurled at us is that the subject pertains to the Centre and, therefore, this House is not in a position to discuss anything about it[925]." In October 1952, Provash Chandra Lahiry argued to the House, "Even though jute is East Bengal's wealth (shompod), the Jute Board is not under the control of the government of East Bengal. It does not seem that this centrally controlled Jute Board was formed for the interest of Bengalis[926]."

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[920] Ibid; Hindustan Standard , March 20, 1949, quoted in Maron, Stanley, "The Problem of East Pakistan," Pacific Affairs , 28(2), June 1955, p. 133

[921] ibid; EBLA, Vol. V., No. 1, 1951, Dacca, 1952, p. 438

[922] Ibid; Jalal, Ayesha, The State of Martial Rule: The Origins of Pakistan's Political Economy of Defence , Cambridge: Cambridge University Press, 1990. It was symbolically important to balance the budget, as it demonstrated to the outside world that Pakistan was indeed a viable economy.

[923] Ibid ; EBLA, Vol. III, No. 3, Dacca, 1949, p. 75

[924] Ibid; Evidence of Afsar Ali Chowdhury, Proceedings in East Bengal (including evidence on jute and tea), 1951 , MSS Eur F235/360, IOR

[925] ibid; EBLA, Vol. V, No. 2, 1951, Dacca, 1953, p. 402

[926] Ibid; EBLA, Vol. IX, No. 1, 1952, Dacca 1954, p. 46

Opposition politicians accused the Jute Board of acting in the interests of substantial capitalists, accusing them of manipulating prices, depressing prices at the start of the jute season when the fibre was in the hands of cultivators and then raising them once it had passed into the hands of merchants. Anwara Khatun stated in the East Bengal Assembly in 1951: "When we see these activities of the Jute Board [price manipulation] one feels that Pakistan was not created for the poor, Pakistan was created for people like Ispahani. Ispahani and his chelas have profited from the Jute
Board[927]." Employees of the Jute Board were widely perceived to be corrupt, particularly in their handling of state credit to merchants and jute export regulations. Khairat Hossain said in the assembly that "giving the Jute Board the responsibility of jute purchases is like giving a thief the keys to the police thana[928]."

Criticisms of the Jute Board increased in pitch and volume when the Korean War commodity boom came to a close in 1952. In October 1952, at the height of the new jute season, Dhirendranath Datta, a Congress member from Tippera, moved a resolution to discuss the "serious situation created in East Bengal on account of abnormal fall in the price of jute[929]." Opposition members argued that the fall in prices was due to the corruption and incompetence of the government, particularly the Jute Board. Criticism of the Board was so widespread that many legislators felt it necessary to begin their speech by stating "much has been said about the mismanagement and corruption of the Jute Board," before proceeding to detail their own observations.

East Bengal's politicians urged that the provincial government assume the "administration of jute from the centre[930]." Provincial control over jute and a greater share of jute revenue were major issues in the United Front's electoral campaign in 1954. The Front was a coalition of opposition parties led by the most important Muslim Bengali politicians of the colonial era – A.K. Fazlul Haq and H.S. Suhrawardy. Their twenty-one point manifesto called for the recognition of Bangla as a state language of Pakistan, provincial autonomy in all spheres except foreign policy, defense and currency, and the nationalization of the jute trade. The third of 21 points in the manifesto promised: "To nationalize the jute trade, to make arrangements for securing fair price of jute to jute growers and to investigate into the jute-bungling during the Muslim League regime[931]."

The United Front decimated the Muslim League in the 1954 elections, emerging victorious in 228 out of 304 constituencies. Despite their popular mandate, the United Front was unable to implement its goals of provincial autonomy and the nationalization of the jute sector. The central government resorted to military coups, impositions of martial law, and the dismissal of elected provincial governments and retained Karachi's control over jute. The government formed on April 3, 1954 with A.K. Fazlul Haq as Chief Minister was dissolved on May 30, 1954[932]. Between 1954 and 1956, East Bengal was under "Governor's rule," with General Iskander Mirza holding absolute autocratic power and the centre maintaining its hold over the East Bengal's jute. Parliamentary democracy returned to the province in September 1956, and the Awami League formed a government with Ataur Rahman Khan appointed Chief Minister. Upon forming his cabinet, Ataur Rahman Khan announced that he would implement the 1954 election manifesto, including the nationalization of the jute trade. In March 1957, the provincial assembly passed the East Pakistan Jute Marketing Corporation Bill, creating a state-owned entity to carry out large-scale purchases and sales of jute in order to stabilize prices for growers. The corporation was vigorously opposed by the central government and by Pakistani and international jute capitalists. In a statement, the PJA stated that the creation of a state-owned trading entity, in effect, nationalized Pakistan's jute trade and would cause "economic and employment dislocation which … will jeopardize the basis economic structure of East Pakistan[933]." The India Pakistan British Association reported in

[927] ibid; EBLA, Vol. V, No. 1, 1951, Dacca, 1952, p. 380

[928] Ibid; EBLA, Vol. VI, No. 2, 1951, Dacca, 1953, p. 130

[929] Ibid; EBLA, Vol IX, No. 1, 1952, Dacca, 1954, p. 42

[930] Ibid; EBLA, Vol. IX, No. 1, 1952, Dhaka, 1954, p. 55

[931] Ibid; Ghosh, Shyamali, The Awami League, 1949-1971 , Dhaka: Academic Publishers, 1990, p. 283

[932] Ibid; Haq was accused of treason because of statements about the unity of India made during a visit to Calcutta. Further, he was accused of being unable to control labour troubles at the Adamjee Jute Mills and Chandrakona paper mills. Barely a decade after being dismissed by the British Governor of Bengal in 1943, Fazlul Haq was once more unceremoniously thrown out of power by an unelected bureaucracy.

[933] Ibid; Quoted in India Pakistan British Association, "Confidential Report on Pakistan for March, 1957" in Jute: Pakistan, 1949-67 , MSS Eur F158/580A, IOR.

its confidential report for July 1956: "The jute trade in East Pakistan is anything but sanguine about its future prospects at the hands of the Provincial Government and feels that year by year by dint of regulations and controls it is being forced into, not a strait-jacket, but a Procrustean bed[934]."

In its first full season of trading, the East Pakistan Jute Marketing Corporation found itself in financial difficulties: they were unable to dispose of large stocks of poor quality jute and reported enormous losses. When international jute prices dropped at the opening of the 1958 season, the Corporation was on the verge of bankruptcy – unable to dispose crops from purchases in the previous season and unable to make a profit on prevailing prices at the opening of the new season. In early October 1958, representatives of the East Pakistan government informed the National Economic Council in Karachi that unless the central government took immediate steps to "stop the rot in the jute industry the entire economy of the country would be ruined.[935]"

The centre did step in, but not in the manner that the provincial government hoped. On October 7, 1958, General Iskander Mirza declared martial law and appointed Ayub Khan, the central defense minister, Chief Martial Law Administrator. The provincial government was dissolved and its program of asserting provincial sovereignty over jute abandoned. In December, the new military government dissolved the Jute Marketing Corporation's Board of Directors on grounds of mismanagement, leading to heavy losses. The bureaucrats who ran the Corporation were, however, absolved of blame and responsibility placed solely on provincial politicians. The military government's announcement stated: ""The main reasons for the losses incurred were irresponsible and undue control exercised at ministerial level in relation to important commercial advice tendered by officers[936]." The military government placed the corporation under the control of Pakistan's leading jute capitalists: G.M. Adamjee was placed in charge of the purchase committee and Sadri Ispahani of the sales committee[937]. Iskander Mirza's 1958 coup had forcibly resolved the centre and province's contest over sovereignty and jute in favour of the former, returning control over fibre to Karachi bureaucrats and prominent jute capitalists.

The centre and the province's contest over sovereignty over fibre did not address the fundamental issue facing Pakistan and many other commodity-producing, postcolonial nations. The exigencies of building a modern nation-state out of commodities of the former empire often entailed the intensified regulation and policing of citizens attempting to eke out livelihoods by producing and trading these commodities. Intensified state surveillance of economic activities frequently translated into the everyday harassment and oppression of its citizenry. In East Pakistan's jute tracts, the post-colonial project of transforming jute from a commodity of empire into a national resource led to widespread disillusionment with the aspirations of Pakistan and independence. In contesting the central government's assumption of sovereignty over fibre, East Bengal's politicians did not provide a way out of this post-colonial predicament. They continued to operate within the paradigm of the modern nation-state with absolute sovereignty over the production and circulation of commodities within its borders.

The predicament of post-colonial state-formation was perhaps best illustrated in Ataur Rahman Khan description of an encounter with an elderly villager soon after independence in 1947, when widespread enthusiasm with Pakistan as peasant utopia was yet to be extinguished. The elderly man asked Ataur Rahman Khan: "Now that Pakistan has been achieved, should there still be police, courts and Kutcheries, soldiers and sentries, jails and lockups?" Khan replied, "Why not? How could you protect the state without these institutions?" With a sigh the old man replied, "then what kind of Pakistan have we got? Change the name please[938]." Far from being abolished, these repressive institutions were actually strengthened by the Pakistani government as it attempted to capture and punish the smugglers, under-invoicers, grade manipulators, and tax evaders involved in jute cultivation and trade, and subverting the state's attempts to assert sovereignty over fibre.

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[934] Ibid; IPBA, ""Confidential Report on Pakistan for July 1958" in Jute: Pakistan, 1949-67 , MSS Eur F158/580A, IOR.

[935] Ibid; Reported in The Times , October 7, 1958. In Jute: Pakistan, 1949-67 , MSS Eur F158/580A, IOR.

[936] Ibid; Reported in the Times , "East Pakistan Jute Board Dissolved," December 29, 1958. In Jute: Pakistan, 1949-67 , MSS Eur F158/580A, IOR.

[937] Ibid; IPBA, "Confidential Report on Pakistan for December 1958," in Jute: Pakistan, 1949-67 , MSS Eur F158/580A, IOR.

[938] Ibid; Khan, Ataur Rahman, Shairacherar Dash Bochhor , Dhaka: 1970. Quoted in Kamal, Ahmed, State Against Nation , p. 18

Jute is no longer ubiquitous in global trade: containers, paper cartons, synthetic fibres, and grain elevators have replaced gunny sacks and hessian in packing and transporting the world's commodities. The decline of jute as a significant commodity of international trade took place gradually and over stages. In the 1960s, the consumption of jute in the industrial west began to decline – though this was compensated for by rising consumption in developing economies[939]. After the 1980s, the production of jute manufactures declined in absolute terms. In 1991-92, the global production of jute manufactures was 2 million tons against 3.85 million tons in 1978[940]. More recently, jute production has staged a minor comeback as an ecofriendly alternative to synthetics. While it is too early to predict whether jute will reemerge as a significant global commodity, the possible revival of the fibre is widely discussed in Bangladesh, where jute occupies a prominent place in official, national memory.

In 1971, after a brutal 9-month civil war, East Pakistan seceded from Pakistan and became independent Bangladesh. The Bangladesh movement was informed by the provincial East Pakistan government's contest over sovereignty over jute and their continued attempts to wrest control over fibre and revenue generated by fibre away from the centre. In 1966, the Awami League launched a popular campaign against Ayub Khan's military regime in East Pakistan, on the basis of a six-point demand for provincial economic autonomy. They urged for two separate but freely convertible currencies, complete control over taxation, and separate accounts for the foreign exchange earnings of the two wings. One of the authors of the six-point demand was Rehman Sobhan, an economist at Dhaka University. Sobhan had written an influential article titled "The Problem of Regional Imbalance in the Economic Development of Pakistan" in 1962, highlighting growing disparity in incomes and standards of living between the two wings[941]. Sobhan argued that growing disparity was due to deliberate policies of the central government that led to greater public and private sector investments in West Pakistan. He highlighted the injustice of deliberate neglect with special reference to Pakistan's national resource –jute. "About 80% of all aids and loans went to West Pakistan as did the major part of exchange from national exports," Sobhan stated, "this was true in spite of the fact that East Pakistan earned 60-70% of Pakistan's foreign exchange, mainly from her exports of raw and manufactured jute[942]."

5.8 Jute Sector in the Seventies

After Liberation (1971), Government assumed control of virtually all aspects of the jute trade - internal marketing and exports. The aim was to channel profits to the economy and to the farmers. This led to the creation of four government purchasing corporations and one corporation responsible for managing exports of raw jute. All these corporations were controlled by the Ministry of Jute[943]. The main objective of the purchasing

[939] Ibid; OECD nations' consumption of jute goods declined from about 1 million tons in 1961 to 750,000 tons in 1978 and that of developing countries rose from 1.4 million tons to 3 million tons. The increase in consumption was most marked in China – from 270,000 tons to 1.1 million tons in the same period. Mahmood, Muhammad, and Williams, Ross, "The World Jute Market," The Bangladesh Development Studies , 9(4), August 1981, p. 2

[940] Ibid; The figures for 1978 are from Mahmood, Muhammad, and Williams, Ross, "The World Jute Market," The Bangladesh Development Studies , 9(4), August 1981 while that of 1991-92 are from the website of International Jute Study Group, at http://www.jute.org/statistics_03.htm (last accessed July 17, 2012).

[941] Ibid; Sobhan, Rehman, "The Problem of Regional Imbalance in the Economic Development of Pakistan," Asian Survey , 2(5), June 1962, pp. 31-37

[942] Quoted in ibid, p. 37

[943] This was at the same time as when the country was going through multitudes of turmoil. To quote from a World Bank Report (No: p-2203-BD; dated: 17 January 1978):

Overall economic progress since independence, however, has been inadequate. Agriculture output remains insufficient for a population growing at close to 3% a year. Industrial output, heavily dependent on imports, has been affected badly by scarcity of foreign exchange. State enterprises have been hampered by management deficiencies, excessive government controls, shortages and price regulation. Exports have been stagnant and finance less than half of import needs. Bangladesh also has been severely affected by an adverse shift in its terms of trade since 1973. Trade problems are compounded by dependence on annual food imports of 1-2 million tons, even in years of favorable weather, and by heavy reliance on imported industrial raw materials. Government revenue has been insufficient to meet current and development expenditure needs. Bangladesh has had to depend on large flows of external assistance to support its development effort.

corporations was to procure raw jute directly from farmers, thereby avoiding the cost of middlemen and providing higher prices to farmers, while reducing export prices and raw material cost to mills. Each corporation was headed by a Managing Director, had its own technical staff (purchaser, supervisor, accountant, etc.) and had designated areas of the country under its jurisdiction, with purchasing centers and its own godowns and baling facilities. There was no competition between the corporations in procuring raw jute. Consequently the set-up merely increased overhead costs[944].

In early 1976 the four corporations were merged into two; the existing corporations are the Jute Trading Corporation and the Jute Marketing Corporation. In spite of this reorganization,t hese corporationsh ave remained ineffective. Reasons are that the corporations are run along noncommercial lines by civil servants. Profit and loss is not their major concern. Their financial structure is weak, working capital is restricted and hence the corporations are unable to procure jute early in the season when jute prices are low. In addition, the corporations are unable to purchase directly from farmers, since they have neither the staff nor the facilities to collect small amounts of jute from individual, scattered farmers. Thus they continue to rely for procurement on middlemen, who collect from farmers at the village level. Supervision of corporations, field staff and quality control is weak; their accounts are neither published, nor audited.

Although conceptually government purchasing corporations are essential to enforce the Government's minimum raw jute price and to provide competition to the private sector, their present organization, financial structure and management is so ineffective that they are, at present, unable to achieve their objectives. It was anticipated that under UK bilateral assistance a consulting firm would be employed to review the present organization and assist the Government in restructuring the corporations to render them more effective.

In early 1976 the jute trade was liberalized. The private sector was permitted to purchase and export jute directly without channeling exports through the Bangladesh Jute Export Corporation, which had previously been solely responsible for handling exports. However private traders are still required to register their exports with the Bangladesh Bank and export at prices fixed by the Government. This liberalization did infuse more vigor into the jute export trade in Bangladesh. However in the absence of any effective competition, the private sector acquired a monopolistic position. In the current season (1976/77) since the private sector managed to acquire a

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On July 1, 1975, Bangladesh initiated a stabilization program in conjunction with a standby arrangement with the IMF. Its principal elements consisted of a credit restraint program and elimination of deficit financing, combined with some import liberalization. This was preceded by a devaluation of 58% in May 1975, which subsequenitly, as a result of a link with the Pound Sterling, has led to a cumulative de facto depreciation of 90%. The record so far is that the credit restraint program has been a success: after an estimated rate of inflation of about: 80% in 1974, prices declined by 10% in 1975, and price stability has continued to be a major objective in 1976 and 1977. The import licensing program was relaxed during FY76; besides increasing allocations to an average of 95%' of entitlements, licenses were renewed on expiry and there is greater fungibility in the use of exchange allocations for selected categories of imports. Improvements in this area continued in FY77: import requirements of all public corporations and high priority private sector industries were fully met, the role of the Trading Corporation of Bangladesh was further reduced, and the list of items permitted under the Wage Earners' Scheme for imports by the private sector was enlarged.

Balance of Payments scenario showcases how the war-ravaged country slowly started pulling back the strings and rising on its own feet again. To quote from the same report:

…. The impact of the good foodgrain harvests and the policies and measures instituted in FY76 were reflected in Bangladesh's FY77 balance of payments. The restrictive monetary and fiscal policies of FY76 were continued in FY77 and they continued to restrain demand. This, plus reduced requirements for food imports and lower import prices, reduced the value of total imports by 27%. Export earnings showed an increase of 5%. Exports benefitted from a favorable climate for non-traditional exports which, in addition, were stimulated by a package of incentives. New items were added to the list of export products elig:ible for export performance licenses; the income tax rebate on earnings derived from non-traditional exports was doubled; exporters were qualified for preferential credit and interest rates; and priority was accorded them in the issuance of import licenses for the purchase of raw material and machinery. These incentives contributed substantially to the large expansion, estimated at 36%, in the value of non-jute exports. Consequently, the tratde deficit is estimated to have declined from US$909 million in FY76 to US$537 million in FY77. The current account deficit in the balance of payments is estimated to total US$512 million. However, since external aid disbursements in FY77 are estimated at US$572 million, inclusive of a cash grant of US$50 million, Bangladesh's international reserves are estimated to have risen by US$72 million to US$285 million at the end of June 1977. This would be equivalent in value to about three months anticipated imports in FY78.

[944] Bangladesh Jute Project; World Bank, 1977

substantial portion of the crop, they have been able to manipulate internal raw jute prices. There is a danger that if such an unhealthy trend continues, the Government might revert to nationalization of the trade, an alternative which proved ineffective in the past. It is apparent that a system should be developed whereby both the government corporations and the private sector work side by side, providing competition to each other to ensure a fair market mechanism. Legislation alone will not achieve this. The idea was that the government corporations should be revitalized to provide effective competition to a healthy private sector.

All mills remained nationalized and are the major internal consumer of raw jute. The government corporations and the private sector provide the majority of the mills' raw jute requirements. Some of the larger mills have their own purchasing centers to purchase directly from the farmers to obtain price benefits. However due to the lack of working capital and organizational problems, the mills generally have to resort to middlemen for their supplies. If a system could be developed whereby farmers could collectively offer jute in sizeable quantities, this would be welcomed by the mills and the government corporations and beneficial to both farmers and the purchasers, who would share in price benefits and reduce costs.

Jute is channeled through three marketing levels: village (primary), secondary and terminal. At the village markets, the sole outlet for the majority of farmers, only middlemen purchase the jute. No storage or baling facilities are available. After collecting their purchases of jute, middlemen forward it to the secondary market, without any processing or grading, where they sell it to either exporters, mills or to government corporations. The government corporations grade and bale the jute in katcha form. The private exporters generally ship the raw jute to the terminal market where it is graded and baled in pucca or katcha form. From terminal markets jute is either sold to the jute mills in katcha bales or is exported in pucca bales.

The village market is held once a week. Jute growers are small scale (average holding size is 0.5 ac.) and the average amount sold by each farmer is between 10-12 maunds. Their financial position is very weak; their bargaining and holding capacity is small, in the absence of any credit or storage facilities. Middlemen, recognizing these limitations, take advantage of the situation in determining the price, quality and measurement of jute.

The farmers market their jute shortly after harvest and virtually all jute is sold by the farmers between July and mid-December, the peak month being October. On the weekly village market day, farmers from within a radius of six miles, bring their jute to be sold. Since farmers rely on the sale of their jute for their purchases of basic necessities (salt, oil, etc.) and no storage facilities are available, farmers accept any price prevailing that day. On an average village market day 8-10 middlemen are present and between them determine the selling price for that day, irrespective of the Government minimum price. The middlemen do not start purchasing until the later afternoon hours, their scales are defective and measurements are in English. Thus farmers, on average, lose about Tk 4-5/maund. In addition, the middlemen usually do not pay adequately for grade differences, thus causing farmers a further loss. Seasonal price rises, averaging Tk 6-7/ maund, are not reaped by many of the farmers particularly small farmers who have to sell early in season. Thus, at present, farmers often do not receive fair market prices and have little incentive to improve the quality of their jute. The present system unnecessarily increases the cost of raw materials to domestic mills, as well as to exporters. Between the village and secondary markets, the jute remains ungraded and unbaled. The physical movement of voluminous quantities of jute overburdens the limited transportation facilities and increases the cost. In addition, middlemen frequently adulterate jute by adding water and sand to increase the weight, with adverse effects on quality. While the jute is being forwarded to secondary markets it remains in the open air or in poor storage facilities, resulting in additional losses of about 6%. All these increases in cost could be reduced or saved, with an effective marketing system[945].

Estimated total marketing cost between farmer and the export port is as follows[946]:

[945] Ibid; According to the World Bank, It can readily be seen that market costs constitute a very high percentage of total export cost and efforts at cutting market costs would be an important contribution to increasing jute's competitiveness in international markets. Based on past experience, it is nolt feasible for government corporations to purchase directly from farmers, thus effectively ensuring fair market or minimum government prices to farmers.

[946] Ibid; Annex 5, Page 4; WB (1977)

Marketing Cost
Tk/Maund

Village Market	At Present /a	With the Project
Collection & Handling Cost	3.52	
Middlemen's Profit	1.88	
Middlemen Grade Differential Profit	2.00	
Middlemen's Holding Profit	4.10	
Sub-Total	11.50	
Secondary Market		
Katcha Baling	16.00	
Katcha Balers' Profit	4.00	26.50 /b
Sub-Total	20.00	
Terminal Market		
Pucca Balers' Cost	13.00	10.00
Pucca Balers' Profit	4.50	4.00
Sub-Total	17.50	14.00
Export Handling Charges	4.00	3.00
Quality Control, Insurance, etc.	0.50	0.50
Grand Total	53.50	44.00
Export Price	160.00	160.00
Market Cost as % Export Price	33%	28%

/a Based on Annex 5.
/b See para 18.

With the creation of Bangladesh, a government belonging exclusively to the delta and its inhabitants took control over the region's economy and resources – especially its jute. Part of the aspiration of Bangladesh was that jute would now fulfill its promise of delivering higher standards of living and economic development to the region's impoverished inhabitants, rather than for foreign capitalists and states in Britain or West Pakistan. This desire was not realized. The nationalization of the jute industry, one of the promises of the liberation movement, led to mismanagement, corruption, and under-investment in the jute sector.

Even more significantly, the emergence of Bangladesh was quickly followed by the decline of the global jute trade. Today, jute occupies an a far less significant position in Bangladesh's national economy – it does not lie at the heart of most Bangladeshi's livelihoods and fiber exports contribute a relatively small share of export earnings[947]. While fiber is no longer integral to the national economy, memories of jute constitutes an important aspect of public and nationalist discourse. Even as the economic significance of jute declines, the idea of jute retains significance in the delta's political discourse.

A relatively recent paper by Atiur Rahman and Ismail Hossain documented the corruption and mismanagement that ensued after the liberation and nationalisation of the jute sector[948]. Much of the country's infrastructure was devastated during the war. A large number of industrial and commercial enterprises were damaged and abandoned by their Pakistani owners, creating a managerial vacuum. In a difficult situation, the government tried to move the wheels of commerce and industry by undertaking their management by its own hand. Further, the socialist ideology of the leading Awami League led to the nationalisation of the manufacturing, banking, finance, transport and communication sectors in March 1972. As a result, the State came to own 92% of the fixed assets of the modern manufacturing sector. As part of the programme, all 77 jute mills of the country were nationalised. The jute sector was dominant in the economy in terms of manufacturing sector output, employment and foreign exchange earnings. It contributed 87% of total merchandise export earnings at the time of independence.

[947] Ibid; The proportion of the population employed in the agricultural sector has fallen below 50%. For those who continue to make a living from agriculture, jute has become far less important as rice acreage has increased and market vegetables and oilseeds have displaced jute as the major cash crop. On the other hand, Bangladesh's exports primarily consist of readymade garments, with jute goods contributing less than 10% of Bangladesh's export earnings.
[948] http://www.socialwatch.org/book/export/html/10866

It has been argued that nationalisation was undertaken without much preparation for efficient management of the nationalised industries. Lack of efficient management, lack of operational autonomy, a rigid wage structure, controlled pricing policies, corruption, and other problems turned the State-Owned Enterprises (SOEs) into money-losing enterprises. These concerns depended on huge state subsidies, which proved to be very costly. Against this backdrop, the change of government in 1975 paved the way for a change in nationalisation policy and a process of privatisation was initiated.

5.8.1 Nationalised businesses served political objectives and fed corruption

Critics hold that nationalisation had been carried out quite mechanically without any attention to the capacity of the public sector to run the mills. As mentioned, there were vacuums in the top managerial positions caused by the exodus of the Pakistani management during the war. These positions were filled by mid-level officials and even by clerks on some occasions. The nationalised mills thus had weak management from the beginning.

After nationalisation, the higher authorities, the mill managers and the Collective Bargaining Agents started misappropriating the funds and resources of the mills. The number of officers and staff members was raised by about 35% to 40% above that in the pre-liberation period. Another round of increases in management personnel, by another 30% to 40%, took place after the violent political changes in the country in 1975, following a series of coups and counter-coups. On both occasions the appointments were based on political considerations. On many occasions the mill authorities showed inflated figures for purchase of jute and in order to cover up this mischievous act, set fire to the jute in the warehouses, burning the whole stock to ashes. Consequently, the quality of production suffered and the mills began to lose money. The mounting losses and inefficiency of the enterprises began to negatively impact on the economy. The inefficient operation of SOEs led to a massive drain of resources, conservatively estimated at 4.9% of GDP annually since 1991. The public financial institutions have also performed poorly, suffering from significant and understated losses and capital shortfalls. The inefficient services of SOEs in energy, telecommunications, banking, railways, ports and other public utilities have increased the cost of doing business in other sectors of the economy and have reduced consumer welfare.

5.8.2 Mixed results of non-transparent privatisation process

The government, instead of trying to address the real problems of the mills through better management, better labour relations and improved productivity, initiated a process of privatisation of the SOEs, including the jute mills, under the advice of the World Bank. The overall experience with privatisation, however, has not been encouraging. A World Bank study of the performance of the privatised units divested during the 1980s reports that nearly 50% of the enterprises (or 245 out of 497 small industrial enterprises, excluding large jute and cotton textiles) have been closed down. A depleted asset base, high debt liabilities and inefficient management are responsible for this deplorable situation. The privatised large-scale jute and cotton textile mills have also exhibited mixed results in terms of investments, productivity, profitability and other measures of efficiency[949].
Binayak Sen, analysing a sample of 205 manufacturing units, found a high incidence (40%)of post-divesture closures with 5% of the units not traceable at all. The study, however, observes two areas of improvement: out of the 112 enterprises currently in operation, 40% diversified their businesses by introducing new products and60% showed profits as against 38% before divesture[950].
It is difficult to provide any conclusive judgement on the true magnitude of privatisation because of a lack of hard statistics. A World Bank study in 1997showed that a total of 1,089 enterprises were privatised in Bangladesh between 1972 and 1996. A study by the International Labour Organisation[951] estimates the number of such enterprises at 1,083, of which 610 were industrial enterprises[952]. Between 1978 and 1986, 43 jute mills

[949] R. Sobhan. "Disinvestment and Denationalisation Profiled Performance", in The Bangladesh Journal of Political Economy, Vol. 6, No. 2, 1985.

[950] Binayak Sen. *Wither Privatisation: Results of an Exploratory Survey of the Disinvested Industries in Bangladesh*, mimeo, Dhaka: BIDS, 1997.

[951] International Labour Organisation, *Retraining and Redeployment of Workers Affected by Privatisation in Bangladesh*. Geneva: ILO, 1999.

[952] Editor's Note. Apart from jute mills, a survey dated February 1991, commissioned during the government of President Shahabuddin, found that over 50% of the privatised units were not operational. Also a World Bank study carried out during 1991-1996 found that out of 13 privatised enterprises, five closed, one was not operational, and four continued to make losses after privatisation. That was in the context of an IMF and World Bank privatisation scheme for Bangladesh, which included the sale of 42 public enterprises and came to a standstill in 1991 but later started again, with the results mentioned above.

were privatised. It should be noted that between 1986 and 1991 not a single SOE was privatised and 26 enterprises have been privatised since 1993. It may be further noted that the government has also resorted to closing enterprises to solve problems in the nationalised sector. Closure of unviable mills has been limited to six mills in jute manufacturing since the early 1990s so far, while a larger number of textile and steel and engineering mills were closed in recent years. The most notable example is the recent closure of the Adamjee Jute Mills.

The privatisation process was not transparent. There was no open bidding, and the valuation of jute mills that were privatised was not done in a transparent manner. Just prior to privatisation, profitable SOEs became losing concerns, and mills were sold at a very low price through an unholy alliance between the owners and policymakers. Furthermore, corruption took place in managing the mills even after they had been privatised. It very often happened that the owner himself overvalued the price of purchased jute or other raw materials, as well as the machinery, and showed a loss on the balance sheet. This enabled the owner to default on bank loans. Some of the mills that had been restored to their former owners were later sold to new, inexperienced entrepreneurs. Privatisation was not to be the answer to the problems of the ailing jute industry.

The situation of the mills has also been made worse by some other factors such as excessive manpower, out-dated machinery, and declining demand in both domestic and international markets. This has resulted in continuous losses and closure of some mills, resulting in the loss of jobs and production.

5.8.3 Social impact of the Administrative Experiments

The social impact of privatisation has been heavy. About 89,000 workers were laid off during the 1995-97 period. Studies of the employment situation based on a survey of 205 privatised enterprises[953] indicate that the workforces of the firms still in operation have been reduced by about 25%. When taking into account those privatised firms that closed, nearly 40% of the workers previously employed in the SOEs lost their jobs. Furthermore, there has been a tendency to replace permanent workers with temporary workers, decreasing the job security of those who remain.

It has been very hard for the workers who have lost their jobs to find alternative employment. There are few jobs available and there is little retraining of workers to facilitate reemployment. Consequently, some workers have entered the informal labour market doing odd jobs like rickshaw pulling and working as day labourers.

While the mills were in operation, the workers used to live reasonably good lives. Since they lost their jobs, they have faced adversities. Many of them have not been able to feed their children properly let alone send them to schools or provide them with needed healthcare services. Some of the workers have sold the assets accumulated during their working lives, and some have sold the land inherited from their parents. In addition to losing their assets, laid-off workers face rising indebtedness, as most of them are living on borrowed funds.

As mentioned earlier, some of the privatised mills were sold again to new owners. They, too, were inefficient in running the mills and had to eventually close them. The new owners did not even meet the legal severance payments to the workers when the mills closed.

Women do not work in the mills and hence the privatisation process did not directly affect them. But as part of a family that is undergoing economic hardships, women bear disproportionate amount of the burden. They will be the first to be withdrawn from schools, for example, and they often have to sacrifice their share of food for other members of the family.

The government has tried to safeguard workers' interests recently by offering compensation packages to the retrenched workers. Some of these compensation schemes are "golden handshakes" and "voluntary departure schemes". While the financial packages seem generous, they cannot be a good substitute for life-long employment when jobs are scarce. The government is also arranging for retraining of workers.

Management vacuums and socialist ideologies motivated nationalisation of enterprises in manufacturing and commerce, including the jute-manufacturing sector. The sector suffered from weak management and corruption from the beginning. Instead of addressing the real problems of the nationalised sector, the government undertook privatisation of the SOEs, including the jute mills. The privatisation process was itself non-transparent, and the private owners proved to be as inefficient and corrupt as their predecessors. Throughout the whole period the politically powerful were able to appropriate the assets of the mills and get richer. The ordinary labourers have suffered and their sufferings have increased with the closure of the mills. Government should undertake effective safety net programmes to safeguard labour interests.

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[953] Binayak Sen, *op. cit.*

5.9 World Bank induced Deindustrialization

The significance of jute in national and public discourses in contemporary Bangladesh far outweighs its economic importance, whether in terms of the livelihoods of its citizenry or Bangladesh's national macro-economy. This contemporary discourse of jute is a legacy of the Bangladesh nationalist movement of the 1960s and its project of claiming fiber for the projected nation. This public discourse is also a reaction to the demise of jute as a significant article of international trade before the new nation could appropriate the fiber as its national resources. The national memory of jute in Bangladesh is premised on this idea of jute as a national resource – the basis of economic modernization and industrialization, a source of foreign exchange and state revenue. The nostalgia for jute in contemporary Bangladesh draws upon a statist idea of the commodity framed in post-colonial Pakistan. At the same time, this national memory erases other discourses of fiber that were historically important: for instance, discourses that focused on peasant livelihoods and lifestyles or on capitalist and imperialist exploitation.

However, a possible conspiracy theory coming out of a perceived concerted effort by the Bretton Woods Twins cannot be ruled out. Literally millions of dollars were spent in the name of enhancement of productivity. Bangladesh Jute Project conceived in 1977 draws out a plan of 33.6 Million USD (when USD: Taka conversion was at a rate of 15 Taka per Dollar) at that time itself and the project spanned five years[954].

The observation arising from studying the various World Bank reports suggests that the rhetoric of the Bank (and the group) took a hundred eighty degree turn. While the 70s rhetoric was ''processes'' involved in the procurement and processing of jute and to some extent for purchase of industrial spares, the nineties suddenly changed tack and moved into reducing losses of SOEs[955]. While no mention was given to the political imperatives for the jute mills in taking extra managerial overhead loads, the blame for making losses was placed squarely on them[956].

Quoting from the same World Bank report[957], "the de-nationalization of Jute and Textile Mills originally owned by Bangladeshi citizens was the main feature of the 1982-86 program. The conditions for de-nationalization were fairly uniform. The price of the shares were the same as originally paid to the owners In compensation when the units were nationalized in 1972. The new owners assumed all liabilities accumulated under public ownership and took over all employees on the existing terms and conditions, none of whom could be retrenched for a year from the date of de-nationalization. The sale agreements stated that if the private owners defaulted on their contractual obligations, or did not operate the units for any reason, the Government would have the right to intervene in the affairs of the unit. The 1986-90 effort aimed at encouraging wider participation of small investors and strengthening the capital market. Therefore, it included a program whereby 49Z of the shares of some profitable PNEs under the Ministry of Industries were sold to the private sector, with 342 allotted to the general public and 15 to the employees of the PMEs concerned. However, this program of partial privatization was not very successful. Only I5 PMEs were partially privatized. Ten more were listed in 1990, but their

[954] The appraisal report suggests that the project covered 16 districts of Bangladesh. The project would support a five year program costing US$33.30 million to increase the productivity of jute cultivation, thus making the product more competitive in world markets, and introduce a trial jute marketing scheme aimed at improving marketing efficiency and increasing farm gate prices.

The project would include:
(a) Incremental short term production and marketing credit (US$14.3 million);
(b) Jute storage sheds and baling presses (US$1.0 million);
(c) Implements for farmers (US$1.5 million);
(d) Incremental extension staff (US$4.7 million);
(e) Staff housing and office equipment (US$9.3 million);
(f) Motor vehicles, motor cycles, and bicycles (US$1.7 million);
(g) Extension equipment and materials (US$0.2 million); and
(h) Consultants, overseas training and monitoring (US$0.6 million).

[955] State Owned Enterprises

[956] Ibid

[957] Ibid; Paragraph 3.34

outstanding shares are still under-subscribed[958]. The process of privatization was detailed in very crude details[959]. Also important is to note that the financial services sector was drawn into the paradigm of (first) privatization and (then; ultimately) decommissioning[960].

It first started with outlining the effect of how Bangladesh products lost competitiveness[961]. And then, as a fast solution, suggests privatization[962]! Cautionary words were there[963] but very little, if any, ever culminated into a project on the part of the Bank.

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[958] Ibid; Paragraph 3.35

[959] Ibid; Paragraph 3.42. Ministry of Jute. The Ministry of Jute has three privatization programs. First, in January 1991, the Government offered its minority shares. In 33 mills to the private majority share holders at the book value of Tk 10 per share. Twenty-one out of the 33 private mills accepted the offer. Five out of the 21 have already completed the transfer and fully paid for the shares. Sixteen are in various stages of the process of taking up the offer while 12 have not responded to Government's invitation. If the offer is not taken up by the majority share holders, the Government intends to offer its shares in the remaining mills to third parties. The slow progress in this program is due to the transfer conditions set by the Government which many private owners hesitate to accept. One of these conditions requires the majority share holders to assume all outstanding liabilities. AMother states that if the private owner does not operate the mill for any reason, the Government will have the right to intervene in the affairs of the mill. Second, the Government has decided to close the Bangladesh Jute Corporation (BJC). The liquidation process is already In place, and the Government intends to put up all godowns and press houses of BJC for sale on a priority basis in the current fiscal year. However, the sale of properties has been very slow since some of them are encumbered or subject to legal action. Third, the Government is planning to privatize 17-18 jute mills operating under BJMC as a part of a comprehensive jute sector reform program. This would reduce the public sector's share in the industry's total capacity from the present 64% to at most 20%.

[960] 3.93 Towards a More Competitive Private Banking System. The two decades of public-sector management of the banking industry has resulted in a colossal loss to the Bangladeshi tax payers. If account is taken of the amounts owed to the NCBs by the jute and textile sectors, the cost of capital injection in 1990 and the anticipated increase in capital in 1992, the NCB losses amount to about US$2 billion, equivalent to more than one year of the GOB's budget revenue.

[961] Ibid; The report goes on to note:

1.45 Loss of competitiveness vis-a-vis India, Pakistan and Indonesia has been due to exchange rate adjustments that were insufficient to offset inflation differentials. Inflation in Bangladesh averaged 8.8Z per annum between 1985 and 1992. This is higher than average inflation in Pakistan and Indonesia (7.7X for both co∂2ntries), but slightly below average inflation in India (9.42). Between 1985 and 1992, Indonesia, India and Pakistan depreciated their currencies versus the dollar by 54.42, 52.22 and 36.82, respectively. The Taka's rate of depreciation was much lower, 28.2Z, which explains Bangladesh's loss of competitiveness.
1.46 The comparison with India is particularly important. Bangladesh shares a long and porous border with its neighbor. Moreover, the two countries' exports of jute, leather goods and tea compete directly on world markets. The effect of Bangladesh's loss of competitiveness is being felt all across the economy. Illegal imports from India ranging from textiles to eggs are affecting local producers. The price differentials, caused by exchange rate adjustments favorable to India produce a high incentive to smuggling. Efforts at curbing informal trade through better policing at the border are very hard to make effective.

1.47 The effects of the loss of competitiveness vis-a-vis India are being particularly felt by jute exporters. The rupee's devaluation has permitted Indian producers of hessian to lower their dollar prices by 362 between January 1991 and June 1992. Bangladeshi prices fell by 15 during the same period. Thus, Bangladesh has lost the price advantage which it enjoyed during the 'eighties, and India has increased its share of the EEC market from 27Z to 40X, and of the USA market from 352 to 602, at the expense of Bangladesh.

[962] 1.61 GOB has taken the policy decisions necessary to achieve its privatization objective for FY93. Of the enterprises that were identified for privatization by the Ministry of industry, the Executive Committee of the National Economic Council (ECNEC) has cleared the privatization of 26 units. It has also cleared 9 textile mills for privatization, and a GOB decision to transfer its minority shares in jute mills has been taken. If those decisions are effectively implemented, significant progress towards privatization would be achieved in FY93.

[963] Ibid; Paragraph 3.51 Creating a Market-Friendly Environment. It must not be assumed that once privatized the enterprises will automatically be transformed from failure into success. Past experience, particularly in the jute industry, clearly demonstrates that unless the enabling policy environment is improved, the expected benefits of privatization would not materialize. If privatization is to succeed, it should be considered in the context of an overall private sector development program. Accordingly, it should be supported with reforms in industrial and financial policies, labor relations,

The demise of jute is widely and loudly lamented in Bangladesh. The closure of the Adamjee Jute Mills in 2002 was a moment of public mourning, leading one economist to ask, "Is it only the Adamjee that has gone into history or is it a trend of this economy to become a land of supermarkets destroying potential manufacturing enterprises?[964]" Assigning responsibility and blame for the demise of jute is an important aspect of political discourse in contemporary Bangladesh. Bangladeshis blame the demise of jute on different agencies and factors, depending primarily on their political and ideological leanings. For some, nationalization, state mismanagement and corruption are to blame for the demise of the fiber. According to others, the World Bank and agents of neo-imperialist capitalism perpetrated the death of Bangladesh's jute industry. When the Bank cancelled an infrastructure loan to Bangladesh on grounds of corruption, the Prime Minister launched a "blistering attack on the World Bank[965]," stating that "the country's jute industries … had been destroyed through accepting the global lender's prescriptions[966]."

5.10 Revival of the Private Sector-led Jute Industry

However, there are now more than eighty jute mills in the private sector[967]!
Over the last couple of years, Bangladesh's jute and jute goods exports have registered a substantial growth during the last couple of years. Such a fabulous growth was never witnessed in Bangladesh for decades. And its benefits have reached every segment of the industry, including the farmers. But latest reports suggest that the farmers are not getting fair price of their produces[968].

A sudden surge of interest in natural fibre in both developed and developing countries has helped usher a new era in the jute industry. Consumers - both individual and industrial -- are ditching synthetic fibres for natural ones such as jute. They are now more conscious about the harmful effect of synthetic fibres. Moreover, timely product diversification has also played a big role in helping jute reclaim some of its lost glories in the country.

There is no denying that revival of the jute sector is expected to help rejuvenate the rural economy -- directly and indirectly. Raw jute needs to be declared as an agricultural product and the export of raw jute, as agro-based industrial operation. From growers' level to export, there are various stages and it costs more money after purchase of loose jute. Because of different processing stages, value addition is indispensable. Hence it falls under semi-processing industry. The matters relating to jute sector should be properly looked into on a priority basis, for implementation of the required policy-support. This sector did not receive enough attention from all the past governments.

But happily the state-owned mills under Bangladesh Jute Mills Corporation (BJMC), which have otherwise earned some bad name for corruption and perennial losses, have reportedly reached a break-even point, heralding good times for the golden fibre. At least seven out of the 16 jute mills are now making profits, while

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exchange rate management, trade and tariff policies, investment incentives, input pricing and distribution, and regulatory and legal framework, as well as a stable macroeconomic framework. Creating a market-friendly environment is a pre-condition for reaping the efficiency gains from privatization. This has been demonstrated by the experience of countries such as Chile, Mexico, New Zealand and the United Kingdom vhere privatization was accompanied by reforms to open markets, remove price and exchange rate distortions, and encourage the development of the private sector through free entry. At the same time, enterprises which remain in the public sector must be subject to strict budgetary discipline and be allowed managerial autonomy from political interference.

[964] Ibid; Muhammad, Anu, "Closure of Adamjee Jute Mill: Ominous Sign," Economic and Political Weekly , 37(38), Sept. 21-27, 2002, p. 3896

[965] Which is not entirely ufounded. Since, in 1994, the-then BNP-led government signed Bangladesh Jute Sector Adjustment Credit agreement with the World Bank. The condition was to shut the jute mills in exchange of $247 million. But it got only $52 million of the promised loan amount.

[966] Ibid; "Padma Bridge with own funds," The Daily Star , July 9, 2012

[967] http://textilefashionstudy.com/jute-mills-in-bangladesh-government-and-private-sector/

[968] http://www.thefinancialexpress-bd.com/old/more.php?news_id=97113&date=2012-02-05; 'Injecting stimulus to revive the jute industry' by Shahiduzzaman Khan @ Financial Express

others have significantly brought down losses.

Once, raw jute and jute products were the biggest foreign-exchange earner of the country. Jute had then a flourishing international market of its own, spreading its superiority in the world market. But the situation is completely reverse now. With the closure of Adamjee and other jute mills, tragedy fell on the jute growers and traders as there were no buyers in the country, opening the flood gates for smuggling of raw jute to India. And the situation had miserably worsened when the largest jute producer in the region produced just only 0.1 million tonnes of jute per year, while India was producing annually over two million tonnes of raw jute. Such a situation continued for a long time[969].

However, some positive signals are coming from the government's side, as is evident from the latest moves by the Parliamentary Standing Committee on Jute and Textile Ministry. The committee asked the authorities to resume operations of the Second Unit of Adamjee Jute Mill soon. As for technology, Bangladesh industries are continuing mainly with outdated technology. This has resulted in low productivity and high material cost for production. It is time for Bangladesh to adopt a technological profile to meet the techno-economic need.

The Jute Commission had urged the government earlier to bring the jute under the agro-based industry with the provisions of fiscal support with other required facilities and initiate measures so that production of jute could be enhanced. The other suggestions of the commission include taking steps for exporting jute and jute goods and making a buffer stock of the golden fibre so that the prices of jute could remain stable in the local market.

In fact, the country had failed to tap huge potentials of environment-friendly jute and jute goods in the international market. When jute and jute goods are driving out plastic and synthetic products on environmental grounds, the country's jute industry was on the verge of ruin. But most interestingly, the jute industry in India was seen thriving on mainly the jute supplies from Bangladesh.

Jute was the largest foreign exchange earner for Pakistan during 1947-71. It played a major role in industrialisation. Even after the liberation of Bangladesh it remained the biggest foreign exchange earner until early '80s. Although Bangladesh enjoys advantages in production of jute and jute goods, the country is failing to reap the maximum benefit. Sensing the increasing demand, Indiangovernment in its jute policy approved in 2005 had fixed a target to increase the earning from jute sector. When Bangladesh government was privatising or shutting down jute mills, West Bengal government was seen taking up a gigantic project to set up new jute mills by investing Rs 100 billion. All these mills are reportedly running on profit.

The flawed policy of and non-cooperation by successive governments was mainly responsible for the dismal condition of the jute sector. The nationalisation of jute mills brought disaster to the sector. Most of the nationalised jute mills went out of production for lack of jute. According to an estimate, 30 per cent loss of the jute sector is caused by power shortage and another 30 per cent is attributed to interest charges. Jute sector itself is responsible only for another 30 per cent of the losses.

The wage of jute mill workers in India is almost double that of jute mill workers in Bangladesh. Bangladesh produces superior quality jute. India is also getting jute from Bangladesh in informal way at a high cost. Even then the jute industry in India is flourishing and the local jute industry is ailing. The country's jute industries are continuing mainly with outdated technology. This has resulted in low productivity and high material cost for production. In fact, it is time that Bangladesh adopts a technological profile to meet the techno-economic need.

As a by-product of jute, jute geo textile has immense potential both in domestic and international market as it possesses much more advantages than the synthetic fibres. It is now widely used in controlling soil erosion of roadside, riverbanks and hillsides. India is using jute geo textiles in the construction of national roads. This could also be used in road construction to a large extent in Bangladesh. It is biodegradable and will not spoil the nutrition of soil.

By any means, jute industry has to be modernised to improve efficiency in production and processing to reduce cost and enhance product quality. With the rise of inescapable competition facing the country's jute sector in the international field, there is a need to facilitate upgrading the skills of the workers, supervisors and managerial staff who are employed in the jute industry.

[969] Ibid

5.11 Bangladesh Economy Primer

5.11.1 Macroeconomic information

The economy of Bangladesh is a rapidly developing capitalist economy. Its per capita income in 2012 was estimated to be US$2,800 (adjusted by purchasing power parity). According to the International Monetary Fund, Bangladesh ranked as the 37th largest economy in the world in 2013 in PPP terms and 36th largest in nominal terms with a gross domestic product of US$419 billion in PPP terms and US$173.8 billion in nominal terms. The economy has grown at the rate of 6-7% per annum over the past two decades. The growth potential of the economy has led to Bangladesh's inclusion in the Next Eleven (N-11) of Goldman Sachs and the Global Growth Generators countries. More than half of the GDP is generated by the service sector; while nearly half of Bangladeshis are employed in the agriculture sector. Other goods produced are textiles, jute, fish, vegetables, fruit, leather and leather goods, ceramics, ready-made goods. Bangladesh is considered as the next Asian Tiger Economy.

Exports of textiles and garments are the largest source of foreign exchange earnings. Shipbuilding, pharmaceuticals and consumer goods manufacturing are important emerging industries, while the jute sector is re-emerging with increasing global demand for green fibres. Remittances from Bangladeshis working overseas, mainly in the Middle East, are another major source of foreign exchange earnings. Other important export sectors include fish and seafood, ceramics, cement, fertilizer, leather and leather goods, food products, software and IT services. Bangladesh has also made major strides in its human development index.

The land is devoted mainly to rice and jute cultivation as well as fruits and other produce, although wheat production has increased in recent years; the country is largely self-sufficient in rice production. The country's tea-growing regions, located in the eastern divisions of Sylhet and Chittagong, are among the major tea producing-areas of the world. Bangladesh's growth of its agricultural industries is due to its fertile deltaic land that depend on its six seasons and multiple harvests.

Transportation, communication, water distribution, and energy infrastructure are rapidly developing. Bangladesh is limited in its reserves of oil, but recently there has been huge development in gas and coal mining. The service sector has expanded rapidly during last two decades and the country's industrial base remains very positive. The country's main endowments include its vast human resource base, rich agricultural land, relatively abundant water, substantial reserves of natural gas and coal, major seaports at Chittagong and Mongla, and its central strategic location at the crossroads of the two large burgeoning economic hub groups of SAARC and ASEAN.

5.11.2 Main sectors in Bangladesh’s economy

5.11.2.1 Status of the production sector

Disbursement of agricultural credit and non-farm rural credit increased by 8.07 percent and 13.32 percent respectively during July-May, FY14 compared to same period of previous year.
Disbursement of SME loans by banks and non-bank financial institutions in March, 2014 increased by 19.95 percent compared with the same period of last year. However, disbursement of SME loans by foreign commercial banks decreased by 7.22 percent in March 2014 from its level of March, 2013.
Disbursement of industrial term loans during the third quarter of FY14 was lowered by 7.73 percent. However, recovery of industrial term loans increased by 13.56 percent during the same period of FY14.
The general index of industrial production (medium & large scale manufacturing) stood at 207.36 during July-Mar., 2013 recording an increase of 8.02 percent from the index of 191.97 during the same period of the preceding year.

Table 1.2 Sectoral GDP growth rates

(at FY96 constant prices)

	FY94-03 (Average)	FY04-13 (Average)	FY12[R]	FY13[P]
1. Agriculture	**3.1**	**3.9**	**3.1**	**2.2**
a) Agriculture and forestry	2.5	3.7	2.5	1.2
i) Crops and horticulture	2.2	3.4	2.0	0.2
ii) Animal farming	3.0	4.4	3.4	3.5
iii) Forest and related services	4.1	4.9	4.4	4.5
b) Fishing	5.8	4.3	5.4	5.5
2. Industry	**7.2**	**8.0**	**8.9**	**9.0**
a) Mining and quarrying	6.4	8.5	7.8	11.1
b) Manufacturing	6.6	8.4	9.4	9.3
i) Large and medium scale	6.5	8.8	10.5	10.3
ii) Small scale	6.7	7.5	6.5	6.8
c) Power, gas and water supply	5.7	7.5	12.0	8.6
d) Construction	8.8	7.1	7.6	8.1
3. Services	**5.0**	**6.3**	**6.0**	**5.7**
a) Wholesale and retail trade	6.3	6.4	5.6	4.7
b) Hotel and restaurants	6.1	7.5	7.6	7.6
c) Transport, storage and communication	5.9	7.3	6.6	6.7
d) Financial intermediations	5.5	9.3	11.0	9.0
e) Real estate, renting and other business activities	3.6	3.8	4.1	4.1
f) Public administration and defence	5.4	7.4	5.8	5.1
g) Education	6.4	8.5	7.2	9.7
h) Health and social works	4.4	7.5	7.9	7.5
i) Community, social and personal services	3.0	4.5	4.8	4.9
GDP (at FY96 constant market prices)	**5.0**	**6.2**	**6.2**	**6.0**

Source: Bangladesh Bureau of Statistics.
R= Revised, P= Provisional.

Figure 73: Bangladesh Economic Movement at a Glance[970]

5.11.2.2 Macro-economic trend

According to the International Monetary Fund, Bangladesh was ranked as the 48th largest economy in the world in 2009, with a Gross Domestic Product (GDP) of US$256 billion. The economy has grown at a constant average of 6-7% per annum over the past few years. However, there really is no secret to the self-sufficiency of Bangladesh from Foreign Aid. Foreign Aid dependence, primarily, was a result of economic setbacks suffered by the nation due to a series of both man-made disasters and the recurrence of natural calamities of rather immeasurable magnitude for much of the nineteenth century.

5.11.2.3 Per-capita income Trends

[970] Source: BBS

(at current market prices: billion Taka)

Particulars	FY10	FY11	FY12[R]	FY13[P]
Domestic demand (1+2)	7242.8	8434.0	9849.8	11167.6
Consumption (1)	5547.7	6430.2	7412.9	8381.5
Private	5175.0	5969.4	6900.0	7812.2
Government	372.7	460.9	512.9	569.3
Investment (2)	1695.1	2003.8	2436.9	2786.1
Private	1346.9	1554.4	1840.4	1971.3
Public	348.2	449.3	596.6	814.9
Resource balance (3-4)	-458.9	-693.9	-821.8	-845.7
Exports (3)	1278.0	1824.5	2127.5	2371.1
Imports (4)	1736.9	2518.4	2949.2	3216.7
Gross domestic expenditure	6783.9	7740.1	9028.0	10321.9
Gross domestic product	6943.2	7967.0	9181.4	10379.9
Statistical discrepancy	159.4	226.9	153.4	58.0

Source: Bangladesh Bureau of Statistics
P= Provisional.
R= Revised

Figure 74: Per Capita GDP Movement[971]

5.11.3 Industry

Jute, tea, textile, garments, paper, newsprint, fertiliser, leather and leather goods, cement, sugar, fish processing, pharmaceuticals and chemicals.

Quantum Index of Medium and Large-Scale Manufacturing Industry (Base: 2005-06=100)

Major Industry Group	Weight	Index		Average Index			Growth	
		Mar-13	Mar-14	2012-13	Jul-Mar 2012-13	Jul-Mar 2013-14	Mar-14	Jul-Mar 2013-14
General	**100.00%**	**197.01**	**206.68**	**195.19**	**191.97**	**207.36**	**4.91%**	**8.02%**
Wearing apparel	34.84%	270.92	275.41	265.83	259.93	288.58	1.66%	11.02%
Textile	14.07%	138.53	151.89	142.41	139.97	139.00	9.64%	-0.69%
Food products	10.84%	208.55	228.17	219.10	215.73	236.36	9.41%	9.57%
Pharmaceuticals and medicinal chemical	8.23%	183.76	207.41	178.79	175.95	195.67	12.87%	11.21%
Non-metalic mineral products	7.12%	142.21	143.41	139.51	138.76	142.09	0.84%	2.40%
Leather and related products	4.40%	153.94	163.02	139.76	137.02	145.62	5.90%	6.28%
Chemicals and chemical products	3.67%	92.86	90.75	84.62	86.89	83.68	-2.27%	-3.69%
Basic metals	3.15%	137.52	154.11	136.41	136.45	149.75	12.06%	9.75%
Tobacco products	2.92%	158.77	152.05	144.66	143.52	148.96	-4.23%	3.79%
Fabricated metal products except machinery	2.32%	140.68	166.86	149.03	148.91	159.46	18.61%	7.08%
Others*	8.44%	152.37	162.06	152.93	151.73	156.12	6.36%	2.90%

Source: Bangladesh Bureau of Statistics,

Figure 75: Quantum Index of Medium and Large-Scale Manufacturing Industry
[972]

Many new jobs - mostly for women - have been created by the country's dynamic private ready-made garment industry, which grew at double-digit rates through most of the 1990s. By the late 1990s, about 1.5 million people, mostly women, were employed in the garments sector as well as Leather products specially Footwear (Shoe manufacturing unit). During 2001-2002, export earnings from ready-made garments reached $3,125 million, representing 52% of Bangladesh's total exports. Bangladesh has overtaken India in apparel exports in 2009, its exports stood at 2.66 billion US dollar, ahead of India's 2.27 billion US dollar and in 2014 the export rose to $3.12 billion every month.

[971] Source: BBS

[972] Bangladesh Bank, Monthly issue, July 2014

Eastern Bengal was known for its fine muslin and silk fabric before the British period. The dyes, yarn, and cloth were the envy of much of the premodern world. Bengali muslin, silk, and brocade were worn by the aristocracy of Asia and Europe. The introduction of machine-made textiles from England in the late eighteenth century spelled doom for the costly and time-consuming hand loom process. Cotton growing died out in East Bengal, and the textile industry became dependent on imported yarn. Those who had earned their living in the textile industry were forced to rely more completely on farming. Only the smallest vestiges of a once-thriving cottage industry survived.

Other industries, which have shown very strong growth include the pharmaceutical industry, shipbuilding industry, information technology, leather industry, steel industry, electronics industry and light engineering industry.

Bangladesh's textile industry, which includes knitwear and ready-made garments along with specialized textile products, is the nation's number one export earner, accounting for $21.5 billion in 2013 – 80% of Bangladesh's total exports of $27 billion. Bangladesh is 2nd in world textile exports, behind China, which exported $120.1 billion worth of textiles in 2009. The industry employs nearly 3.5 million workers. Current exports have doubled since 2004. Wages in Bangladesh's textile industry were the lowest in the world as of 2010. The country was considered the most formidable rival to China where wages were rapidly rising and currency was appreciating. As of 2012 wages remained low for the 3 million people employed in the industry, but labor unrest was increasing despite vigorous government action to enforce labor peace. Owners of textile firms and their political allies were a powerful political influence in Bangladesh.

The urban garment industry has created more than one million formal sector jobs for women, contributing to the high female labor participation in Bangladesh. While it can be argued that women working in the garment industry are subjected to unsafe labor conditions and low wages, Dina M. Siddiqi argues that even though conditions in Bangladesh garment factories "are by no means ideal," they still give women in Bangladesh the opportunity to earn their own wages. As evidence she points to the fear created by the passage of the 1993 Harkins Bill (Child Labor Deterrence Bill), which caused factory owners to dismiss "an estimated 50,000 children, many of whom helped support their families, forcing them into a completely unregulated informal sector, in lower-paying and much less secure occupations such as brick-breaking, domestic service and rickshaw pulling." Even though the working conditions in garment factories are not ideal, they tend to financially be more reliable than other occupations and, "enhance women's economic capabilities to spend, save and invest their incomes." Both married and unmarried women send money back to their families as remittances, but these earned wages have more than just economic benefits. Many women in the garment industry are marrying later, have lower fertility rates, and attain higher levels of education, then women employed elsewhere.

After massive labor unrest in 2006 the government formed a Minimum Wage Board including business and worker representatives which in 2006 set a minimum wage equivalent to 1,662.50 taka, $24 a month, up from Tk950. In 2010, following widespread labor protests involving 100,000 workers in June, 2010, a controversial proposal was being considered by the Board which would raise the monthly minimum to the equivalent of $50 a month, still far below worker demands of 5,000 taka, $72, for entry level wages, but unacceptably high according to textile manufacturers who are asking for a wage below $30. On July 28, 2010 it was announced that the minimum entry level wage would be increased to 3,000 taka, about $43.

The government also seems to believe some change is necessary. On September 21, 2006 then ex-Prime Minister Khaleda Zia called on textile firms to ensure the safety of workers by complying with international labor law at a speech inaugurating the Bangladesh Apparel & Textile Exposition (BATEXPO).

5.11.4 Mineral resources

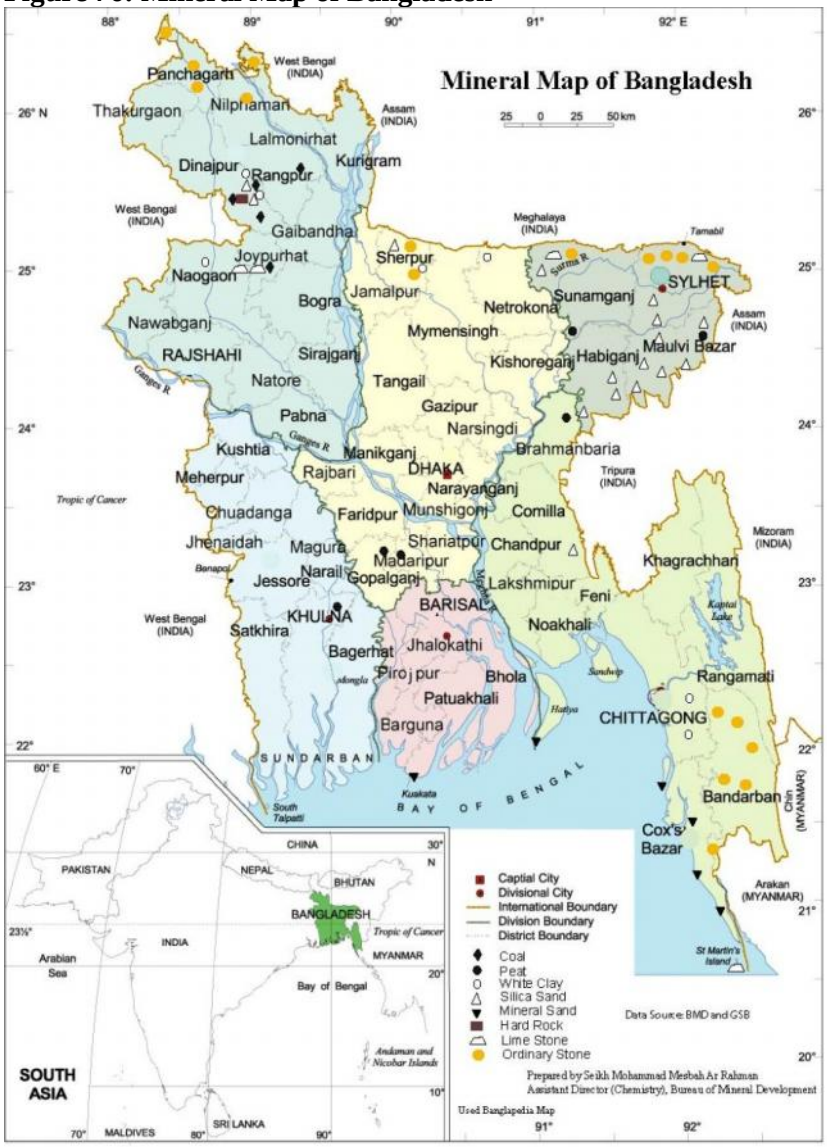
Natural gas, coal, peat, limestone, hardrock, beach sand heavy mineral (zircon, rutile, Ilmenite, Garnet, Magnetite, Monazite, Leucoxene, Kyanite), glass sand, white clay, brick clay and metallic minerals. Mineral deposits of Bangladesh discovered by GSB are as follows[973]:

Name of the Mineral	Place	Estimated Reserve (Probable) (million	District	Remarks

[973] *Reserve are in million tones except that of gravel which is in million cubic metre. **Reserves have not yet been estimated.

		ton)		
Coal	#Jamalganj #Barapukuria #Khalashpir Dighipara	1053 300* 143 150	Joypurhat Dinajpur Rangpur Dinajpur	#Development of Barapukuria Coal field is going on. Discovered in July/, 1995.
Peat	Baggie Chanda Kolamouza Chatalbil Paula, Sunamganj Moulavibazar	150 8 6.21 3.50 3.00	Gopalganj Khulna Sunamganj	Instead of fuel wood may be used as fuel.
Limestone	Jaypurhat Bagalibazar #Takerghat Lalghat Naogaon	100 17 12.9 12.9 --	Jaypurhat Sunamganj Sunamganj Sunamganj Naogaon	#612371 tons of limestone from Takerghat have been exploited During 1972-93
White clay	Barapukuria #Bijoypur Maddyapara Dighipara Patnitala	25 25 ** **	Dinajpur Netrakona Dinajpur Dinajpur Naogaon	#109541 tons of whit clay from Bijoypur have Been exploited during 1972-93
Glass sand	Barapukuria Maddyapara Bhatera Shahajibzar & Bahubal #Chaddagram Baljiuri Dighipara	90 17.25 8 .30 .17 **	Dinajpur Dinajpur Moulvibazar Habiganj Comilla Sherpur Dinajpur	#94773 tons of glass sand have been exploited during 1975-93.
Hard rock	Maddyapara	115 (Exploited)	Dinajpur	Mine development activities is going on.
Gravel deposit	Bholaganj Tetulia Patgram Chittagong Hill Tract	4 2.5 2.5 1.00	Sunamgaj Pachagarh Lalmonirhat Chittagong	Gravel deposits are being exploited from different places of the country.
Mineral sand	Sea beach of Cox's Bazar, Moheshkali, Kutubdia and Kuakatha.	--		

Figure 76: Mineral Map of Bangladesh



5.11.5 Trade Agreements of Bangladesh

Bangladesh is a party to a number of regional trade agreements namely South Asian Free Trade Area (SAFTA), Asia Pacific Trade Agreement (APTA), Framework Agreement on Bay of Bengal Initiatives for Multi-Sectoral Technical and Economic Cooperation- BIMSTEC FTA, Trade Preferential System among the OIC countries (TPS-OIC) and Developing-8 (D-8) Preferential Trading Arrangement.

The Government of Bangladesh has adopted the strategic plan namely "Perspective Plan of Bangladesh (2010-2021): Making Vision 2021 A reality" to set out the socio-economic targets and to transform Bangladesh into a middle income country by 2021. As an important component of country's economy, trade has been given special emphasis in the plan[974].

The Government has already adopted the Sixth Five Year Plan (2011-2015) to achieve the targets set by the perspective plan. The Government has also undertaken an initiative to formulate a comprehensive trade policy covering all the aspects of trade related issues. The overall objective of the comprehensive trade policy is accelerated and sustainable growth of trade by adopting an integrated approach to achieve economic development that commensurate with the vision of becoming middle income country by 2021[975].

[974] Trade Review Policy report by Bangladesh, Trade Policy Review Body, WTO, WT/TPR/G/270, 10 September 2012.

[975] Fakrul Ahsan, Sixth Five Year Plan (2011-15) as the tool of accelerating growth and reducing poverty, Bangladesh Planning Commission. Available at http://napd.ac.bd/6thplan.pdf

Bangladesh has outlined a vision of becoming a middle-income country by 2021. This would require it to grow by at least 8% per year, compared to the current 6%-7%, driven by accelerated growth in the industrial and services sectors, diversification of export markets and higher foreign exchange earnings from the export of semi-skilled and skilled labour. Bangladesh needs to improve the investment climate and continue to carry out trade-related reforms to increase domestic and foreign investment for more rapid and inclusive trade-enhancing growth. The Government needs to focus its trade reform efforts on reducing trade distortions, minimizing anti-export bias through further tariff reforms and ensuring greater integration into the multilateral trading system. Low tax collections remain a major constraint since they affect the Government's capacity to increase public investment in energy and other infrastructure sectors.[976]

1. *Asia Pacific Trade Agreement (APTA)*
It is a preferential trade agreement signed in 1975 and formerly known as Bangkok Agreement. It was an initiative of the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) with China, Bangladesh, India, Lao People's democratic Republic, Republic of Korea and Sri Lanka as its signatory[977]. Third round of trade negotiations under this preferential trading bloc was completed in 2006. At present, the fourth round of negotiations is underway and it involves tariff concessions of trade in goods, trade in services, investment, trade facilitation, and non-tariff measures, etc[978].

2. *BIMSTEC Trade Negotiating Committee (TNC) meeting*
In order to stimulate trade and investments in the parties sub-regional group was formed on 6 June 1997 and named as the BIST-EC (Bangladesh, India, Sri Lanka, and Thailand Economic Cooperation[979]. Agreement on FTA was concluded in February 2004. Except Bangladesh all member countries i.e, India, Myanmar, Sri Lanka, Thailand, Nepal and Bhutan became the signatories of the framework Agreement in the 6th Ministerial meeting and Bangladesh joined later in June 2004[980]. The 7-nation group had identified 14 areas of cooperation, each led by a member. The areas are Trade-Investment and Climate (Bangladesh); Transport, Tourism, Counter-Terrorism and Environment (India); Energy and Agriculture (Myanmar); Technology (Sri Lanka); Fisheries, Public Health, People to People contact (Thailand); Poverty Alleviation (Nepal); and Culture (Bhutan). The seven-country forum aims to achieve its own free trade area by 2017.

3.*SAARC Preferential Trading Arrangement (SAPTA)*
In December 1991, the Sixth Summit held in Colombo approved the establishment of an Inter-Governmental Group (IGG) to formulate an agreement to establish a SAARC Preferential Trading Arrangement (SAPTA) by 1997. Given the consensus within SAARC, the Agreement on SAPTA was signed on 11 April 1993 and entered into force on 7 December 1995 well in advance of the date stipulated by the Colombo Summit. The Agreement reflected the desire of the Member States to promote and sustain mutual trade and economic cooperation within the SAARC region through the exchange of concessions.
Main objectives are:
1. Gradual liberalization of trade among the SAARC members.
2. Elimination of trade barriers among the SAARC nations. Especially, Tariff reduction.
3. Promoting and sustaining trade and economic cooperation among the member nations of SAARC.
At the end of the fourth round, a total of 6243 tariff line concessions were exchanged, of which 3942 were exclusively for the four LDCs – Bangladesh, Bhutan, Maldives and Nepal, as against 2301 for non-LDC members. The LDCs thus received relatively more favourable treatment in the exchange of tariff concessions. [981]

4. *The Agreement on South Asian Free Trade Area (SAFTA)*
The South Asian Free Trade Area (SAFTA) is an agreement reached on 6 January 2004 at the 12th SAARCH Summit in Islamabad, Pakistan. Bangladesh, Nepal, Pakistan Sri Lanka, Maldives, India, Afghanistan and

[976] See more at: http://www.intracen.org/BB-2012-10-18-WTO-Trade-Policy-Review-Bangladesh/#sthash.Ge57aMZj.dpuf
[977] Official website of Ministry of Commerce, Bangladesh, available at http://www.mincom.gov.bd/reg_bil_trade.php. Last accessed on 20 July 2014.
[978] China FTA Network, available at http://fta.mofcom.gov.cn/topic/enpacific.shtml. Last accessed on 20 July 2014.
[979] When Nepal formally Joined In the first Summit held on 31 July 2004, leaders of the group agreed that the name of the grouping should remain the same as BIMSTEC, but with different full form: Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation.
[980] Official Website of BIMSTEC, available at http://www.bimstec.org/index.php?page=free-trade-agreement. Last accessed on 20 July 2014.
[981] Official website of Ministry of Commerce, Bangladesh, available at http://www.mincom.gov.bd/reg_bil_trade.php. Last accessed on 20 July 2014.

Bhutan are its member countries. SAFTA Agreement came into force on 1st January 2006 with a purpose to encourage and elevate common contract among the countries such as medium and long term contracts. It created a free trade area between all the then member countries. It involves agreement on tariff concession like national duties and non- tariff concession.

5. *SAARC Framework Agreement on Trade in Services (SAFAS)*
With an aim to expand cooperation in trade and further deepen the integration of the regional economies, the SAARC Agreement on Trade in Services was signed at the Sixteenth SAARC Summit held in Thimphu in April 2010. The Agreement entered into force on 29 November 2012 after ratification by all SAARC Member States[982].
The Thirteenth Meeting of the Committee on Economic Cooperation (Dhaka, 24-25 November 2007) directed that the Heads of SAARC Statistical Organisations (SAARCSTAT) may focus on capacity building for collection of statistics on trade in Services in the Region.

6. *Bilateral FTA with India, Pakistan and Sri Lanka*
An inter-ministerial meeting was held to firm up Bangladesh's position regarding bilateral FTA with India, Pakistan and Sri Lanka under the chairmanship of honourable Commerce adviser in August 2008. Along with other decisions, it was decided that a Core group will be formed headed by CEO of BFTI Dr. Mohammad Ali Taslim with representatives from different relevant stakeholders. The committee has already submitted its report to Secretary, MoC recently.[983]

7. *Standing Committee for Economic and Trade Cooperation (COMCEC)*
The Standing Committee for Economic and Commercial Cooperation of the Organization of the Islamic Cooperation (COMCEC) is the main multilateral economic and commercial cooperation platform of the Islamic world. COMCEC serves as a central Forum to address the common development problems of the Islamic Ummah and provide solutions to them[984]. Bangladesh along with fifty seven (57) countries is the members of Organization of the Islamic Coperation. COMCEC was established to expand intra-OIC trade. In this direction, Framework Agreement on Trade Preferential System among the OIC Member Countries (TPS-OIC) was finalized in 1990. Bangladesh signed the Agreement in 1997 and ratified it in 2004[985].

8. *Trade Preferential System Among the OIC Members (TPS-OIC)*
The Framework Agreement on TPS/OIC was endorsed by the sixth session of the COMCEC, which submitted it to the OIC General Secretariat and subsequently it came into force in October 2003.

9. *Preferential Trade Agreement (PTA) among D-8 Countries (D-8)*
D-8, also known as Developing-8, is an organization for development cooperation among the following countries: Bangladesh, Egypt, Indonesia, Iran, Malaysia, Nigeria, Pakistan and Turkey. The establishment of D-8 was announced officially through the Istanbul Declaration of Summit of Heads of State/Government on June 15, 1997[986].

10. *United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP)*
The United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) is the regional development arm of the United Nations for the Asia-Pacific region. Made up of 53 Member States and 9 Associate Members, covering two thirds of the world's population. This makes ESCAP the most comprehensive of the United Nations five regional commissions, and the largest United Nations body serving the Asia-Pacific region.[987] Bangladesh became its member on 17 April 1973 and is categorized under the "Least Developed Country"[988].

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[982] Official website of SAARC. Available at http://saarc-sec.org/areaofcooperation/detail.php?activity_id=46. Last accessed on 25 July 2014.
[983] Official website of Ministry of Commerce, Bangladesh, available at http://www.mincom.gov.bd/reg_bil_trade.php. Last accessed on 21 July 2014.
[984] Available at http://www.comcec.org/EN_YE/icerik.aspx?iid=111. Last accessed on 21 July 2014.
[985] Official website of Ministry of Commerce, Bangladesh, available at http://www.mincom.gov.bd/reg_bil_trade.php. Last accessed on 21 July 2014.
[986] http://www.developing8.org/About.aspx
[987] Official website of UNESCAP. Available at http://www.unescap.org/about. Last accessed on 25 July 2014.
[988] Official website of UNESCAP. Available at http://www.unescap.org/about/member-states. Last accessed on 25 July 2014.

Bangladesh would benefit from capacity building services in the development areas of UNESCAP, such as, Poverty Reduction, Environment and sustainable development and Information and Communication[989].

11. *Canadian International Development Agency (CIDA)*
Ministry of Commerce signed a protocol with CIDA titled "MOC-CIDA Trade Related Technical Assistance" in 2004[990]. Under this agreement CIDA provides equipment, website for the ministry. CIDA also provided training to the officials of MOC on trade negotiation and trade related issues.

12. *European Commission (EC)*
The EU works closely with Bangladesh in the framework of the EU-Bangladesh Co-operation Agreement, concluded in 2001. This agreement provides broad scope for co-operation, extending to trade and economic development, human rights, good governance and the environment.
Bangladesh has been a WTO member since 1995 and benefits from the EU's "Everything but Arms" arrangement, which grants duty free, quota free access for all exports, except arms and ammunition[991].
Commercial Cooperation Agreement between EC and Bangladesh was signed on May, 2000 and Bangladesh - EC Joint Commission (JEC) was formed under article 12 of the agreement. Bangladesh has excellent bilateral trade relationship with EU member countries. Our total export to EU countries is increasing significantly over the year[992].
Key Points[993]:

- The EU is Bangladesh's main trading partner, accounting for around 12% of Bangladesh's total trade.
- In 2012, Bangladesh was the EU's 35th largest trading partner in goods.
- EU imports from Bangladesh are dominated by clothing, accounting for around 90% of the EU's total imports from Bangladesh.
- EU exports to Bangladesh are dominated by machinery and transport equipment.
- From 2008 to 2012 EU28 imports from Bangladesh increased from €5,464 million to €9,212 million (+69%), which is more than half of Bangladesh's total exports.

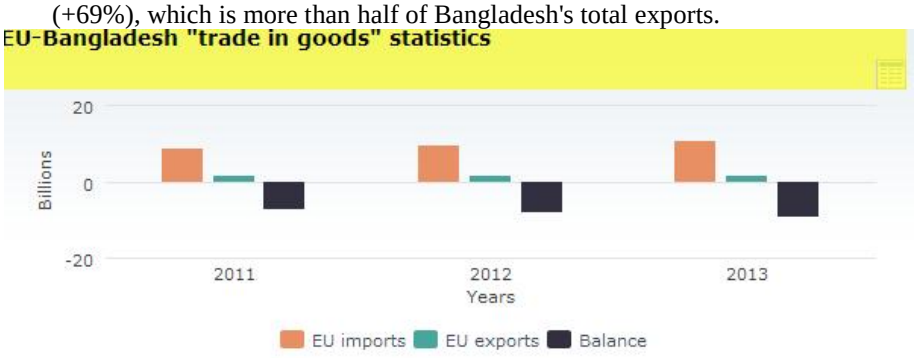

Figure 77: EU-Bangladesh Trade in Goods[994]

As a Least Developed Country (LDC), Bangladesh benefits from the most favourable regime available under the EU's Generalized Scheme of Preferences (GSP), namely the Everything But Arms (EBA) arrangement. EBA grants the 48 Least Developed Countries – including Bangladesh – duty free quota, free access to the EU for exports of all products, except arms and ammunition[995].

5.11.6 Financial System

[989] Official website of Ministry of Commerce, Bangladesh, available at http://www.mincom.gov.bd/reg_bil_trade.php. Last accessed on 25 July 2014.
[990] Official website of Ministry of Commerce, Bangladesh, available at http://www.mincom.gov.bd/reg_bil_trade.php. Last accessed on 21 July 2014.
[991] http://ec.europa.eu/trade/policy/countries-and-regions/countries/bangladesh/
[992] http://www.mincom.gov.bd/reg_bil_trade.php
[993] Taken from http://ec.europa.eu/trade/policy/countries-and-regions/countries/bangladesh/. Last accessed on 25 July 2014.
[994] *Courtesy:* European Commission Website

[995] Available at http://ec.europa.eu/trade/policy/countries-and-regions/countries/bangladesh/. Last accessed on 25 July 25, 2014.

One central bank (Bangladesh Bank), 48 commercial banks (4 nationalised commercial banks or NCBs), 31 private domestic banks and 13 foreign banks), 5 state-owned specialised banks, also known as development finance institutions (DFIs), 23 non-bank financial institutions, 27 merchant bankers, 556 money changers, the Investment Corporation of Bangladesh (ICB), 2 stock exchanges (the Dhaka stock exchange and Chittagong stock exchange), 2 state-owned and 39 private sector insurance companies, about 10 leasing companies, Post Office Savings Bank and the Postal Life Insurance schemes. There are 145,000 co-operatives. Bangladesh Samabaya Bank Ltd is the apex institution of the co-operative sector. There are over 1,200 non-governmental and non-profit micro finance institutions.

The financial system of Bangladesh is comprised of three broad fragmented sectors:

(i) Formal Sector,
(ii) Semi-Formal Sector,
(iii) Informal Sector.

The sectors have been categorized in accordance with their degree of regulation. The formal sector includes all regulated institutions like Banks, Non-Bank Financial Institutions (FIs), Insurance Companies, Capital Market Intermediaries like Brokerage Houses, Merchant Banks etc.; Micro Finance Institutions (MFIs).

The semi formal sector includes those institutions which are regulated otherwise but do not fall under the jurisdiction of Central Bank, Insurance Authority, Securities and Exchange Commission or any other enacted financial regulator. This sector is mainly represented by Specialized Financial Institutions like House Building Finance Corporation (HBFC), Palli Karma Sahayak Foundation (PKSF), Samabay Bank, Grameen Bank etc., Non Governmental Organizations (NGOs and discrete government programs.

The informal sector includes private intermediaries which are completely unregulated.

5.11.6.1 Currency Regulations and Restrictions

(In million US$)

A. Outstanding stock at the end of the year	2010-11	2011-12	2012-13
	10911.55 (+1.51)	10364.43 (-5.01)	15315.23 (+47.77)
B. Outstanding stock at the end of the month	Month / Year	2013-14	2012-13
	July	15533.70	10569.76
	August	16252.27	11434.90
	September	16154.76	11252.06
	October	17345.70	12339.49
	November	17105.88	11753.96
	December	18074.57	12750.58
	January	18119.11	13076.47
	February	19150.53	13848.33
	March	19294.87	13971.14
	April	20370.14	14829.11
	May	20267.46	14531.42
	June	21507.99	15315.16

Source : Accounts & Budgeting Department, Bangladesh Bank.
Note :- Figures in brackets indicate percentage changes over the corresponding period of the previous year.

Figure 78: Foreign Exchange Reserve Situation Screen Shots

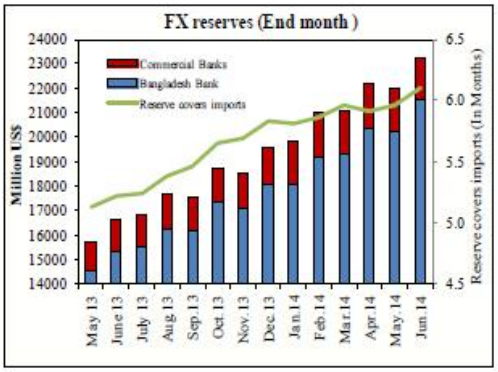

Figure 79: Foeign Exchange Reserve Screen Shots (Continued)[996]

[996] Source: Bangladesh Bank

15. Exchange Rate Movements [2]:

Month	2012-13 (Taka per USD)		2013-14 (Taka per USD)		2012-13 (Rupee per USD)	2013-14 (Rupee per USD)
	Month Avg.	Month End	Month Avg.	Month End	Month End	Month End
July	81.7715	81.6049	77.7570	77.7500	55.4428	59.8280
August	81.5160	81.7199	77.7537	77.7500	55.6653	68.3611
September	81.7286	81.5900	77.7502	77.7505	53.5340	61.8110
October	81.3123	81.2005	77.7506	77.7500	54.1650	61.4871
November	81.4540	81.3811	77.7509	77.7540	55.7045	62.3625
December	80.5349	79.7521	77.7510	77.7500	54.9635	62.0028
January	79.5484	79.2000	77.7505	77.7500	53.5678	62.2005
February	79.0110	78.8500	77.7502	77.7311	53.8350	61.9380
March	78.5819	78.1500	77.7113	77.6700	54.2735	60.0998
April	78.0301	77.9332	77.6633	77.6500	54.2770	60.5253
May	77.8425	77.7504	77.6414	77.6300	56.2430	59.0770
June	77.7550	77.7593	77.6301	77.6300	59.8538	60.0958

Source : Statistics Department & MPD. Note: 2/ Exchange rate represents the mid-value of buying and selling rates.

Figure 80: Recent Exchange Rate Movement Screenshots[997]

5.11.6.2 Banking System

The financial market in Bangladesh is mainly of following types:
Money Market: The primary money market is comprised of banks, FIs and primary dealers as intermediaries and savings & lending instruments, treasury bills as instruments. There are currently 15 primary dealers (12 banks and 3 FIs) in Bangladesh. The only active secondary market is overnight call money market which is participated by the scheduled banks and FIs. The money market in Bangladesh is regulated by Bangladesh Bank (BB), the Central Bank of Bangladesh.
Bangladesh Banking Sector Performance

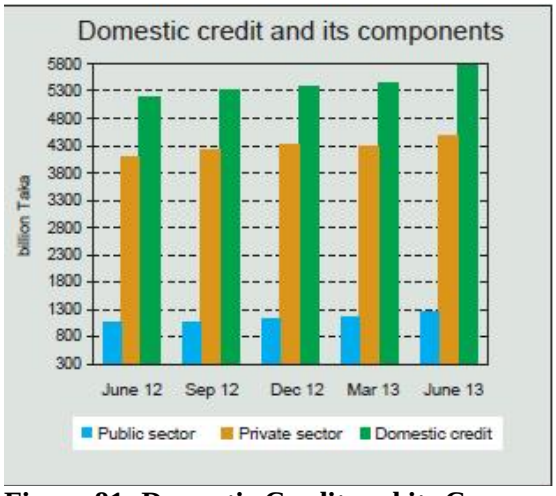

Figure 81: Domestic Credit and its Components

[997] Source: Bangladesh Bank

Table 4.4 Bank credit*-FY13 quarterly positions

(billion Taka)

Outstanding as of	Advances	Bills	Total
30 June 12	3878.05	238.52	4116.57
	(94.20)	(5.79)	
30 Sep 12	4020.29	217.44	4237.73
	(94.87)	(5.13)	
31 Dec 12	4161.80	224.36	4386.16
	(94.88)	(5.12)	
31 Mar 13	4191.17	222.46	4413.63
	(94.96)	(5.04)	
30 June 13	4283.15	199.0	4482.15
	(95.56)	(4.44)	

Figure in parentheses indicate percentage shares.
* Excluding foreign bills and inter bank credit.

Figure 82: Bank-Credit Positions[998]

Capital market: The primary segment of capital market is operated through private and public offering of equity and bond instruments. The secondary segment of capital market is institutionalized by two (02) stock exchanges-Dhaka Stock Exchange and Chittagong Stock Exchange. The instruments in these exchanges are equity securities (shares), debentures, corporate bonds and treasury bonds. The capital market in Bangladesh is governed by Securities and Commission (SEC).

Foreign Exchange Market: Towards liberalization of foreign exchange transactions, a number of measures were adopted since 1990s. Bangladeshi currency, the taka, was declared convertible on current account transactions (as on 24 March 1994), in terms of Article VIII of IMF Article of Agreement (1994). As Taka is not convertible in capital account, resident owned capital is not freely transferable abroad. Repatriation of profits or disinvestment proceeds on non-resident FDI and portfolio investment inflows are permitted freely. Direct investments of non-residents in the industrial sector and portfolio investments of non-residents through stock exchanges are repatriable abroad, as also are capital gains and profits/dividends thereon. Investment abroad of resident-owned capital is subject to prior Bangladesh Bank approval, which is allowed only sparingly. Bangladesh adopted Floating Exchange Rate regime since 31 May 2003. Under the regime, BB does not interfere in the determination of exchange rate, but operates the monetary policy prudently for minimizing extreme swings in exchange rate to avoid adverse repercussion on the domestic economy. The exchange rate is being determined in the market on the basis of market demand and supply forces of the respective currencies. In the forex market banks are free to buy and sale foreign currency in the spot and also in the forward markets. However, to avoid any unusual volatility in the exchange rate, Bangladesh Bank, the regulator of foreign exchange market remains vigilant over the developments in the foreign exchange market and intervenes by buying and selling foreign currencies whenever it deems necessary to maintain stability in the foreign exchange market.

5.11.6.3 Banks

After the independence, banking industry in Bangladesh started its journey with 6 Nationalized commercialized banks, 2 State owned Specialized banks and 3 Foreign Banks. In the 1980's banking industry achieved significant expansion with the entrance of private banks. Now, banks in Bangladesh are primarily of two types:

Scheduled Banks: The banks which get license to operate under Bank Company Act, 1991 (Amended in 2003) are termed as Scheduled Banks.
Non-Scheduled Banks: The banks which are established for special and definite objective and operate under the acts that are enacted for meeting up those objectives, are termed as Non-Scheduled Banks. These banks cannot perform all functions of scheduled banks.
There are 56 scheduled banks in Bangladesh who operate under full control and supervision of Bangladesh Bank which is empowered to do so through Bangladesh Bank Order, 1972 and Bank Company Act, 1991. Scheduled Banks are classified into following types:

[998] Source: Bangladesh Bank

State Owned Commercial Banks (SOCBs): There are 4 SOCBs which are fully or majorly owned by the Government of Bangladesh.

Specialized Banks (SDBs): 4 specialized banks are now operating which were established for specific objectives like agricultural or industrial development. These banks are also fully or majorly owned by the Government of Bangladesh.
Private Commercial Banks (PCBs): There are 39 private commercial banks which are majorly owned by the private entities. PCBs can be categorized into two groups:
Conventional PCBs: 31 conventional PCBs are now operating in the industry. They perform the banking functions in conventional fashion i.e interest based operations.
Islami Shariah based PCBs: There are 8 Islami Shariah based PCBs in Bangladesh and they execute banking activities according to Islami Shariah based principles i.e. Profit-Loss Sharing (PLS) mode.
Foreign Commercial Banks (FCBs): 9 FCBs are operating in Bangladesh as the branches of the banks which are incorporated in abroad.
There are now 4 non-scheduled banks in Bangladesh which are:

Ansar VDP Unnayan Bank,
Karmashangosthan Bank,
Probashi Kollyan Bank,
Jubilee Bank

FIs:
Non Bank Financial Institutions (FIs) are those types of financial institutions which are regulated under Financial Institution Act, 1993 and controlled by Bangladesh Bank. Now, 31 FIs are operating in Bangladesh while the maiden one was established in 1981. Out of the total, 2 is fully government owned, 1 is the subsidiary of a SOCB, 13 were initiated by private domestic initiative and 15 were initiated by joint venture initiative. Major sources of funds of FIs are Term Deposit (at least six months tenure), Credit Facility from Banks and other FIs, Call Money as well as Bond and Securitization.

The major difference between banks and FIs are as follows:

FIs cannot issue cheques, pay-orders or demand drafts.
FIs cannot receive demand deposits,
FIs cannot be involved in foreign exchange financing,
FIs can conduct their business operations with diversified financing modes like syndicated financing, bridge financing, lease financing, securitization instruments, private placement of equity etc.
FIs can conduct their business operations with diversified financing modes like syndicated financing, bridge financing, lease financing, securitization instruments, private placement of equity etc.

Table 5.3 NPL ratios by type of banks

(percent)

Bank types	2005	2006	2007	2008	2009	2010	2011	2012	End June 2013
SCBs	21.4	22.9	29.9	25.4	21.4	15.7	11.3	23.9	26.4
DFIs	34.9	33.7	28.6	25.5	25.9	24.2	24.6	26.8	26.2
PCBs	5.6	5.5	5.0	4.4	3.9	3.2	2.9	4.6	6.6
FCBs	1.3	0.8	1.4	1.9	2.3	3.0	3.0	3.5	4.7
Total	**13.6**	**13.2**	**13.2**	**10.8**	**9.2**	**7.3**	**6.1**	**10.0**	**11.9**

Figure 83: NPL Ratios

Table 5.2 Capital to risk weighted assets ratio by type of banks

(percent)

Bank types	2005	2006	2007	2008	2009	2010	2011	2012	End June 2013
SCBs	-0.4	1.1	7.9	6.9	9.0	8.9	11.7	8.1	1.2
DFIs	-7.5	-6.7	-5.5	-5.3	0.4	-7.3	-4.5	-7.8	-9.0
PCBs	9.1	9.8	10.6	11.4	12.1	10.1	11.5	11.4	11.4
FCBs	26.0	22.7	22.7	24.0	28.1	15.6	21.0	20.6	20.3
Total	**5.6**	**6.7**	**9.6**	**10.1**	**11.6**	**9.3**	**11.4**	**10.5**	**9.1**

Figure 84: Capital to Risk Weighted Assets Ratio[999]

Table 5.10 Liquidity ratio by type of banks

(Percent)

Bank types	Liquid assets									Excess liquidity								
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2004	2005	2006	2007	2008	2009	2010	2011	2012
SCBs	22.8	20.0	20.1	24.9	32.9	25.1	27.2	31.3	29.2	6.8	2.0	2.1	6.9	14.9	17.6	8.2	12.3	10.2
DFIs	11.2	11.2	11.9	14.2	13.7	9.6	21.3	6.9	11.5	4.7	6.2	3.8	5.6	4.9	7.1	2.3	1.3	1.4
PCBs	23.1	21.0	21.4	22.2	20.7	18.2	21.5	23.5	26.3	8.8	5.1	5.6	6.4	4.7	5.3	4.6	6.6	9.5
FCBs	37.8	41.5	34.4	29.2	31.3	31.8	32.1	34.1	37.5	21.9	23.6	16.4	11.2	13.3	21.8	13.2	15.3	18.7
Total	**23.4**	**21.7**	**21.5**	**23.2**	**24.8**	**20.6**	**23.0**	**25.4**	**27.1**	**8.7**	**5.3**	**5.1**	**6.9**	**8.4**	**9.0**	**6.0**	**8.4**	**9.9**

Figure 85: Liquidity Ratio by Types of Banks

Table 5.12 Comparative position of the Islamic banking sector (as of end December 2012)

(billion Taka)

Particulars	Islamic banks		Dual banking (Conventional+ Islamic)		Islamic banking sector		All banking sector	
	2012	2011	2012	2011	2012	2011	2012	2011
1	2		3		4=2+3		5	
Number of banks	7	7	16	16	23	23	47	47
Deposits	961.2	751.2	56.7	56.2	1017.9	807.4	5396.0	4509.7
Credits	858.9	693.0	51.2	45.8	910.1	738.8	4318.6	3642.6
Credit deposit ratio	89.4	90.9	90.3	81.4	89.4	172.3	76.6	80.8
Liquidity: excess(+)/shortfall(-) @	51.0	31.0	0.8	0.5	51.9	31.5	505.4	358.5

@ Conventional banks which have Islamic banking branches do not maintain SLR individually.
The head offices of the respective bank maintain combinedly SLR and liquidity position.

Figure 86: Comparative Position of the Islamic Banking Sector[1000]

5.11.6.4 Payment Systems

A country's payment system is the channel through which the central bank passes financial transaction part of its monetary policy. Central banks' functions in the area of payment systems are very closely related to their functions in the areas of monetary policy and financial stability. Monetary stability supports sound investment and sustainable economic growth, which in turn are conducive to financial stability and support the smooth operation of payment systems.

Well-functioning payment systems ensure the efficient and safe execution of monetary policy operations and facilitate the smooth and homogenous transmission of monetary impulses. The smooth functioning of payment systems is a precondition for users' confidence in these systems and, ultimately, public confidence in the

[999] Source: Bangladesh Bank

[1000] Source: Bangladesh Bank

currency. Central banks would extend their concern toward the safe and efficient use of payment instruments with a view to maintain public confidence in the currency and ensure its smooth circulation. Central banks have a strong interest in promoting safety and improving efficiency in payment systems as part of their overall concern with financial stability. The importance that central banks attach to the stability of financial markets derives from the possibility that financial institutions' actual or perceived inability to settle their obligations in distressed market conditions could contribute to a loss of confidence and could also have a negative effect on the stability of financial markets and the economy as a whole.

In systemically important payment systems, disruption caused by one participant in the infrastructure can cause disruptions for other participants, propagate financial disturbances and possibly even amplify such disturbances by inducing chain reactions that might contaminate the whole financial system. In such systems, central banks aim mainly to:

I. Prevent systemic risk, thereby maintaining financial stability;
II. Promote the efficiency of payment systems and instruments;
III. Ensure the security of and public trust in the currency as the settlement asset; and
IV. Safeguard the transmission channel for monetary policy.

According to the Section 7A(e) of the Bangladesh Bank Order, 1972; one of the main functions of the Bangladesh Bank is - "to promote, regulate and ensure a secure and efficient payment system"

In fulfilling this mandate and considering the importance, Payment Systems Department (PSD) has been formed on 26 July 2012, prior to this it was a section under Department of Currency Management and Payment Systems.

An overview of the prevailing payment and settlement systems in Bangladesh follows in the footnotes

I. Payment Systems Department's Activities[1001]
II. National Payment Switch(NPS)[1002]
III. Payment Systems Strategy[1003]

[1001] Functions

To run the country s payment system smoothly department is conducting the following activities:

Formulation of National Payment Systems Strategy,
Operation of Bangladesh Automated Clearing House (BACH) with its two wings - Bangladesh Automated Cheque Processing System (BACPS) and Bangladesh Electronic Funds Transfer Network (BEFTN),
Implementation and operation of National Payment Switch Bangladesh (NPSB)
Development of Mobile Financial Services.
Encouraging e-Commerce and m-Commerce,
Formulation of required policy, guideline, legal & regulatory framework for modern payment and settlement systems,
Formulation of Payment Systems Oversight to monitor and supervise country s payment system.
Implementation and operation of Real Time Gross Settlement (RTGS) System.

[1002] The Bangladesh Bank has introduced National Payment Switch Bangladesh (NPSB) in order to facilitate interbank electronic payments originating from different channels like Automated Teller Machines (ATM), Point of Sales (POS), Internet, Mobile Devices etc. The main objective of NPSB is to create a common electronic platform for the switches in Bangladesh. NPSB is a mother switch of of all other switches in the country. NPSB will facilitate the expansion of the card based payment networks substantially and promote e-commerce throughout the country. Online payment of Government dues, using cards and account number information through Internet will greatly be enhanced using NPSB. Payment Systems Department (PSD) is concerned to operate and settle the transactions regularly. NPSB was launched as “go-live” on December 27, 2012 to route ATM transactions.

[1003]

A well-defined strategy acts as the guiding flagship for any endeavor. Published 'Strategic Plan 2010-2014' by the Bangladesh Bank lists foremost near and medium term strategies for the development of payment and settlement systems of Bangladesh. Most of these goals are already achieved by this time while others are in the implementation process. To be with the trend, Payment Systems Department (former DCMPS) has revised the earlier strategies and devised newer priorities. The new strategy has been set to – “Develop effective and efficient currency management alongside establishing fast and secure electronic payment systems for facilitating financial inclusion”. PSD has revised the earlier objectives and devised newer priorities. Importance was given to implementing newer payment platforms i.e. National Payment Switch (NPS), e-Payment Gateway and Real Time Gross Settlement (RTGS) while upgrading the required legal and regulatory framework befitting the electronic payment platforms.

IV. e-Commerce & m-Commerce[1004]
V. Bangladesh Automated Clearing House (BACH)[1005]
VI. Legal & Regulatory Framework [1006]
VII. Bangladesh Automated Cheque Processing Systems (BACPS)[1007]

Newly set objectives for Modernizing country's Payment and Settlement Systems are listed below -

Establish required legal and regulatory framework for electronic payment systems.
Promote and encourage the use of electronic funds transfer, mobile financial services, e-commerce, m-commerce, shared ATM, POS, etc.
Establish National Payment Switch (NPS) for facilitating electronic payments originating from different delivery channels e.g. ATM, POS, Internet, Mobile, etc.
Establish e-Payment gateway.
Establish Real-Time Gross Settlement (RTGS).

[1004] BB has issued directives to the banks for starting e-Commerce activities among the country. BB has permitted transfer fund up to TK.5,00,000 from one clients account to another clients account lying in the same bank using internet/online facilities subject to the fact that it will fully comply with prevailing Money Laundering Prevention legislations and related circulars. PSD is concerned to ensure IT security for online and e-commerce transactions. In order to that PSD has mandated for the banks to introduce Two Factor Authentication (2FA) for card not present transactions.

In order to start M-Commerce in Bangladesh, mobile network operators have been given permission to sell railway tickets and tickets of cricket matches organized by the Bangladesh Cricket Board (BCB) using mobile technology. Three Telcos have got permission for m-Commerce related transactions.

[1005] Bangladesh Automated Clearing House (BACH): BACH, the first ever electronic clearing house of Bangladesh, has two components - the Automated Cheque Processing System (ACPS) and the Electronic Funds Transfer (EFT). Both the systems operate in batch processing mode- transactions received from the banks during the day are processed at a pre-fixed time and settled through a single multilateral netting figure on each individual bank's respective books maintained with the Bangladesh Bank. A state-of-the-art Data Center (DC) and a Disaster Recovery Site (DRS) have been established comprising of most modern software and hardware for dealing with the operations of BACH. A Virtual Private Network (VPN) has been created between the participating commercial banks and Data Center (DC) & Disaster Recovery Site (DRS) for communicating necessary information related to BACH. Digital Certificate has been formulated for the first time in Bangladesh for secured data communication

[1006]

Legal & Regulatory Framework
In order to give legal and regulatory support to growing methods for electronic transfer of funds, Bangladesh Bank has governed a number legal and regulatory framework. Existing Legal and Regulatory Framework of Payment and Settlement Systems of Bangladesh below

Bangladesh Payment and Settlement Systems Regulations (BPSSR), 2009 published on 27 April 2009.
Bangladesh Automated Cheque Processing Systems (BACPS) Operating Rules and Procedures has been published on 11 January 2010.
Bangladesh Electronic Funds Transfer Network (BEFTN) Operating Rules has been published on 11 August 2010.
Guidelines on Mobile Financial Services for the Banks has been published on September, 2011.
Guidelines on Agent Banking for the Banks has been published on 09 December 2013.

Steps have also been taken to bring amendment in certain provision of the existing Negotiable Instruments Act, 1881 and Bankers Book of Evidence Act, 1891 in order to provide comprehensive legal backing to the operation of Electronic Clearing House. Bangladesh Bank has drafted Payment Systems Act; reviewed the existing BPSSR, 2009; drafted a new BPSSR, 2014 and Regulations for Electronic Funds Transfer, 2014 is under process to finalize.

[1007]

Bangladesh Automated Cheque Processing Systems (BACPS)
Bangladesh Automated Cheque Processing Systems (BACPS) has started its 'Live Operation' on 7th October 2010 in the Dhaka Clearing House area. Eventually it covers all the clearing houses operated by BB, 33 Sonali Bank CHs and other administrative districts where no CH was exists by the end of 2012. BACPS uses the Cheque Imaging and Truncation (CIT) technology for electronic presentment and payment of paper instruments (i.e. cheque, pay order, dividend & refund warrants, etc).

There are two types of cheque clearing under BACPS, i.e. High Value (HV) and Regular Value (RV) Cheque clearing. Cheque amounting Tk. 5,00,000 or above are eligible for HV clearing which has shorter clearing cycle than RV.

VIII. Real Time Gross Settlement (RTGS)[1008]
IX. Bangladesh Electronic Funds Transfer Network (BEFTN)[1009]
X. Payment Systems Oversight[1010]

BACPS system conforms to the international best practices and also represents the most cost-effective solution for cheque processing throughout the country. The clearing cycle has been brought down to t+0 for high value cheques and t+1 for regular value cheques throughout the country.

[1008] Real Time Gross Settlement (RTGS)
An RTGS system is a gross settlement system of money or securities in which both processing and final settlement of funds transfer instructions can take place continuously (i.e., in real time). As it is a gross settlement system, transfers are settled individually, i.e., without netting debits against credits. An RTGS system can thus be characterized as a fund transfer system that is able to provide continuous intraday finality for individual transfers. In RTGS or large-value funds transfer system, the transmission and processing of payment messages are typically automated or electronic, while settlement takes place in central bank funds. Along with these individual interbank transactions all other Deferred Net Settlement Batches (DNSB) such as BACPS, BEFTN or NPSB will settle their net position through RTGS system, RTGS in turn will be linked to BB core banking solution.

Bangladesh Bank has taken initiative to implement a project -"Institutional Support for Migrant Workers' Remittances; Real Time Gross Settlement (RTGS)" which has jointly funded by Asian development Bank(ADB) and Government of Bangladesh (GoB). The project is expected to go live during July 2015.

[1009] Bangladesh Electronic Funds Transfer Network (BEFTN)
BEFTN has started its 'Live Operation' on 28th February 2011 with the objective to decrease paper-based payment methods and encourage electronic payment methods for secured, faster & cost-effective transactions. The Network started with credit transactions and open for debits from 15 September 2011.

BEFTN facilitates the transmission of payments between the banks electronically, which makes it faster and efficient means of inter-bank clearing over the existing paper-based system i.e. BACPS. It is able to handle a wide variety of credit transfers such as payroll, foreign and domestic remittances, social security, company dividends, retirement, expense reimbursement, bill payments, corporate payments, government tax payments, social security payments and person to person payments. The system could handle debit transfers such as mortgage payments, loan payments, insurance premiums, utility bill payments, government tax payments, government licenses and fees.

EFT is gaining increasing popularity among the corporate and govt. bodies. Salary of more than 28 ministries and govt. offices are now paid through EFT. Listed public companies are paying their cash dividends through EFT network.

[1010] Payment Systems Oversight (PSO)
Payment system consists of the value channels for facilitating transactions needs for various personal or institutional requirements. If one or more components of the payment system fail, the spillover effects can spread through domestic and international financial systems and markets. Such failure(s) may threaten the stability of the currency and the financial markets. The failure of a system or a participant can cause other participants to fail and is thus able to transmit shocks within the financial infrastructure.

For this reason, control measures and instruments are needed to be in place for minimizing the threats and risks in the payment system - which can only be achieved thorough Payment Systems Oversight (PSO) under sound legal and regulatory framework.

Payment systems interlink banks and other financial intermediaries. In a crisis situation, problems can spread through such links from the problem institution to other institutions. This can endanger the stability of the financial infrastructure and is known as systemic risk. Oversight aims at ensuring that the systems are set up in such a way as to minimize the risk potential. Central banks are concerned about the smooth functioning of payment systems for a number of reasons:

Central Banks aim to maintain systemic stability in payment systems.
Central Banks are concerned with the efficiency of payment systems.
Central Banks are concerned with the security of the payment instruments used by the public, their confidence in the payment system.
Payment systems are an essential vehicle for the implementation of monetary policy. Oversight aims at safeguarding the transmission channel for monetary policy.

Oversight is an iterative process comprising the following elements:

5.11.6.5 Regulators of the Financial System

5.11.6.5.1 Central Bank

Bangladesh Bank acts as the Central Bank of Bangladesh which was established on December 16, 1971 through the enactment of Bangladesh Bank Order 1972- President's Order No. 127 of 1972 (Amended in 2003).
The general superintendence and direction of the affairs and business of BB have been entrusted to a 9 members' Board of Directors which is headed by the Governor who is the Chief Executive Officer of this institution as well. BB has 40 departments and 9 branch offices. In Strategic Plan (2010-2014), the vision of BB has been stated as, "To develop continually as a forward looking central bank with competent and committed professionals of high ethical standards, conducting monetary management and financial sector supervision to maintain price stability and financial system robustness, supporting rapid broad based inclusive economic growth, employment generation and poverty eradication in Bangladesh".
The main functions of BB are (Section 7A of BB Order, 1972) -

I. To formulate and implement monetary policy;
II. To formulate and implement intervention policies in the foreign exchange market;
III. To give advice to the government on the interaction of monetary policy with fiscal and exchange rate policy, on the impact of various policy measures on the economy and to propose legislative measures it considers necessary or appropriate to attain its objectives and perform its functions;
IV. To hold and manage the official foreign reserves of bangladesh;
V. To promote, regulate and ensure a secure and efficient payment system, including the issue of bank notes;
VI. To regulate and supervise banking companies and financial institutions.

Core Policies of Central Bank

5.11.6.5.2 Monetary policy

The main objectives of monetary policy of Bangladesh Bank are:

I. Price stability both internal & external
II. Sustainable growth & development
III. High employment
IV. Economic and efficient use of resources
V. Stability of financial & payment system

Bangladesh Bank declares the monetary policy by issuing Monetary Policy Statement (MPS) twice (January and July) in a year. The tools and instruments for implementation of monetary policy in Bangladesh are Bank Rate, Open Market Operations (OMO), Repurchase agreements (Repo) & Reverse Repo, Statutory Reserve Requirements (SLR & CRR). Two Monetary Policy Statements from the Bangladesh Bank are attached to the document for a comprehensive review of the current policy stance of the Government.

Formulation of the policy stance: setting the general framework, criteria and standards;
Evaluation of compliance with the policy stance: collection and analysis of information on the overseen entity and implementation actions;
Enforcement of the policy stance: inducing the system to take steps to fulfill the criteria and standards. This could be done by using formal regulatory powers or alternatively by moral suasion.

Payment Systems Oversight (PSO) objectives are as follows -

To ensure payment systems are safe, efficient, effective and reliable
To promote the quality and range of national payment systems
To facilitate the development of modern and innovative systems to meet the evolving needs of participants continuously
To ensure the benefits of investment are extended to the general public
To prevent the abuse of the payment instrument and systems

The Bangladesh Bank (BB) has unveiled its second half monetary policy of the current fiscal year (2013-2014) that primarily focused on inflation, investment and GDP (gross domestic product) growth. On July 25 last, the central bank announced its first half monetary policy assuring that the government bank borrowing will not disrupt credit supply to the private sector in boosting investment. Keeping in mind the long-term impact of the recent political turmoil on economy, Bangladesh Bank (BB) has announced its flagship policy statement that primarily focused on inflation, investment and GDP (gross domestic product) growth.

"In order to cushion the impact of recent domestic disruptions on businesses, the BB has taken a number of important policy steps to contain inflation, propel investment and GDP growth and ensure sufficient credit flow to private sector," Governor Dr Atiur Rahman has reportedly said.

Economists earlier suggested that it would be a tough job for the Central Bank to help reshape the dented economy with the monetary policy support as the shutdown and blockade in the past six months cost the country over Taka 49,000 crore, which is equivalent to 4.7 percent of the gross domestic product (GDP). The Governor, however, was confident that the GDP growth would be around 6.0 percent at the end of the current financial year should there be no big crisis in the coming months. Referring to the major policy stance of the new MPS, the governor said the central bank had taken a number of initiatives to reshape the economy. The initiatives, he added, include broadening the scope of the Export Development Fund (EDF), reducing the borrowing costs and instructing banks to offer loan rescheduling facilities to genuine borrowers facing cashflow difficulties, especially small and medium enterprises (SMEs), who are temporarily affected by the recent strikes and disruptions. Moreover, he said, in order to stimulate entrepreneurship among low income rural households who have opened ten taka accounts, the BB is launching a new 2 billion taka refinancing facility to be implemented by Micro-Finance Institutions.

5.11.6.5.3 Reserve Management Strategy

Bangladesh Bank maintains the foreign exchange reserve of the country in different currencies to minimize the risk emerging from widespread fluctuation in exchange rate of major currencies and very irregular movement in interest rates in the global money market. BB has established Nostro account arrangements with different Central Banks. Funds accumulated in these accounts are invested in Treasury bills, repos and other government papers in the respective currencies. It also makes investment in the form of short term deposits with different high rated and reputed commercial banks and purchase of high rated sovereign/supranational/corporate bonds. A separate department of BB performs the operational functions regarding investment which is guided by investment policy set by the BB's Investment Committee headed by a Deputy Governor. The underlying principle of the investment policy is to ensure the optimum return on investment with minimum market risk.

5.11.6.5.4 Interest Rate Policy

Under the Financial sector reform program, a flexible interest policy was formulated. According to that, banks are free to charge/fix their deposit (Bank /Financial Institutes) and Lending (Bank /Financial Institutes) rates other than Export Credit. At present, except Pre-shipment export credit and agricultural lending, there is no interest rate cap on lending for banks. Yet, banks can differentiate interest rate up to 3% considering comparative risk elements involved among borrowers in same lending category. With progressive deregulation of interest rates, banks have been advised to announce the mid-rate of the limit (if any) for different sectors and the banks may change interest 1.5% more or less than the announced mid-rate on the basis of the comparative credit risk. Banks upload their deposit and lending interest rate in their respective website.

5.11.6.5.5 Capital Adequacy for Banks and FIs

With a view to strengthening the capital base of banks & FIs, Basel-II Accord has been introduced in both of these sectors. For banks, full implementation of Basel-II was started in January 01, 2010 (Guidelines on Risk Based Capital Adequacy for banks). Now, scheduled banks in Bangladesh are required to maintain Tk. 4 billion or 10% of Total Risk Weighted Assets as capital, whichever is higher. For FIs, full implementation of Basel-II has been started in January 01, 2012 (Prudential Guidelines on Capital Adequacy and Market Discipline (CAMD) for Financial Institutions). Now, FIs in Bangladesh are required to maintain Tk. 1 billion or 10% of Total Risk Weighted Assets as capital, whichever is higher.

5.11.6.5.6 Deposit Insurance

The deposit insurance scheme (DIS) was introduced in Bangladesh in August 1984 to act as a safety net for the depositors. All the scheduled banks Bangladesh are the member of this scheme Bank Deposit Insurance Act 2000. The purpose of DIS is to help to increase market discipline, reduce moral hazard in the financial sector and provide safety nets at the minimum cost to the public in the event of bank failure. A Deposit Insurance Trust Fund (DITF) has also been created for providing limited protection (not exceeding Taka 0.01 million) to a small depositor in case of winding up of any bank. The Board of Directors of BB is the Trustee Board for the DITF. BB has adopted a system of risk based deposit insurance premium rates applicable for all scheduled banks effective from January - June 2007. According to new instruction regarding premium rates, problem banks are required to pay 0.09 percent and private banks other than the problem banks and state owned commercial banks are required to pay 0.07 percent where the percent coverage of the deposits is taka one hundred thousand per depositor per bank. With this end in view, BB has already advised the banks for bringing DIS into the notice of the public through displaying the same in their display board.

5.11.6.5.7 Insurance Authority

Insurance Development and Regulatory Authority (IDRA) was instituted on January 26, 2011 as the regulator of insurance industry being empowered by Insurance Development and Regulatory Act, 2010 by replacing its predecessor, Chief Controller of Insurance. This institution is operated under Ministry of Finance and a 4 member executive body headed by Chairman is responsible for its general supervision and direction of business. IDRA has been established to make the insurance industry as the premier financial service provider in the country by structuring on an efficient corporate environment, by securing embryonic aspiration of society and by penetrating deep into all segments for high economic growth. The mission of IDRA is to protect the interest of the policy holders and other stakeholders under insurance policy, supervise and regulate the insurance industry effectively, ensure orderly and systematic growth of the insurance industry and for matters connected therewith or incidental thereto.

5.11.6.5.8 Regulator of Capital Market Intermediaries

Securities and Exchange Commission (SEC) performs the functions to regulate the capital market intermediaries and issuance of capital and financial instruments by public limited companies. It was established on June 8, 1993 under the Securities and Exchange Commission Act, 1993. A 5 member commission headed by a Chairman has the overall responsibility to administer securities legislation and the Commission is attached to the Ministry of Finance. The mission of SEC is to protect the interests of securities investors, to develop and maintain fair, transparent and efficient securities markets and to ensure proper issuance of securities and compliance with securities laws. The main functions of SEC are:

I. Regulating the business of the Stock Exchanges or any other securities market.
II. Registering and regulating the business of stock-brokers, sub-brokers, share transfer agents, merchant bankers and managers of issues, trustee of trust deeds, registrar of an issue, underwriters, portfolio managers, investment advisers and other intermediaries in the securities market.
III. Registering, monitoring and regulating of collective investment scheme including all forms of mutual funds.
IV. Monitoring and regulating all authorized self regulatory organizations in the securities market.
V. Prohibiting fraudulent and unfair trade practices in any securities market.
VI. Promoting investors' education and providing training for intermediaries of the securities market.
VII. Prohibiting insider trading in securities.
VIII. Regulating the substantial acquisition of shares and take-over of companies.
IX. Undertaking investigation and inspection, inquiries and audit of any issuer or dealer of securities, the Stock Exchanges and intermediaries and any self regulatory organization in the securities market.
X. Conducting research and publishing information.

5.11.6.5.9 Regulator of Micro Finance Institutions

To bring Non-government Microfinance Institutions (NGO-MFIs) under a regulatory framework, the Government of Bangladesh enacted "Microcredit Regulatory Authority Act, 2006'" (Act no. 32 of 2006) which came into effect from August 27, 2006. Under this Act, the Government established Microcredit Regulatory Authority (MRA) with a view to ensuring transparency and accountability of microcredit activities of the NGO-MFIs in the country. The Authority is empowered and responsible to implement the said act and to bring the microcredit sector of the country under a full-fledged regulatory framework.

MRA's mission is to ensure transparency and accountability of microfinance operations of NGO-MFIs as well as foster sustainable growth of this sector. In order to achieve its mission, MRA has set itself the task to attain the following goals:

I. To formulate as well as implement the policies to ensure good governance and transparent financial systems of MFIs.
II. To conduct in-depth research on critical microfinance issues and provide policy inputs to the government consistent with the national strategy for poverty eradication.
III. To provide training of NGO-MFIs and linking them with the broader financial market to facilitate sustainable resources and efficient management.
IV. To assist the government to build up an inclusive financial market for economic development of the country.
V. To identify the priorities in the microfinance sector for policy guidance and dissemination of information to attain the MRA's social responsibility.

According to the Act, the MRA will be responsible for the three primary functions that will need to be carried out, namely:

I. Licensing of MFIs with explicit legal powers;
II. Supervision of MFIs to ensure that they continue to comply with the licensing requirements; and
III. Enforcement of sanctions in the event of any MFI failing to meet the licensing and ongoing supervisory requirements.

5.11.6.5.10 Monetary Policy

Monthly Interest Rates

End of period	Bank rate	Call money market's weighted average interest rates on		Schedule banks' weighted average interest rates on		Spread
		Borrowing	Lending	Deposits	Advances	
2014						
January	5.00	7.17	7.17	8.40	13.39	4.99
February	5.00	7.08	7.08	8.34	13.40	5.06
March	5.00	7.16	7.16	8.21	13.36	5.15
April	5.00	7.35	7.35	8.11	13.25	5.14
May	5.00	6.50	6.50	8.01	13.23	5.22
June	5.00	6.25	6.25			
2013						
January	5.00	10.29	10.29	8.60	13.73	5.13
February	5.00	8.95	8.95	8.68	13.73	5.05
March	5.00	7.50	7.50	8.67	13.73	5.06
April	5.00	7.35	7.35	8.65	13.64	4.99
May	5.00	7.15	7.15	8.65	13.63	4.98
June	5.00	7.17	7.17	8.54	13.67	5.13
July	5.00	7.44	7.44	8.61	13.63	5.02
August	5.00	8.11	8.11	8.55	13.56	5.01
September	5.00	7.43	7.43	8.50	13.51	5.01
October	5.00	7.78	7.78	8.47	13.42	4.95
November	5.00	7.03	7.03	8.45	13.42	4.97
December	5.00	7.11	7.11	8.39	13.45	5.06
2012						
January	5.00	19.66	19.66	7.86	13.49	5.63
February	5.00	18.18	18.18	7.95	13.63	5.68

1011

Recent Inflation Rate

Rate of Inflation (as measured by CPI, base 2005-06)	May, 2014	April, 2014	May, 2013
Point to point	7.48%	7.46%	7.98%
Monthly Average(Twelve Month)	7.44%	7.47%	6.57%

Source: BBS

Table 3.1 Monthly change in inflation (%)

Months	General	Food	Non-food
July 12	1.76	2.21	0.89
August 12	1.85	2.45	0.78
September12	1.49	1.91	0.76
October 12	0.25	-0.27	1.09
November 12	0.41	0.55	0.18
December 12	0.19	0.08	0.41
January 13	1.30	1.18	1.58
February 13	0.15	0.04	0.35
March 13	0.27	0.26	0.28
April 13	0.12	0.11	0.14
May 13	-0.71	-1.16	0.15
June 13	0.66	0.92	0.19

Source: Bangladesh Bureau of Statistics.

Figure 87: Monthly change in inflation screenshot

Table 3.2 Annual average CPI based inflation

(Base:1995-96=100)

Group	Weight	FY11	FY12	FY13
a. National level				
General index	100.00	241.02	266.61	287.14
		(8.80)	(10.62)	(7.70)
Food	58.84	267.83	295.86	317.62
		(11.34)	(10.47)	(7.35)
Non-food	41.16	205.01	227.87	247.07
		(4.15)	(11.15)	(8.43)
b. Rural				
General index	100.00	244.38	269.31	289.08
		(9.40)	(10.20)	(7.34)
Food	62.96	264.13	289.82	309.90
		(12.03)	(9.73)	(6.93)
Non-food	37.04	210.81	234.47	253.68
		(4.18)	(11.22)	(8.19)
c. Urban				
General index	100.00	232.81	260.01	282.42
		(7.30)	(11.68)	(8.62)
Food	48.80	276.82	310.58	336.41
		(9.76)	(12.20)	(8.32)
Non-food	51.20	190.87	211.82	230.96
		(4.07)	(10.98)	(9.04)

Source: Bangladesh Bureau of Statistics.
Figures in parentheses represent annual inflation.

Figure 88: Annual Average CPI Based inflation screenshot

1011 http://www.bangladesh-bank.org/econdata/intrate.php

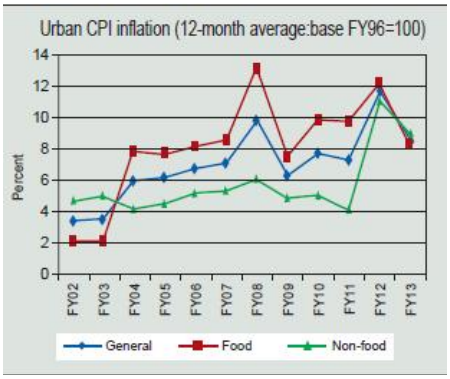

Figure 89: Urban CPI Inflation

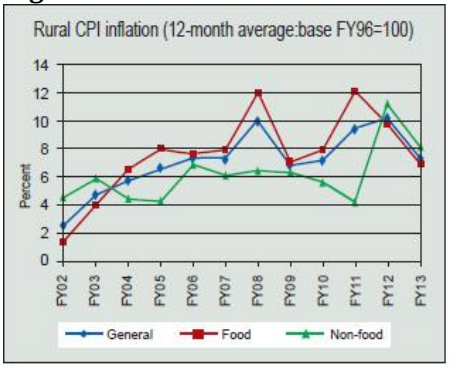

Figure 90: Rural CPI inflation

Table 3.7 Global inflationary situation

(percentage change)

	2011	2012	2013P	2014P
Advanced Economies	2.7	2.0	1.4	1.8
United States	3.1	2.1	1.4	1.5
Euro Area	2.7	2.5	1.5	1.5
Emerging & developing economies	7.1	6.1	6.2	5.7
Developing Asia	6.3	4.7	5.0	4.7
Bangladesh	10.7	8.7	7.6	6.5
India	8.4	10.4	10.8	8.9
Sri Lanka	6.7	7.5	7.4	6.9

P= Provisional.
Source: World Economic Outlook, October 2013.

Figure 91: Global Inflationary Situation

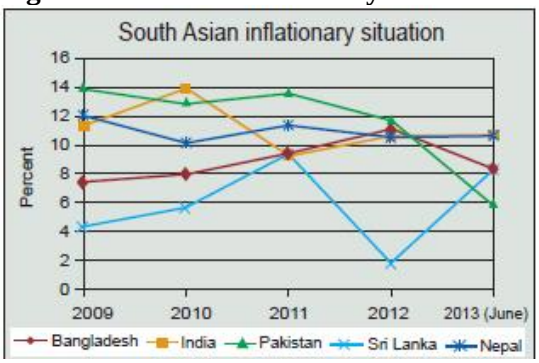

Figure 92: South Asian Inflationary Situation[1012]

5.11.7 Investment

Bangladesh Export Processing Zones Authority **(**BEPZA) has successfully traversed a long way of 30 years with a new dimension to increase the volume of investment, diversification of export and thereby, employment generation and strengthening the economic base of Bangladesh.In view of the growing need of attracting FDI, local Investment and industrialization government took initiative to

[1012] Source: Bangladesh Bank

set up Export Processing Zones (EPZs) in the different parts of the country. BEPZA has been empowered for the creation, development, operation and management of EPZs. From the inception, BEPZA is engaged in attracting and facilitating foreign and local investment in the EPZs. EPZs scenario is shining despite of various adverse situation in industrial sector of the country; due to low cost peaceful production oriented investment friendly industrial atmosphere. Bangladesh EPZs is a brand in the global market. That's why EPZs of Bangladesh recognized as Bonanza for Investors to the international entrepreneurs. Bangladesh with 56,977 square meters territorial where 8 EPZs consisting 3.71 square meters of land has 419 operating industries with 3,75,590 workforce contributing 18% to the total national export. BEPZA has been playing a significant role for socio-economic development of the country.

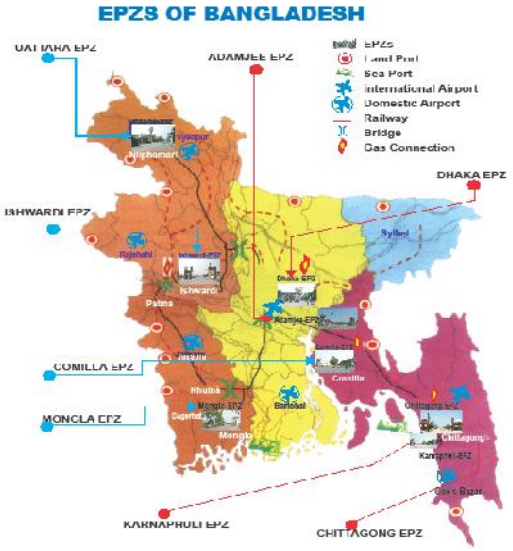

Figure 93: Investment Landscape

The first EPZ of the country was set up in Chittagong in 1983. The Chittagong EPZ is the pioneer for investors which gradually turned Bangladesh as a "New Horizon for investment". Observing its outstanding success, Dhaka EPZ came into operation in the year 1993. Afterwards, six new EPZs namely Mongla, Comilla, Ishwardi, Uttara (Nilphamari), Adamjee & Karnaphuli have been set up and these EPZs have already started their operations.

5.11.7.1 Mode of Investment

BEPZA persuades an open door policy in regards to foreign and local investment in its EPZs. It attracts investment in three categories, that is:-

Type A- Investment with 100% foreign ownership,
Type B- Joint venture between Bangladeshi and foreign investors
Type C- 100% Bangladeshi ownership

5.11.7.2 Investment Climate

Geo-regional location: The comparative advantages of EPZ in Bangladesh are it's homogenously, large number of potential human resources, competitive wage scale, and its 'geo-regional location'. Bangladesh is

situated in close proximity to the Bay of Bengal, which has given the country with an easy access to the world through sea-route and also by air in terms of import and export. As a result, the foreign investors are always keen to take those strategic advantages.

Human Resources: The main attraction of investment in Bangladesh is the most inexpensive, productive, abundant and easily trainable workforce. Today Bangladesh has a growing number of managers, engineers, technicians and skilled labour force. The minimum wage of the workers in EPZs is one of the lowest in Asia. Changing economic and political conditions in the Asian region are prompting many international investors to reassess their investment strategies and plan for relocating their investments in Bangladesh.

Infrastructure Facilities: BEPZA provides infrastructure facilities for the investors with fully serviced plots (average size 2000 SQM each) and standard factory buildings (average size 1000 SQM each) for setting up industry. Investor can use these plots under a 30 years lease agreement which is renewable. Apart from these plots, an investor may also take BEPZA's Standard Factory Building (SFB) as lease. All the utility connections such as electricity, gas, water, internet& telecommunication are readily connected in the enterprises. Since there is scarcity of plot(s) in the EPZs, BEPZA is expanding the existing Standard Factory buildings vertically to accommodate more industries in the EPZs as decided by the government.

Eco-friendly Service Oriented Industries:

BEPZA has allowed to setting up hi-tech Eco-friendly Service Oriented industries In order to ensure maximum protection for the environment. These are:

Power Plants: BEPZA has approved 06 Power Plant for producing 290 Megawatts electricity for the enterprises in EPZs.

Central Effluent Treatment Plant (CETP): Central Effluent Treatment Plants (CETP) are operating in Dhaka, Chittagong and Comilla EPZ.

Water Treatment Plant (WTP): Water Treatment Plants has been established in Adamjee, Comilla, Chittagong and Karnaphuli EPZ.

5.11.7.3 Package of Incentives

Fiscal:

- 05 years Tax holiday period, first 02 years 100% exemption, next 02 years (3rd and 4th Year) 50% exemption and next 01 years (5th Year) 25% exemption
- Exemption from income tax on salaries of foreign technician for 3 years (Projects approved before 22-03-09)
- Duty free import of raw materials, machineries, equipments and construction materials
- Duty free export of finished goods
- Relief from double taxation
- Exemption from dividend tax for tax holiday period
- Duty free import of 2/3 vehicles for A & B type industries subject to certain conditions (Projects approved before 22-03-09)

- Full repatriation of profit, capital and establishment

Non-Fiscal:

- No ceiling on foreign investment, 100% foreign ownership permissible
- Enjoys GSP benefits in EU countries, Japan, Australia, Canada, Norway etc
- Foreign currency loan from abroad under direct automatic route (OBU facilities)
- Non-resident Foreign Currency Deposit (NFCD) allowed for 'A' type industries
- Operation of FC account by 'B' and 'C' type industries allowed
- 100% backward linkage including raw materials, accessories are allowed to sell for export oriented industries inside and outside EPZs
- Receiving and offering sub contracting with export oriented industry are allowed both inside and outside EPZs
- 10% sale of finished products except garments, defective finished goods and surplus raw materials to DTA (Domestic Tariff Area) is allowed
- Relocation of foreign industries allowed
- Import and Export on CM/CMP/CMT basis allowed
- Import from Domestic Tariff Area (DTA) and 10% export to DTA allowed
- Intra/inter zone sub-contracting and transfer of goods allowed
- Sub-contracting with Export Oriented Industries inside and outside EPZs allowed
- No UD (Utilization Declaration), IRC (Import Registration Certificate), ERC (Export Registration Certificate) and renewal of bond license required

One Stop Facilities:

⇒ BEPZA offers One Window Same Day service.
⇒ Simplified Project Approval procedure.
⇒ Work Permits issued by BEPZA.
⇒ Import and Export Permits issued by BEPZA within the same day through automation system.
⇒ Customs clearance at the factory site.
⇒ Investors are required to deal only with BEPZA for Investment and all other operational needs.

Support Service:

Business- Bank, Courier, Post Office, C&F Agent, Shipping Agent, MTO etc.
Administrative- Customs Office, Police Station, In-house Security, Fire Station, Public Transport, Medical Centre, Warehouse/Godown, Dormitory, Day Care Centre etc.
Others- Restaurant, Health Club, Investors Club, Recreation Centre, School and College, Sports Complex, Exclusive Telephone Exchange, Electricity Sub Station, Business Centre, Anglers Club etc.

Zone wise statistics of Investment, Employment and Export (As on June, 2013)

Name of EPZs	No of Industry		Investment (US$ in M)	Export (US$ in M)	Employment (No.)
	In operation	Under implementation			
Chittagong EPZ	171	12	1094.06	17,157.72	1,85,006
Dhaka EPZ	99	12	931.55	14,365.17	88,033
Adamjee EPZ	39	24	194.22	834.67	30,874
Comilla EPZ	34	31	177.70	889.24	14,713
Karnaphuli EPZ	38	19	263.05	868.62	39,070
Ishwardi EPZ	10	20	72.85	138.59	6,071
Mongla EPZ	17	15	8.74	202.86	1,562
Uttara EPZ	11	09	43.32	45.48	8,679

Operating Units: 419 industrial units are operating and 143 under implantation stage in 8 EPZs till June 2013. Among the 419 operating units 237 are 100% foreign, 61 joint venture and 121 under fully Bangladeshi ownership.

Investment: US$ 328.53 million actual investment has been made in EPZs in the 2012-13 fiscal years **i**t was US$ 339.26 million during the previous fiscal year. The cumulative investment stands at US$ 2785.49 million up to June 2013 in 8 EPZs of Bangladesh.

Export: The enterprises of EPZs have crossed export target which US$ 4.5 billion but export earnings stands at US$ 4.85 billion in the 2012-13 fiscal year. It was US$ 4210.80 million during the last fiscal year, this shows and increase of 15.34%. Meanwhile, contribution from EPZs to the total national export quantum is also increasing every year; it was US$ 4856 million in 2012-13 fiscal years which was 18% of the total national export.

Employment: 35,569 Bangladeshi nationals get employment opportunities in EPZs during 2012-13 periods. It was 33598 persons during the fiscal year 2011-12, which is 5.86% higher than previous year. The operating industrial units of EPZs have generated 3,75,590 Bangladeshi nationals up to June 2013.

New Industries:

BEPZA Authority has sanctioned 25 new industries during the fiscal year 2012-13 with an investment of US$ 239.65 million, which will create employment opportunity for about 35489 Bangladeshi nationals. Of them, US$ 178.72 million are foreign direct investment and US$ 64.82 million investment from local investors. Bangladesh, Japan, China, Oman, Korea, Spain and India are the mentionable invested countries. They will produce yarn, agro products, cartoon, wig and hair, gloves, different type of bag, tent, steel tube, cookeries, labels, elastic, rice bran oil, footwear, all type woven and non woven bags, knit garments, garments accessories and readymade garments.

5.12 Economic Reforms in Bangladesh and its impact on Industry

Bangladesh has undergone a host of economic reforms in the forty years of its independence. But to understand what drove the policy planners in Bangladesh towards adoption different means towards the economic emancipation of its people, we have to look at the history behind.

5.12.1 A Socialistic Streak

Bangladesh, erstwhile East Bengal — the eastern segment of Bengal — was a prosperous region of Asia until modern times. It had the advantages of a mild, almost tropical climate, fertile soil, ample sweet water resources, and an abundance of fish, wildlife, and fruit. As early as the thirteenth century, the region was developing as an agrarian economy. Trading centers interspersed the countryside too, and Dhaka in particular grew into an important entrepôt during the Mughal Empire. The partition of British India and the emergence of India and Pakistan in 1947 severely disrupted the former colonial economic system that had preserved East Bengal (now Bangladesh) as a producer of jute, rice and other agro commodities for the rest of British India. East Pakistan – as an independent and segregated country – had to build a new industrial base and modernize agriculture in the midst of a rapidly expanding population. Pakistan's five-year plans opted for a development strategy based on industrialization, but the major share of the development budget went to West Pakistan, that is, contemporary Pakistan. The sudden disruption in the flow of natural resources and natural economic hinterlands caused by the partition meant that East Pakistan was heavily dependent on imports, creating a balance of payments problem. As early as the 1960s, without support from the central Government to either the undertaking of a substantial industrialization program or towards adequate agrarian expansion, the economy of East Pakistan started to decline.

After the devastating War of Liberation in 1971, Bangladesh worked hard to regain its economic composure. The first Government of Bangladesh, under the leadership of Bangabandhu Sheikh Mujibur Rahman, undertook a policy of industrialization with an egalitarian welfare focus. It started off with a socialist streak by nationalizing the industrial installations left marooned by the West Pakistani regime. Though a series of privatization followed as soon as the Government could established some form of order in the war-ravaged country, for much of the late 70s and early 80s, it was rather a policy of balancing the current accounts of the Government (i.e., the revenue budget) with the assistance of foreign aid (primarily food/staples aid). A large and growing population had to be fed. And much needed social and administrative infrastructure had to be either rebuilt or built from scratch. The sources of Government revenue from direct taxation, like customs, excise, and income taxes, were low due to the stagnant economic growth of the overall economy – with much credit to the successive military regimes which installed themselves after the assassination of Bangabandhu Sheikh Mujibur Rahman in 1975.

5.12.2 Winds of Change

In the mid-1980s though, there were encouraging signs of progress. Economic policies aimed at (i) encouraging private enterprise and investment, (ii) privatizing public industries, (iii) reinstating budgetary discipline, and (iv) liberalizing the import regime were accelerated. The major objectives of this planned development initiative was geared towards (i) increased national income, (ii) rural development, (iii) self-sufficiency in food, and (iv) increased industrial production. However, progress in achieving development goals was slow.

Political turmoil and untamed natural hazards of cyclone and flooding have combined with external economic shocks to persistently derail economic plans. Bangladesh's first five-year plan (1973–78) aimed to increase economic growth by 5.5% annually, but actual growth averaged only 4% per year. A special two-year plan (1978–80), stressing rural development, also fell short of its projected growth target, as did the second five-year plan (1980–85), which targeted 7.2% annual growth. The third five-year plan (1985–90) had a 5.4% annual growth target though only 3.8% was actually achieved.

5.12.3 Economic Liberalization of the 90s

In 1991, with the reinstitution of elected government, a new economic program was initiated that included financial sector reform (FSR) and liberalization measures to encourage (i) higher levels of investment in productive capabilities, (ii) enhanced revenue efforts (realized largely through implementation of a value-added-tax), and (iii) tight monetary policy. Income transfer measures, Food-for-Work, and other programs were also implemented to help protect the poorest segments of the population from the transitional effects of structural reform. From 1991 to 1993, the government successfully followed an enhanced structural adjustment facility (ESAF) with the International Monetary Fund (IMF) but failed to follow through on reforms in large part because of preoccupation with the government's domestic political troubles. In the late 1990s the government's economic policies became more entrenched, and some of the early gains were lost, which was highlighted by a precipitous drop in foreign direct investment in 2000 and 2001. Unfortunately, a renewed political turmoil from 1994 to 1996 reduced the final average annual growth rate under the Fourth Five Year Plan (1990–1995) to 4.15% (short of the 5% target), albeit the best performance so far under an economic plan in an independent Bangladesh. The 1996 elections brought renewed economic stability. Exports grew 14% over 1996, and GDP growth for 1996-97 rose to 5.5% as the economy rebounded. Devastating floods during 1998 and 1999 caused some economic slowdown but this was balanced by unprecedented growth in production of natural gas and electricity production sectors. Average annual GDP growth under the Fourth Five-Year Plan rose to 5.3%.

Many new jobs - mostly for women – were created by the country's dynamic private ready-made garment industry, which grew at double-digit rates through most of the 1990s. By the late 1990s, about 1.5 million people, mostly women, were employed in the garments sector as well as Leather products specially Footwear (Shoe manufacturing unit). During 2001-2002, export earnings from ready-made garments reached $3,125 million, representing 52% of Bangladesh's total exports.

5.12.4 Expansionary Policies in the New Millennium

The economic story of Bangladesh after the year 2000 – should we take 2000 as a milestone – is that of parallel regimes. From the public sector, fiscal 2000 was marked by a sharp increase in monetary expansion due to unprecedented borrowing from the banking sector (though the sale of treasury bills) to cover budget shortfalls due. Domestic borrowing increased primarily due to the reduced availability of external concessional financing. What Bangladesh used to receive in foreign aid disbursements equivalent to about 6% of GDP, declined to a level of 3–4% of the GDP. Moreover, according to the IMF, much of the domestic borrowing was being used to cover recurrent expenses such as wage and salary increases. The revenue to GDP ratio rose in 2001 from 8.5% to 9.4%, but this improvement was more than offset by expenditure to GDP ratios of 14.4% and 14.1%, creating budget deficits amounting to 5.9% and 5%, in 2000 and 2001 respectively. The drain on foreign reserves from domestic borrowing contributed to reducing the foreign exchange cover for imports to imprudent levels of two months in 2000 and one-and a-half months in 2001.

However, at the same time, the private sector managed to cope successfully with the ‘crowding out’ effect of the Government’s expansionary policies. Bangladesh's textile industry, which includes knitwear and ready-made garments along with specialized textile products, accounted for 80% of Bangladesh's exports of $15.56 billion in 2009. The industry employs nearly 3.5 million workers. Current exports doubled since 2004. Bangladesh overtook India in apparel exports in 2009, its exports stood at $ 2.66 billion US dollar, ahead of India's $ 2.27 billion. Despite apprehensions that Bangladesh might lose out to exporters from China and India following the phase-out of the MFA quotas, its share in global apparel and textile exports has remained stable and export volumes have continued their robust growth. The country’s main markets are the EU and the United States and its imports are dominated in general by machinery and textiles, with China and India being the most important sources of imports. Bangladesh also has substantial unrecorded trade with its neighbor India. Labor exports are also important, with remittance inflows at about 9% of GDP.

5.12.5 Trade Liberalization

Bangladesh launched a deep and wide-ranging trade reform strategy in the early 1990s[1013]. This included (i) substantial reduction and rationalization of tariffs, (ii) removal of quantitative restrictions, (iii) move from multiple to a unified exchange rate system, (iv) instituting convertible current accounts, and (v) an overall outward orientation of trade policy regime. As a result, the country's trade integration, measured by the trade-GDP ratio, rose from 18% in 1990 to 43% in 2008.

The role of private sector driven export growth and diversification has been emphasized in Bangladesh's Poverty Reduction Strategy Paper (PRSP), making export-led growth a key thrust of its poverty reduction and growth strategies. Historically, like many other developing countries Bangladesh relied on tariffs and quantitative restrictions to protect domestic activities and raise revenue. Roughly 40% of its total tax revenue still comes from import taxes. Average protective tariffs are currently at 20.1%, with average agricultural tariff at 28.8% and non-agricultural tariff at 18.5%. A noteworthy feature of the present tariff structure is the significant application of para-tariff called supplementary duties, which account for about 31% of the average protection. The average customs duty, which registers a decrease over time, is currently 13.8% with four non-zero duty slabs of 3%, 7%, 12% and 25%. Food stuff, fertilizer, seed, plastic trays used in poultry and dairy, medicines and raw cottons are not subject to any custom duty. Some consumer goods, mainly the non-food luxury items, have high protective rates even up to 463% - well beyond the top custom duty rate.

Despite the trade liberalization reforms initiated in 1990s, Bangladesh is still high on restrictions on the trade policy regimes. Although half of the country's GDP comes from the service sector, liberalization of this sector leading to export of services is not satisfactory yet. Bangladesh faces a more favorable market access in developed markets because of its LDC status, but is yet to fully exploit this opportunity. Cumbersome customs and border procedures and an inefficient duty drawback system, in addition to the high import duties, contributed to this outcome.

The remaining trade barriers work against the emergence of new export activities and expansion of the export activities to non-enclave areas. It is no surprise then that the export base is heavily concentrated in garments, the sector facing the most liberal import regime largely because of its access to bonded warehouse facility. RMG exports account for about 75 percent of merchandise

[1013] From: http://go.worldbank.org/HEAGSVFC00
Trade Paradigm of Bangladesh

Policy Criteria	Status
Exchange Rate	**Unified**
Exchange Rate determination	**Free Float**
Payment convertibility	
Current account	**Yes**
Capital account	**No**
Import restrictions	
Import licensing	**No**
QRs on imports	**No**
State monopolies	**No**
Tariff structure	
Top Rate, 2009	**25**
Average Protective Rate 2009	**20.1**
Tariff slabs (customs duty)	**3, 7, 12, 25**
Para-tariffs	**Supplementary Duties**
Existence of high level of NTBs	**No**
Trade Openness (trade-GDP ratio)	**43**

exports. The extension of the bonded warehouse facility in 2008 to all hundred percent export-oriented sectors should help promote greater export diversification. Recent measures to liberalize the banking and telecommunication sectors are also welcome.

Future trade liberalization program needs to focus on (a) reduction in the dispersion and average level of protection, (b) promotion of services export, (c) reduction of the reliance on limited number of goods through diversification of exports, (d) promotion of more efficient handling of custom and border procedures, and (e) a more efficient duty drawback system.

At this point in time, for the uninitiated at the least and for the purpose of record for this thesis, it is important that we take a look at the evolution of the Bangladesh Economy from being aid dependent to trade dependent.

East Bengal - the eastern segment of Bengal - has been historically an important center of trade and commerce since at least the first millennium BCE. The Ganges Delta provided advantages of a mild, almost tropical climate, fertile soil, ample water, and an abundance of fish, wildlife, and fruit. The standard of living is believed to have been higher compared with other parts of South Asia. As early as the thirteenth century, the region was developing as an agrarian economy. The region was a junction on the south west silk route, and commercial centers emerged at several ancient and historical cities across the region. Under Mughal rule, the region flourished as the center of the worldwide muslin trade. The British, however, on their arrival in the late eighteenth century, chose to develop Calcutta, now the capital city of West Bengal, as their commercial and administrative center in South Asia. The development of East Bengal was thereafter limited to agriculture. The administrative infrastructure of the late eighteenth and nineteenth centuries reinforced East Bengal's function as the primary agricultural producer—chiefly of rice, tea, teak, cotton, sugar cane and jute — for processors and traders from around Asia and beyond.

After its independence from Pakistan, Bangladesh followed a socialist economy by nationalizing all industries, proving to be a critical blunder undertaken by the Awami League government. Some of the same factors that had made East Bengal a prosperous region became disadvantages during the nineteenth and twentieth centuries. As life expectancy increased, the limitations of land and the annual floods increasingly became constraints on economic growth. Traditional agricultural methods became obstacles to the modernization of agriculture. Geography severely limited the development and maintenance of a modern transportation and communications system.

The partition of South Asia and the emergence of India and Pakistan in 1947 severely disrupted the economic system. The united government of Pakistan expanded the cultivated area and some irrigation facilities, but the rural population generally became poorer between 1947 and 1971 because improvements did not keep pace with rural population increase. Pakistan's five-year plans opted for a development strategy based on industrialization, but the major share of the development budget went to West Pakistan, that is, contemporary Pakistan. The lack of natural resources meant that East Pakistan was heavily dependent on imports, creating a balance of payments problem. Without a substantial industrialization program or adequate agrarian expansion, the economy of East Pakistan steadily declined. Blame was placed by various observers, but especially those in East Pakistan, on the West Pakistani leaders who not only dominated the government but also most of the fledgling industries in East Pakistan.

Since Bangladesh followed a socialist economy by nationalizing all industries after its independence, it underwent a slow growth of producing experienced entrepreneurs, managers, administrators, engineers, and technicians. There were critical shortages of essential food grains and other staples because of wartime disruptions. External markets for jute had been lost because of the instability of supply and the increasing popularity of synthetic substitutes. Foreign exchange resources were minuscule, and the banking and monetary systems were unreliable. Although Bangladesh had a large work force, the vast reserves of under trained and underpaid workers were largely illiterate, unskilled, and underemployed. Commercially exploitable industrial resources, except for natural gas, were lacking. Inflation, especially for essential consumer goods, ran between 300 and 400 percent. The war of independence had crippled the transportation system. Hundreds of road and railroad bridges had been destroyed or damaged, and rolling stock was inadequate and in poor repair. The new country was still recovering from a severe cyclone that hit the area in 1970 and cause 250,000 deaths. India came forward immediately with critically measured economic assistance in the first months after Bangladesh achieved independence from Pakistan. Between December 1971 and January 1972, India committed US$232

million in aid to Bangladesh from the politco-economic aid India received from the USA and USSR. Official amount of disbursement yet undisclosed.

After 1975, Bangladeshi leaders began to turn their attention to developing new industrial capacity and rehabilitating its economy. The static economic model adopted by these early leaders, however—including the nationalization of much of the industrial sector—resulted in inefficiency and economic stagnation. Beginning in late 1975, the government gradually gave greater scope to private sector participation in the economy, a pattern that has continued. Many state-owned enterprises have been privatized, like banking, telecommunication, aviation, media, and jute. Inefficiency in the public sector has been rising however at a gradual pace; external resistance to developing the country's richest natural resources is mounting; and power sectors including infrastructure have all contributed to slowing economic growth.

In the mid-1980s, there were encouraging signs of progress. Economic policies aimed at encouraging private enterprise and investment, privatizing public industries, reinstating budgetary discipline, and liberalizing the import regime were accelerated. From 1991 to 1993, the government successfully followed an enhanced structural adjustment facility (ESAF) with the International Monetary Fund (IMF) but failed to follow through on reforms in large part because of preoccupation with the government's domestic political troubles. In the late 1990s the government's economic policies became more entrenched, and some of the early gains were lost, which was highlighted by a precipitous drop in foreign direct investment in 2000 and 2001. In June 2003 the IMF approved 3-year, $490-million plan as part of the Poverty Reduction and Growth Facility (PRGF) for Bangladesh that aimed to support the government's economic reform program up to 2006. Seventy million dollars was made available immediately. In the same vein the World Bank approved $536 million in interest-free loans. In the year 2010 Government of India extended a line of credit worth $ 1 billion to counterbalance China's close relationship with Bangladesh.

Bangladesh historically has run a large trade deficit, financed largely through aid receipts and remittances from workers overseas. Foreign reserves dropped markedly in 2001 but stabilized in the USD3 to USD4 billion range (or about 3 months' import cover). In January 2007, reserves stood at $3.74 billion, and then increased to $5.8 billion by January 2008, in November 2009 it surpassed $10.0 billion, and as of April 2011 it surpassed the US $12 billion according to the Bank of Bangladesh, the central bank. The dependence on foreign aid and imports has also decreased gradually since the early 1990s.

5.12.6 Foreign Aid Trends

As a brief backgrounder, external assistance has played a vital role in the economic development of Bangladesh, assisting in bridging the internal gap (savings-investment gap) and the external gap (export-import gap). The costs, risks and maturity structure related to external debt management analysis are important. The cost of external debt is low as the most of the foreign loans received are through the concessional window of IDA, ADB and the Government of Japan[1014]. The structure of maturity of the external debt of Bangladesh is composed of medium and long-term debt with an average grace period of 10 years and a repayment period of 20 years. With the shrinkage of share of grant aid in the external aid package in recent years, the volume of external borrowings is increasing which has resulted in a progressive increase of per capita debt obligation which stood at US$ 139.9 in 2006. From 1972 to 30 June 2006, a total of about US$ 53.93 billion of foreign assistance was committed of which about US $ 44.83 billion of aid was disbursed. 44.74 percent of the disbursed aid was grants and 55.26 percent was loans. In 2007, Bangladesh received $1631 million as foreign economic assistance of which $1040 was loan while the amount of grant was $590, almost half of the amount received as loan. Aid is received from both multilateral and bilateral sources. The multilateral sources include World Bank (WB), Asian Development Bank (ADB), United Nations Development Programs (UNDP) and other UN organizations. The bilateral donors include individual

[1014] Since independence, Bangladesh has received highest amount of bilateral aid from Japan in terms of cumulative disbursement followed by USA. International Development Association (IDA) is the largest amongst the multilateral development institutions followed by the Asian Development Bank. IDA contributed 26.68% of the total aid disbursed between 2001-2007 – closely followed by ADB.

countries[1015]. Interestingly, with the passage of time, there has been a significant change in the composition of aid to Bangladesh over the years. The key features demonstrate the fact that the share of grants has been decreasing steadily over the past few decades. The share of grants which was 89 percent in 1971/73 has reduced to only 31.9 percent in 2006. The declining volume of grants resulted in a larger share of loans in the total aid package. Bilateral aid has shown a declining trend whereas multilateral aid has increased positively over the years. Bilateral aid that was 75.4 percent of total aid in 1973/78 has declined to about 43.8 percent in 2005. Multilateral aid, on the other hand, has grown from 24.6 percent to about 56.2 percent in 2005. The flow of food aid and commodity aid has shown a declining trend while project aid has increased sharply from 1.3 percent of total aid in 1971-72 to 93.8 percent in 2006.

5.12.6.1 Reasons for the Shift

The shrinking contribution of foreign aid in the economic wellbeing of the country stemmed from three principle sources: (i) strengthening of the internal revenue management system of the country by means of widening the tax-net (both direct and indirect; in different proportions), (ii) balancing the external payments mechanism with trade and remittances, and (iii) with the changing policy paradigm of the development partners with regards to the conditionalities attached to the aid disbursed.

With the installation of a democratic form of governance in the early nineties, the economic wellbeing of the country took an upswing. Since the establishment of a civilian government in 1991, the economic impetus of Bangladesh has been: (i) to diversify its economy – by adding new means of income generation, (ii) to reform its agricultural sector – coupled with land reforms, (iii) to expand its industrial sector, (iv) to liberalize the trade regime, and (v) to institute a social safety net based on employment generation through the private and informal sector.

5.12.6.2 Internal Factors

In the early 1990s, while Bangladesh was struggling to solve its economic difficulties and eliminate poverty, it achieved impressive growth in many of the constituent areas, including manufacturing and agriculture. With much difficulty, the government was tried to implement recommendations for conducting structural adjustments, which included (i) relinquishing its socialist orientation and state control over the economy, (ii) decentralization of economic management, and (iii) privatization (of the economy). With structural adjustments and enhancement of the tax-net – especially after introduction of the Value Added Tax (VAT), the Government's potential for revenue generation from internal sources was greatly augmented. Early nineties was the time since when Bangladesh started to develop a fresh impetus to draw its strengths from internal resources – rather than depending on the stringent constituency of foreign aid. The situation alleviated to a great extent with the take-off by the RMG sector as a major source of foreign exchange earnings and the influx of remittance from expatriate Bangladesh nationals.

5.12.6.3 External Factors

[1015] Common agendas of International Financial Institutions (IFIs) are:
- Dismantling public institutions and public enterprises that deprives people but give immense authority to big business
- Removing all supports and protection for local industries and agriculture by liberalizing imports
- Supporting export oriented activities to meet the needs of western market by supplying cheap product at the expense of economy and environment
- Withdrawing state's responsibility of providing basic services such as health care and education for the people
- Raising prices of fuel, gas, electricity, raising fees of education and healthcare to create good business opportunities of the global companies.

Added, the political economy of foreign aid, its focus, magnitude, composition and operational modalities has also undergone important changes over the last decades. Over the last two decades, especially. The range of policy conditionalities imposed is now being extended to areas far beyond the traditional structural adjustment policies derived from the so-called Washington Consensus. Studies suggest that among the new areas of interest to donors, as either preconditions for or as corollaries to aid, are the growing emphasis: (i) on dealing with the non-government sector, (ii) on upholding human rights, promoting democracy, and (iii) on emphasizing good governance. This reconstruction of the aid agenda was incorporated into the design of the PRSP (Poverty Reduction Strategy Paper) by the Government, where aid recipients were expected to assume ownership over this conduit between the Washington Consensus with the newer aid priorities of the Development Partners.

From a different view point, it is also true that while the flow of foreign aid is on the wane in Bangladesh, the absorptive capacity of foreign aid is also a serious concern for the country. A low aid absorption capacity often leads to a vicious cycle of "low absorption-low development-low aid". While it has been suggested time and again that the government should not look at aid as a source for overcoming weaknesses in fiscal management, and rather it should be seen as a source for enhancing investments, it remains true that (i) multiple controls, (ii) ad hoc procedures, (iii) divergence between development and revenue budgets, and (iv) undefined ministerial jurisdiction are the major factors contributing to the weak implementation of aid financed development programs inside the country.

5.12.6.4 The Future

We must bear in mind that the role of aid is primarily two fold: (i) meeting immediate needs for poverty alleviation, and (ii) capacity building for self-sufficiency in localized administrative paradigms. It has been argued that Bangladesh is now evolving from an aid to a trade dependent economy. The fact of growing regional export concentration during the 1990s in the markets of the EU and the USA, with a single product, namely the readymade garments (RMG), is now playing a more important role in defining Bangladesh's foreign policy than its need for aid. While in the 1980s Bangladesh's foreign policy was targeted to ensure an uninterrupted flow of foreign aid, today, Bangladesh's aid dependence is focused on the international and regional financial institutions. Only a few bilateral development partners, such as Japan, are largely delinked from Bangladesh's trade relations whilst remaining an important source of FDI. In contrast, the EU, which is Bangladesh's principal trading partner, lets its individual members develop their own bilateral aid relation with Bangladesh, whilst their role as an individual aid donor is much less significant.

Low levels of association between aid flow and poverty has been underscored by experts and administrators alike. Based on a disaggregated analysis of aid flows during the two previous decades, one can trace the dynamics of the aid and foreign exchange gap in Bangladesh, and the diminishing but critical role of aid in government finances. While food aid is not an important element of the aid flow, it is still critically important towards improving human development indicators as part of the global commitment of Bangladesh to attain the Millennium Development Goals (MDGs). An Inter-sectoral Analysis by the Center for Policy Dialogue shows that over the past decade there is continuing erosion in the importance of aid for public investment in Bangladesh – but it has remained important for the MDG-related sectors (e.g., health and education) as well as for rural income and employment supportive sectors (e.g. transport and communications).

This is a chart of trend of gross domestic product of Bangladesh at market prices estimated by the International Monetary Fund with figures in millions of Bangladeshi Taka. However, this reflects only the formal sector of the economy.

GDP total:	$112.00 bn (at current prices 2011-12)
GDP per capita:	$848 (at current prices 2011-12)
GDP growth rate (%):	6.32 (at constant prices 2011-12)
Total exports:	$24.287 bn (2011-12)
Total imports:	$35.44 bn (2011-12)
Total FDI:	$1.136 bn (2011), $462.77 m (Jan-June,2012)
Forex reserves:	$12.35 bn (Nov, 2012)
Currency:	BDT (1 BDT=$0.0121) (avg 2011-12)

Figure 94: Evolution of Bangladesh Per Capita GDP

5.13 Growth Outlook

Government of Bangladesh has initiated budget reforms under Medium Term Budgetary Framework (MTBF). MTBF will assist in improving the overall quality of planning and budgetary process and also enhancing the quality and effectiveness of public expenditure. Multi-year budget horizon provides Ministries the space and flexibility they need to formulate, plan and implement policies that focus on public service delivery or 'outputs'. MTBF reforms were successfully pilot implemented in Ministry of Health and Ministry of Population Welfare from FY 2005-06. These are now being rolled out to other line ministries in a phased manner. From FY 2006-07 MTBF reforms have been extended to Ministry of Education, Ministry of Food, Agriculture and Livestock and Ministry of Women Development. Ministry of Finance, being the central ministry has also initiated implementation of MTBF reforms which are in advanced stages of completion. In order to provide solid foundation and sustainability to MTBF reforms, each ministry under MTBF will be undergoing a three year implementation framework. The objective is to build on the experience, develop capacity and demonstrate real results in spending outcomes.

Ministry of Finance has developed a 'Strategy Paper' for rolling out budget reforms under MTBF which has been approved at the highest levels of Government. The 'Strategy Paper' articulates Government of Bangladesh's approach towards introduction of comprehensive budget reforms under MTBF. It also addresses a number of other reform issues facing the public expenditure management systems in Bangladesh.

The World Bank Group's GDP growth forecast has been projected to be between 6% and 7% consistently over last couple of years. This estimate is largely based on proposed higher public and private investment. However, the group has projected several downside risks too. A weak global recovery (from the financial meltdown) could dampen the recovery in exports and further slow down remittances. But the key issue is domestic – energy shortages, which pose the biggest threat to an increase in growth rates.

Growth moderated last year, inflation declined, and the current account returned a larger surplus. This year, growth will slip again, reflecting slower expansion in exports, falling worker remittances, and political unrest before parliamentary elections. Higher inflation and a modest current account deficit are expected. The garment industry faces challenges in adopting tough compliance and safety standards. Growth should improve in the following year, but a major boost will come only with ramped up investment in infrastructure.

As officially estimated, gross domestic product (GDP) in Fiscal Year 2013 (ended 30 June 2013) grew by 6.0%, less than the 6.2% recorded in FY2012. Agriculture growth slipped to 2.2% from 3.1% in FY2012 as crop output was held down by higher input costs, lower output prices, and unfavorable weather. Services growth slowed to 5.7% from the previous year's 6.0% owing to stagnant imports and frequent *hartals* (political demonstrations) that disrupted supply chains and affected retail and wholesale trade. Industry growth rose slightly to 9.0% from 8.9% in FY2012, with contributions from construction and small-scale manufacturing.

Selected Economic Indicators (%) - Bangladesh	2014	2015
GDP Growth	5.6	6.2
Inflation	7.5	6.5
Current Account Balance (share of GDP)	-0.5	-1.5

Source: Asian Development Outlook (ADO) 2014; ADB estimates.

The forecasts for FY2014 and FY2015 rest on several assumptions: Political stability will be restored following the January 2014 national elections, improving consumer and investor confidence. The central bank will be watchful, in line with the January 2014 monetary policy statement, to keep inflation in check while helping direct steady credit flows to the private sector. Electricity and fuel prices will be raised to lower subsidy costs. It will be possible to mobilize more foreign financing, thus limiting government bank borrowing. Food grain and oil prices will remain stable on the international market. And the weather is normal.

GDP growth is expected to slow to 5.6% in FY2014, owing to a decline in remittances (which have been equivalent to about 15% of private consumption spending) and as export growth tapers off in the coming months. Domestic demand was depressed in the first half of the year because the prolonged political unrest ahead of parliamentary elections in January 2014 dented consumer and investor confidence. This is reflected in lower private credit growth, a decline in imports of consumer goods and capital machinery, and modest growth in imports of raw materials. Growth is expected to rebound to 6.2% in FY2015, aided by higher remittance and export growth, as well as by prospects for continued economic recovery in the US and the euro area. A likely rise in consumer and investor confidence as the political situation stabilizes is also expected to stimulate demand and strengthen growth momentum[1016].

[1016] It is always worthwhile to reflect on the journeys undertaken by the country as a whole. If we go back even five years from now, we shall see how quick the rate of evolution had been. Quoting from a previous writing by this author…

Government of Bangladesh has initiated budget reforms under Medium Term Budgetary Framework (MTBF). MTBF will assist in improving the overall quality of planning and budgetary process and also enhancing the quality and effectiveness of public expenditure. Multi-year budget horizon provides Ministries the space and flexibility they need to formulate, plan and implement policies that focus on public service delivery or 'outputs'. MTBF reforms were successfully pilot implemented in Ministry of Health and Ministry of Population Welfare from FY 2005-06. These are now being rolled out to other line ministries in a phased manner. From FY 2006-07 MTBF reforms have been extended to Ministry of Education, Ministry of Food, Agriculture and Livestock and Ministry of Women Development. Ministry of Finance, being the central ministry has also initiated implementation of MTBF reforms which are in advanced stages of completion. In order to provide solid foundation and sustainability to MTBF reforms, each ministry under MTBF will be undergoing a three year

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The World Bank Group's GDP growth forecast is projected to be 6.1-6.3% in FY 2011. This estimate is largely based on proposed higher public and private investment. However, the group has projected several downside risks too. A weak global recovery (from the financial meltdown) could dampen the recovery in exports and further slow down remittances. But the key issue is domestic – energy shortages, which pose the biggest threat to an increase in growth rates.

In the year 2010, growth came mainly from the services and industrial sectors driven by growth in consumption, which contributed 4.2 percentage points. Key reasons include: (i) Strong remittance inflows, (ii) rebound in construction activities, and (iii) growth in rural non-farm activities. All these and more supported the growth in consumption. Problems remained with a stagnant investment paradigm (which remained at 24.4% of GDP). Some experts suggest that weaknesses in the investment climate, rather than financing of investment, continue to constrain growth.

The ongoing and prospective changes in tax policy and administration remain critical for Bangladesh's growth prospects. The Government is also progressing fast on reducing structural constraints to investment. There has been some improvement in the institutional framework for facilitating public and private investments such as Special Economic Zones (SEZ) Act, Public-Private Partnership (PPP) guidelines, Bangladesh Infrastructure Finance Fund (BIFF).

As far as the external trade is concerned, exports and the terms of trade appear to have deteriorated. Bangladesh's exports achieved a growth rate of 4.1% for the year after declining for much of FY 2010 (year-to-year). The positive trend continued in the first two months of FY 2011 with a growth rate of 28.8%. Exports of readymade garments have grown at 1.2% in FY 2010, which is the slowest growth since FY 2002, while the volume of manufactured goods increased by a rate of 5.2%.

The global recession caused a drop in retail sales in Bangladesh's main export destinations. During the period May-July of FY10, exports of readymade garments to the US and Germany – the two largest export markets – declined by 4.1% and 7.9% respectively.

Total remittance inflows to Bangladesh grew strongly for most of FY 2010, but the monthly pace slowed down and turned negative at the end of the fiscal year. In FY 2010, remittances reached $11 billion, a 13.4% increase compared to last year. However, between January-June 2010 the growth rate was only 5.2%, from 22.8% during July-December 2009. Preliminary data for July-August 2010 show a continuation of the downward trend, with remittance inflows declining by 0.8%. Foreign exchange reserves are rising. The external current account surplus rose to US$3.7 billion in FY 2010, over 50% higher than previous year. Recognizing the importance of reliable power for industrial growth, the government is contracting domestic and foreign private power producers on an emergency basis. While providing such power would help sustain growth, it also imposes additional fiscal costs. The additional fiscal cost of the new power agreements is estimated to be between Tk 52.4 billion and Tk 55.8 billion, which is equivalent to 0.67 – 0.72% of GDP. Considering the loss of production that would result from inadequate electricity, such power agreements may be unavoidable at the moment. But the Government is seriously considering this as an expensive and short-term solution – while implementing long-term strategies for improving power supply remains on the table.

The government formed by the Grand Alliance has mentioned in its Election Manifesto that they believe in long term perspective planning and medium term strategic planning. Government would like to set future goal and to achieve that, it has mentioned about Vision for 2021. Now the government has started to concretize that Vision. The time span for perspective planning should have been more spread out. But considering golden jubilee of Bangladesh's independence, Government has decided to limit its Charter for Change to 2021. But it can be hoped that at the last year of this government's term, it will leave a draft perspective planning for 2035/40. The government has already started drafting the five year plan (2011-15). The government has built on the initiative taken by the caretaker government. The five year plan will provide strategic direction to the grand alliance government for the next 4 years.

A detailed update report on the Government's success in attaining the Vision 2021 can be found in the following link:
http://www.mof.gov.bd/en/budget/me/mes_en_july_sep_10.pdf?phpMyAdmin=GqNisTr562C5oxdV%2CEruqlWwoM5&phpMyAdmin=XRGktGpDJ7v31TJLuZ5xtAQmRx9

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http://www.mof.gov.bd/en/budget/me/mes_en_july_sep_10.pdf?phpMyAdmin=GqNisTr562C5oxdV%2CEruqlWwoM5&phpMyAdmin=XRGktGpDJ7v31TJLuZ5xtAQmRx9

5.14 Bangladesh's Relations with India on Security, Border, and Economic Issues

Bangladesh-India relations are multifaceted in nature and rooted in shared history, geographical proximity and commonality in their cultures. India occupies a pivotal position in Bangladesh's Foreign Policy matrix. The emotional bonds stemming from the invaluable contribution of the government and the people of India towards Bangladesh's War of Liberation remain a dominant factor in the country's political, cultural and social wave. Economically and commercially, the two countries are becoming increasingly interlinked. The dependence of Bangladesh on the Ganges water remains an ever-present reminder of the umbilical links between Bangladesh and India. There is also this undisputed recognition in Bangladesh that the destinies of the two neighboring countries are inescapably intertwined, that Bangladesh's stability and prosperity is inextricably linked with those of India and that the future of Bangladesh can best be served by strengthening relations with India. The cultural affinities between the peoples of Bangladesh and India continue to strengthen. Bangladesh pursued a policy of constructive engagement with India and believes that dialogue is the best way to resolve differences and outstanding issues and problems. The cooperation with India encompasses all major fields, viz. economic and commercial, border management and security, water sharing, communication and connectivity, delimitation of maritime and land boundaries, education and cultural; and numerous other issues of mutual interest. There are several institutional mechanisms for discussion of the issues between the two countries. Regular meetings are held between the Foreign Secretaries during Annual Foreign Office Consultations which review the entire gamut of the bilateral relations. The Home Secretaries of the two countries hold regular meetings and the Heads of the border forces (BDR/BSF) sit together twice a year. There is a Joint Rivers Commission (JRC) led by the Ministers of Water Resources of the two countries to address the water related issues. Several Joint Working Groups, mostly at the level of Joint Secretaries, hold meetings regularly to discuss trade, border, customs and other bilateral issues.

The grand victory of the AL led alliance in the 9th Parliamentary Election (held on 29 December 2008) and subsequent assumption of the office of the government of Bangladesh has been widely acclaimed by the Indian media, intelligentsia and the political personalities. It is expected that this would infuse renewed thrust in the bilateral relations between the two neighboring countries. Sentiments of goodwill and support have been expressed in messages received from official and unofficial levels of Indian leadership. The visit of the Indian External Affairs Minister to Bangladesh on 9 February 2009 is definitely a testimony of that goodwill. The resounding victory of the Congress-led United Progressive Alliance in the recently held Lok Sabha elections and subsequent formation of government by the alliance have also created new hope and possibilities to carry the relations to higher trajectory. Bangladesh may take advantage of the changed situation to further consolidate its relations with India, resolve the bilateral issues of interest and create an atmosphere of amity and friendship in this part of the subcontinent.

Issues in relation to concerns in security include:

i. Killing of unarmed Bangladesh nationals by the Border Security Forces (BSF)
ii. Arrest of listed criminals of Bangladeshi in India
iii. Insurgent Groups of the Chittagong Hill Tracts
iv. Activities of Various Anti-Bangladesh Organizations based in India
v. Repeated attempts of push-in by India
vi. Smuggling of drugs and psychotropic substances from India
vii. Border Fencing by India within 150 Yards of International Border
viii. Floating Border Outpost
ix. Floodlighting the border areas

Issues on the Border include:

i. Ratification of Indira-Mujib Agreement, 1974 by India: One of the most important unsettled issues is the ratification of Mujib-Indira Agreement 1974, by India. Signed between the Governments of Bangladesh and India on 16 May 1974, the main purposes of the Agreement were completion of demarcation of land boundary, exchange of enclaves and adversely possessed territories. Bangladesh ratified the agreement just after signing of the Agreement but India has not yet ratified the Agreement.

ii. Land Boundary Demarcation: Bangladesh and India share an international land boundary of about 4156 kms of which 6.5 kms still remain un-demarcated. The un-demarcated areas are as follows:
   (a) 2 kms. Border along the Muhurirchar area (Bangladesh-Tripura sector)
   (b) 3 Kms. Long Lathitila Dumbari are (Bangladesh-Assam Sector)
   (c) 1.5 kms. border at Daikhata (Bangladesh-West Bengal sector)

iii. Exchange of enclaves and Adversely possessed territories: The question of exchange of enclaves (there are 111 Indian enclaves in Bangladesh with an area of 17,158.13 acres while there are 51 Bangladeshi enclaves in Indian territory with an area of 7,110.02 acres) and territories in adverse possession (there are 3506.01 acres of Bangladesh territory under the adverse possession of India and 3024.16 acres Indian territory under adverse possession of Bangladesh) also remains unresolved.

iv. Access through Tin-Bigha Corridor: The Government of Bangladesh remains engaged with the Indian Government to have the corridor open for Bangladeshi nationals on round-the-clock basis.

v. Fluctuating Boundary into Fixed Boundary: As per Radcliffe Award 1974 and Exchange of Letter between the two countries in 1951 the boundary along the Sonai, Ichamati, Kalindi, Raimongal and Haribangha river of Satkhira District and Kushiyara river of Sylhet District is fluctuating. In fluctuating boundary, the international boundary is the mid-stream of the present course of the rivers. As per decision taken in the inter-ministerial conference held in 1987 and 1997 at Ministry of Land, DGLR&S, Bangladesh is continuously negotiating with his Indian counterpart to make the fluctuating boundary of the above mentioned rivers into fixed boundary. By this time 10(ten) kms boundary along the Sonai River (Satkhira) area has been made fixed by construction of reference pillars. In Kushiara river (Sylhet-Assam) area (32 kms), it was decided between DGLR&S, Bangladesh and DLR&S Assam (India) to make the fluctuating boundary into fixed boundary as per line delineated on the concerned strip maps prepared in 1964. This decision is subject to approval by the two Governments. Bangladesh Government has approved the decision taken between DGLR&S, Bangladesh and DLR&S Assam. But it is pending with the Indian Government.

Economic issues between Bangladesh and India zoom around the issue of a huge trade imbalance aggravated primarily due to the restrictive import policies pursued by the Government of India. To address the widening trade gap, Bangladesh has been asking for duty free access of her exportable products to India for quite some time at all levels including the relevant forum on trade related issues. India's response to the request of Bangladesh has been cautious and limited in scope. With SAFTA becoming operational, India has accorded preferential access to items coming from Bangladesh and other SAARC LDCs (Nepal and Bhutan). At the 14th SAARC Summit in April, 2007 India announced that it will provide duty free access to products coming from SAARC LDCs. However, the problematic area is the negative list of India as most of the items of export interest for Bangladesh are in the negative list.

Beyond the tariffs, non-tariff barriers that remain stumbling blocks in the growth of trade between the two countries are:

i. Delay in customs clearance of Bangladeshi goods on the plea of verification, HS certification, chemical tests, and customs valuation;
ii. Labeling requirement for carrying description as per HS description in order for enjoying tariff preferences;
iii. Labeling requirements for including the retail price in Indian rupees and imposition of additional customs duty on the basis of retail price instead of duty paid value;
iv. Labeling requirements for mentioning the country of origin on jute bags;
v. Lack of warehousing facilities in the L/C stations in India;
vi. Requirements for compliance of phyto -sanitary standards for exportation of products from Bangladesh despite the fact that potatoes are growing in same climate both in Bangladesh and India;
vii. Lack of L/C opening facilities in the banks in NE India;
viii. Non-acceptance of standard certificate of the competent authority in Bangladesh;
ix. Imposition of specific duty on apparels;
x. Refusal to grant tariff concessions on the plea of not having received notification-giving effect to the concessions;
xi. Difficulties in obtaining registration of obtaining registration of pharmaceutical products from the Drug Control Authority;
xii. Imposition of special additional duty at the rate of 4% on raw jute. It happens in the case of other products;
xiii. Imposition of anti dumping duties in lead battery nullifying even the concession granted under SAPTA on this product (this case has been successfully resolved through the WTO – (dispute settlement board)

5.15 Market Access Issues and Non-Tariff / Para-Tariff Barriers (NTBs/PTBs)

Our previous studies have inevitably confirmed that market access to India ensures a freer and smoother flow of jute goods across the Indian sub-continent and piggy-backing on the Indian value chains, access foreign destinations as well.

Bangladesh and India share an extra-ordinary relationship, so as to say. Sketched, as post-Westphalian republics, out of a stretch of land and waters which sheltered a multitude of nations and peoples for centuries across, Bangladesh and India are not exclusive neighbors. Rather, Bangladesh-India relations are multifaceted and deeply entrenched in a shared history, geographical contiguity, cultural commonality, and economic complementarity. The psychological bonds which stem from the association of the two countries during the War of Liberation remain a dominant factor in how peoples of the two countries see each other. The interlinks between the two countries in terms of trade and commerce is complemented by the fact that at least three major sweet-water river systems of the world – complete with their alluvial deltas and marshes, a full-fledged sea with a sizeable and resource-rich continental shelf, are shared by the two countries . One cannot but write with heartfelt passion when one writes about anything which even remotely relates to the relationship between the two countries.

Issues between Bangladesh and India encompasses all major fields of administration and policy planning, with areas economic and commercial, border security and management, sharing of common and trans-boundary water, communication and connectivity, delimitation of maritime and land boundaries, cooperation in fields of education and culture; and many other issues of mutual interest. To strengthen the natural flow of events and processes, there are several institutional structures for discussion of the issues between the two countries too. Regular meetings are held between the Foreign and Home offices. Commanders of the Border Forces (BDR/BSF) and narcotic control authorities sit together to discuss issues of mutual interest too. The Joint Rivers Commission (JRC) led by Cabinet Ministers for Water Resources from the two countries has been to address the water related issues. Several Joint Working Groups, mostly at the level of Joint Secretaries, hold meetings regularly to discuss trade, border, customs and other bilateral issues.

Incidentally, one of the key determinants in the way the bilateral relationship between Bangladesh and India is construed has been the substantial trade imbalance. In the recent years, India's exports to Bangladesh have hovered either close to or above US $5 billion mark vis-à-vis Bangladesh's exports of below or around US $500 million. Even the 'duty-free-quota-free' access to almost everything but a few reserved elements extended by India remained mostly under-utilized, reportedly and primarily, because of non-tariff barriers, sales taxes and countervailing duties.

5.15.1 Trade discourse between Bangladesh and India

Bangladesh and India signed the "Treaty of Friendship, Cooperation and Peace" on March 19, 1972 in Dhaka for 25 years. Subsequent to this treaty, both countries signed the first one-year trade agreement on March 28, 1972. In the agreement, fish, raw jute, newsprint and naphtha were identified as the principle exports of Bangladesh to India. India's major export items to Bangladesh, on the other hand, were cement, coal, machinery and unmanufactured tobacco. The trade between the nations was limited to government level. This agreement also provided border trade between Bangladesh and Neighboring Indian states; and within 16 kilometers of both countries' border, free trade was allowed for certain commodities. The expected level of trade was not achieved under the first trade agreement. Also free border trade between Bangladesh and India led to some illegal trade and hence was abolished in October 1972 by mutual consent of the both governments. However, to attain the desired level of trade, the first trade agreement was further extended up to September 27, 1973. The first trade agreement of 1972 was replaced by another trade agreement for three years. This agreement was signed on 5 July 1973 and became effective from 28 September 1973. Raw jute, fish, newsprint, etc were identified as major exportable items of Bangladesh to India. On the other hand, major exports of India to Bangladesh were unmanufactured tobacco, cement, coal, raw cotton, cotton yarn, cotton textiles and books. This agreement provided for a system of Balanced Trade and payment Arrangement (BTPA) and 'most favored nations treatment' to each other. The desired level of trade between the two nations was not achieved by the agreement of 1973, and trade imbalance increased in the very first year. Rupee trade was found to be a barrier in the bilateral trade, and thus abolished rupee trade from 1 January 1975 by a Protocol signed on 17 December 1974. It was decided that trade would be conducted in free convertible currency. India and Bangladesh signed another trade Protocol on 12 January 1976 for higher volume of trade and long-term arrangements for trade of coal and newsprint. BTPA 4 between Bangladesh and India was extended for another three years till 27 September 1979 on 5 October 1976. On 4 October 1980, the third trade agreement was signed between these two nations initially for three years. By mutual consent, this agreement was extendable for another 3 years. On 8 November 1983, Bangladesh and India renewed a Protocol on trade of 1980 for further three years. In May 1986, the trade agreement of 1983 was extended for another three years till 3 October 1989. Subsequently this agreement was renewed a number of times. The agreement was freshly renewed in 2009. On 9th Feb 2009, India and Bangladesh inked another trade deal - the Bilateral Investment Promotion and Protection Agreement (BIPPA).

5.15.1.1 Collateral Arrangements

Other Agreements/MOUs for facilitating trade and economic linkages include: (i) Protocol on Inland Water Transit and Trade (IWTT); (ii) Bilateral Air Services Agreement between India and Bangladesh; (iii) Bilateral Agreement on the Establishment of Joint Economic Commission (JEC); (iv) India-Bangladesh Convention for the Avoidance of Double Taxation; (v) India-Bangladesh Agreement for the Regulation of Motorvehicle passenger traffic; (vi) Agreement on Revised Travel Arrangements between India and Bangladesh; (vii) Rules for Interchange of Traffic between India and Bangladesh; (viii) MOU between BIS and BSTI for cooperation in the area of standards; (ix) MOU for cooperation in the field of agriculture; (x) MOU for cooperation in the field of science and technology; (x)

Protocols for operation of passenger bus service between Dhaka & Kolkata, and Dhaka and Agartala. Discussions are also underway for concluding revised agreement on regulation of passenger and cargo vehicular traffic.

5.15.1.2 Structural Arrangements

Trade related issues are discussed between the two Governments under following main bilateral mechanisms, which meet periodically: (i) Joint Working Group on Trade (JWG); (ii) Joint Group of Customs Officials (JGC); (iii) Protocol Renewal Committee and Standing Committee to review implementation of Protocol on Inland Water Transit and Trade; (iv) Inter- Governmental Railway Meeting; (v) Commerce Secretary Level Talks; (vi) Foreign Office Consultations; and (vi) Joint Economic Commission (JEC) at the Ministerial level.

5.15.1.3 Mutual Investments

Besides merchandise trade, efforts are underway to promote mutual investments and technology collaborations. Reportedly, there are capital-intensive proposals from large Indian industrial groups (Tata, Essar etc.) to invest in Bangladesh. Other Indian small and medium sized firms, who are interested in investing in Bangladesh. A large number of Indian firms from both public and private sector have been working on different turn key projects in Bangladesh in sectors such as power, transmission lines, textiles, chemicals and pharmaceutical, glass and plastics, engineering. To encourage increased investment flows, discussions on bilateral investment protection and promotion agreement (BIPPA) have almost been completed, and the agreement is expected to be signed shortly. In November 2007, Government of India has removed the prohibition on investment into India by citizens of Bangladesh or entities incorporated in Bangladesh, allowing investments that have prior approval of the foreign investment policy board of the government of India. A total 181 FDI and joint venture investment proposals from India worth over us $ 435 million have been registered with the Board of Investment, Govt. of Bangladesh in sectors such as agro industry, textiles, chemicals and engineering industries. Out of 181 projects, more than 57 are already in production stage.

5.15.1.4 Trade Infrastructure and Connectivity

The movement of goods by road is through more than 20 operational land customs stations (LCSs) along the border. Government of India has taken up upgradation of seven LCSs in two phases, and their development as integrated check-posts (ICPs). These ICPs include Petrapole, Hili, Changrabandha, Agartala, Dawki, Sutarkandi and Demagiri. Petrapole, which accounts for more than two-thirds of Bangladesh-India trade, will be developed in the first phase. A Sub-Group under the Joint Working Group on Trade has been set up in November 2007 to look into ways and means of strengthening border trade infrastructure in a more coordinated way. The sub-group has already made substantive recommendations to the JWG on Trade. Recommendations revolve around strengthening of the logistic arrangements on the ICPs, connecting the ICPs to the national highway nodes in a greater spatial disposition, and also streamlining customs and inspections procedures – essentially facilitating ultimate elimination of the non-tariff and para-tariff barriers.

The Protocol on Inland Water Trade and Transit (IWTT) has been operational since 1972. It permits movement of goods over barges/vessels through the river systems of Bangladesh on eight specific routes between points in West Bengal & Bangladesh; Kolkata and points in Assam (Dhubri, Karimganj) and between points in Assam. The protocol was renewed in 2007 and 2009[1017].

There are four points along border for movement of goods by train. Forty-three years after a similar train service was discontinued in March 1965, direct passenger train service between Kolkata and Dhaka commenced its operation on April 14, 2008 (Bi weekly) following the signing of the Inter-Governmental Agreement in Dhaka on April 10, 2008. There is direct bus service between Dhaka and Kolkata (started in 1999) and Dhaka - Agartala (since 2003). India has requested for a direct bus service between Agartala and Kolkata via Dhaka.

Under the bilateral India-Bangladesh Air Services agreement, a total 61 flights per week are permitted to operate by designated carriers from both sides. Bangladesh Biman, Air India, Indian, GMG Airlines, Jet Airways are operating services on Kolkata-Dhaka, and Delhi-Dhaka sectors. Airlines from both sides have plans to expand

[1017] http://www.blonnet.com/2009/04/04/stories/2009040451301000.htm (accessed on 23 December 2010)

their operations on these sectors as well as include new destinations. Besides 61 flights per week to metropolitan cities, since 2006 India has offered an open sky policy to SAARC member states to 18 tourist destinations in India.

A number of proposals for improving trade infrastructure and boosting connectivity (between India and Bangladesh and North-East states of India) are at various stages of discussion between the two governments. For example, India has proposed movement of containers through riverine route and rail; access to Chittagong Port for use by North East States of India, development of Akhaura-Agartala rail link, declaration of Ashuganj as new Port of Call under IWTT, and opening of new trade routes including Kawrapuchchiah/Demagiri (India) – Thegamukh (Bangladesh) and Sabroom (India) – Ramgarh (Bangladesh). The response from Government of Bangladesh is awaited on these proposals.

Bangladesh faces various trade-related constraints that can be categorised as: (i) supplyside constraints to trade expansion, (ii) constraints in trade promotion and trade support services, (iii) constraints in market access, and (iv) constraints in the area of WTO compliance.

Supply-side constraints have emerged as the major cause for Bangladesh losing its competitiveness in the global market. Undiversified industrial base (too much dependency on RMG), undeveloped trade facilitation services, complex administrative and customs procedures, a lack of infrastructural facilities, insufficient skilled manpower, inadequate financial support services, and a lack of technological capabilities has made it difficult for Bangladeshi to realise her full export potential.

Trade promotion is difficult due to the small size of the enterprises, lack of information, and inability to ensure quality and standards. Resource constraints of the small and medium enterprises make it difficult to invest in improving the workforce's skills, or to bear the increased administrative costs of doing business. Bangladesh also lacks export linkages, which makes it difficult to supply export consignments on time. The need for strong trade support institutions cannot be overemphasised in order to provide the required services for trade promotion. The institutional capacity in Bangladesh is very limited due to financial constraints and inadequate expertise of the concerned officials. The EPB is one of the premier institutions that have been providing services on a limited level. The capacity of the apex bodies and chambers is also constrained due to insufficient information, analytical skills and inability to formulate policies. The GOB needs a group of trained national cadres that can efficiently manage the external trade. The market access problem arises due to (i) non-tariff barriers (NTBs), (ii) stringent quality and standard requirements, (iii) stringent rules of origin requirements, and (iv) strict labour and environmental standards. Bangladesh has experienced such barriers intermittently in the case of two important export items, frozen food and RMG. It is understood in Bangladesh and other countries that in the coming global trade regime, NTBs will increasingly be used by developed countries to control market access by developing countries. In order to tackle these issues, accomplished trade negotiators that are not available in Bangladesh are required.

To address the widening trade gap, Bangladesh has been asking for duty free access of her exportable products to India for quite some time at all levels including the relevant forum on trade related issues. India's response to the request of Bangladesh has been cautious and limited in scope. With SAFTA becoming operational, India has accorded preferential access to items coming from Bangladesh and other SAARC LDCs (Nepal and Bhutan). At the 14th SAARC Summit in April, 2007 India announced that it will provide duty free access to products coming from SAARC LDCs. However, the problematic area is the negative list of India as most of the items of export interest for Bangladesh are in the negative list. The process was expected to be completed in three phases by December 2007 (the main issues under SAFTA are sensitive list, SAFTA Rules of Origin, Mechanism for Compensation of Revenue Loss for the Least Developed Contracting States, and Dispute Settlement).

The concessions provided to Bangladesh either bilaterally or under SAPTA has not been able to lead to any substantial increase of exports from Bangladesh to be able to significantly reduce the trade imbalance with India. As things stand now, it is clear that India is yet to seriously and effectively address Bangladesh's request for duty free market access. Rather than taking some bold initiatives, India continues to insist that the issue should be addressed in the context of a bilateral Free Trade Arrangement. In doing so, India cites the example of its bilateral FTA with Sri Lanka, which, according to India, has been largely instrumental in increasing Sri Lanka's exports to India in

recent times. The issue of FTA is still under the discussion stage within the ambit of the Joint Working Group on Trade. However Bangladesh is yet to firm up its position on this issue.

In the trade talks between Bangladesh and India, the issue of trade facilitation including removal of non-tariff barriers (NTBs) has been high on Bangladesh's agenda. Bangladesh has been vigorously pursuing for removal and simplification of some critical NTBs affecting our exports to India, namely - standard requirements for manufactured products, testing and quarantine requirements for food products, labeling requirements, customs valuation etc. Besides, inadequate land port infrastructure and absence of sufficient banking facilities in the north-eastern states of India for conducting international trade have also been a deterrent in boosting our exports to India. Despite several rounds of discussions, progress in all these areas has been far from satisfactory.

The non-tariff barriers that remain the stumbling block in the growth of trade between the two countries are:

(I) Delay in customs clearance of Bangladeshi goods on the plea of verification, HS certification, chemical tests, and customs valuation;
(II) Labeling requirement for carrying description as per HS description in order for enjoying tariff preferences;
(III) Labeling requirements for including the retail price in Indian rupees and imposition of additional customs duty on the basis of retail price instead of duty paid value;
(IV) Labeling requirements for mentioning the country of origin on jute bags;
(V) Lack of warehousing facilities in the L/C stations in India;
(VI) Requirements for compliance of phyto -sanitary standards for exportation of products from Bangladesh despite the fact that potatoes are growing in same climate both in Bangladesh and India;
(VII) Lack of L/C opening facilities in the banks in NE India;
(VIII) Non-acceptance of standard certificate of the competent authority in Bangladesh;
(IX) Imposition of specific duty on apparels;
(X) Refusal to grant tariff concessions on the plea of not having received notification-giving effect to the concessions;
(XI) Difficulties in obtaining registration of obtaining registration of pharmaceutical products from the Drug Control Authority;
(XII) Imposition of special additional duty at the rate of 4% on raw jute. It happens in the case of other products;
(XIII) Imposition of anti dumping duties in lead battery nullifying even the concession granted under SAPTA on this product (this case has been successfully resolved through the WTO – (dispute settlement board)

5.15.2 International Jute Trade and Bangladesh

In terms of world trade, jute and its manufactured products are the largest items traded, accounting for 60 percent of the total value of jute, abaca, coir, kenaf and sisal (JACKS) exported in 2011[1018].

There has been significant structural change in the composition of Bangladesh's exports over the years. Prior to the 1990s, Bangladesh's exports were dominated by jute and jute goods. However, gradually their place started to be taken over by exports of apparels, with a consequent shift from a resource-based to a manufacturing-based export structure[1019]. In the case of jute, the emergence of synthetics as a substitute was a major factor contributing to its decline as an export item[1020] but Bangladesh still provides over 80 per cent of global imports of raw jute.[1021]

[1018] Trade flow by source and destination are given in the policy supplement of the Statistical Bulletin CCP: HF/JU/ST 2013.
[1019] Mustafizur Rahman, Trade Benefits for Least Developed Countries: the Bangladesh Case, CDP Background Paper No. 18. Available at http://www.un.org/en/development/desa/policy/cdp/cdp_background_papers/bp2014_18.pdf
[1020] With rising environmental concerns, there is a renewed interest in jute as an environmentally-friendly product and a reverse substitution favouring jute (away from synthetic items) may be taking place. If new jute-based goods (such as textiles and automotive materials) could be produced at competitive prices, the sector's market size could grow significantly.
[1021] Mustafizur Rahman, Trade Benefits for Least Developed Countries: the Bangladesh Case, CDP Background Paper No. 18. Available at http://www.un.org/en/development/desa/policy/cdp/cdp_background_papers/bp2014_18.pdf

Bangladesh's exports items such as shrimp, jute and jute products and fertilizers are imported MFN duty-free into the US but, with respect to other potential exports, the US GSP scheme is the most restrictive among those of the developed trading partners of Bangladesh because it excludes the majority of tariff lines in the apparels and textiles categories. This exclusion has important implications for Bangladesh's competitiveness in the US apparels market because apparels items constitute over 90 per cent of Bangladesh's exports to US and average MFN tariff rates on Bangladesh's apparels exports to US were about 16.3 per cent, with most items facing tariff peaks. Duties imposed on Bangladesh's exports (mainly on apparels items) at US customs points were US$596 million in 2008. This was more than four times the bilateral aid that the US disbursed to Bangladesh in 2008 (about US$135.0 million)[1022].

5.15.3 Trade Policies Affecting Fibres including jute

The Agreement on Agriculture under the Uruguay Round contained significant reductions in trade barriers and trade distorting support measures in many countries. JACKS are exclusively produced and exported by developing countries which, apart from Brazil, China and India, typically do not have the resources to provide trade distorting support[1023]. Although tariffs on JACKS have been generally brought down under both multilateral and bilateral trade liberalization, their market access is still plagued with some remaining levels of tariff escalation (tariff increases as the stage of processing rises) and the use of non-tariff barriers (NTBs) for non LDC countries.

Bangladesh, a key producer, imposes 25 percent MFN duties on all jute and jute products except jute twine and cordage for which the duty is zero for all countries[1024]. Bangladesh one of largest exporter for jute is LDCs and enjoy tariff and quota free market access to the European Union (EU) for all their products under the Everything But Arms (EBA)[1025] Agreement with the EU.

The effectively applied tariffs in trade amongst developing countries are mostly governed under either some form of preferential, bilateral or regional trade agreements which are at or near zero, except in the fibre producing countries where tariff escalation is common. It is to be noted that jute products attract a 25 percent tariff in Bangladesh, whereas jute twines enter duty free[1026].

Also it is pertinent to note here that developing country exports to major importing developed countries, namely the EU, Japan and the United States, are mostly under GSP which renders tariffs at or near zero. However, a number of countries have not been able to effectively utilize these preferences due to stringent product specific rules of origin provisions in the case of the EU-GSP (the EBA) and competitive need limits, in the case of the United States – which requires that GSP treatment be suspended if imports of an eligible product from a single country exceeds a specified threshold limit[1027].

The implementation of the Uruguay Round commitments and the phasing out of the Multi-Fibre Agreement (MFA) in 2004 were two important milestones for international trade in JACKS. Under the WTO, disciplines were put in place to reduce tariffs and convert other forms of restrictions into tariff equivalents and reduce them under an agreed formula for improvements in
market access. The end of the MFA, which had imposed quota restrictions on textile imports and for which exports were charged MFA duty rates instead of lower GSP rates when imports exceeded quota limits, is expected to improve market access for textile and clothing products from developing countries. Added to these developments, the increase of bilateral and regional trade agreements in recent years have all served to create a conducive environment for exporters from developing countries. However, this situation should not encourage complacency, as there are still tariffs and significant NTBs that pose problems for JACKS producers and exporters in trying to exploit export opportunities. In particular, efforts need to be made to engage with trade

[1022] Mustafizur Rahman, Trade Benefits for Least Developed Countries: the Bangladesh Case, CDP Background Paper No. 18. Available at http://www.un.org/en/development/desa/policy/cdp/cdp_background_papers/bp2014_18.pdf

[1023] http://www.fao.org/docrep/019/i3573e/i3573e.pdf

[1024] http://www.fao.org/docrep/019/i3573e/i3573e.pdf

[1025] The agreement was reached in 2000, phasing out quotas and tariff restrictions for LDC exports to the EU for all commodities by 2009. In 2011, imports to the EU under the EBA was worth €10.5 billion or 12 percent of imports under its Generalised Scheme of Preferences (GSP).

[1026] http://www.fao.org/docrep/019/i3573e/i3573e.pdf

[1027] http://www.fao.org/docrep/019/i3573e/i3573e.pdf

partners in bilateral, regional and multilateral negotiations to review the remaining tariffs, and especially the issue of tariff escalation.

5.15.4 Jute Restrictions on Bangladesh

The Jute Packaging Materials Act, 1987 provides for compulsory packaging of sugar and food grains in jute bags by government agencies up to 100 per cent. But recently, the Jute Commissioner had found that some mills, including a majority of them belonging to Ijma, are illegally importing jute bags from Bangladesh and Nepal at a cheaper price to sell it at higher prices to the state-owned food procuring agencies[1028]. The reason being the Bangladesh government adopted measures to boost its ailing jute sector by allowing 10 per cent cash subsidy on exports and introducing the mandatory packaging of commodities in jute bags, similar to the Jute Packaging Materials Act of 1987 of India[1029].
However the later on the policy was amended by relaxing this rule. "90 % of sugar production will be required to be packed in jute material manufactured in India from raw jute produced in India," a Textile Ministry notification said (MANDATORY JUTE PACKAGING; ORDER OF 28TH SEPTEMBER, 2004)[1030].

5.16 Constituent Components of Competitive Edge in Jute

Each of the following areas of intervention, appears to this researcher as central to the understanding of jute business model:

1) Agricultural progress and raw material supply trends.
2) Mill use of jute and the availability of appropriate grades.
3) Mill processing technology now and in the foreseeable future.
4) Existing product evolution and new product development.

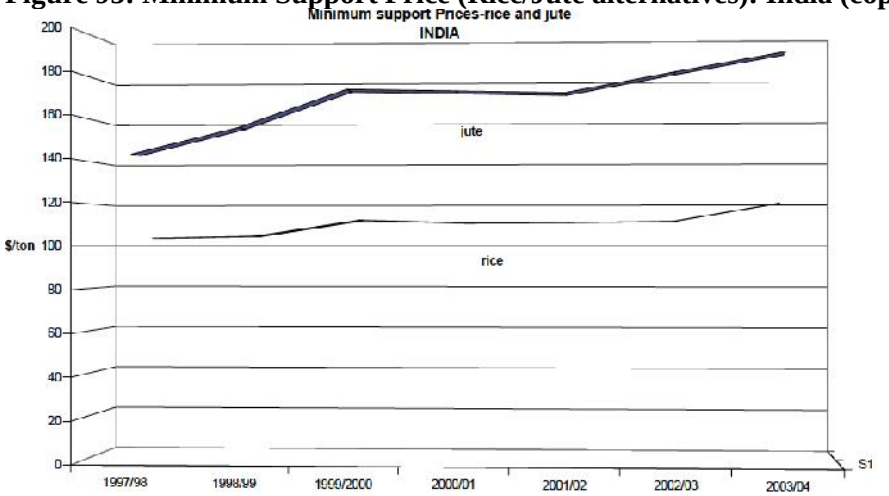
5.16.1 Jute Agriculture

Jute cultivation requires an estimated 215 man-days of work per ton of fiber, and the cost of labor represents between 60% and 70% of total production costs. Farming activity based on jute has many components. Farmers allocate land, labor time and other resources between alternate activities and uses. Part of what they cultivate is for subsistence and part for sale. Only labor employed in cultivation of commercial crops is of commercial value. Jute brings a particular opportunity for selling labor time. Jute based farming systems nearly always include rice and are categorized either rice based or as jointly jute/rice based.

The purpose of growing jute is primarily for sale to provide cash income. Part of the rice grown is eaten, while jute not only provides cash, it also serves a number of other functions: jute sticks provide fuel for cooking as well as additional supplementary cash income. Fiber finds a variety of uses and when prices are low and needs a rise it has even been reported as being used for fuel. Leaves and biomass left on the field serve to enrich the soil and; the high demand for labor during harvesting and retting affords an opportunity for commercial use of family labor inputs.

[1028] http://www.business-standard.com/article/markets/jute-sector-faces-threat-of-ban-on-government-quota-114072800800_1.html
[1029] http://www.business-standard.com/article/markets/jute-industry-seeks-ban-on-imports-from-bangladesh-109123100095_1.html
[1030] http://jutecomm.gov.in/orders3.htm

Figure 95: Minimum Support Price (Rice/Jute alternatives): India (copied)



For the farmer in jute/rice based system regions, the choice is essentially between the proportions of land to be devoted to the two main crops during the two seasons. In the wet (monsoon) season, jute is favored. Average rice yields, like average current jute yields are around 2 tons per hectare per crop. The nominal world market farm value of rice is around $150 per ton. There are differences in costs of production with much more labor being used in the harvesting of jute than in rice. Farmers very rarely obtain nominal commodity producer prices; the reward they actually get in their hand depends very much on the deductions or credit arrangements made during the crop cycle.

Few if any farmers only grow jute. Nearly all do so in rotation with rice. The farmer's decision on whether or not to plant Jute in a given year is governed by a multiplicity of factors, but in reality there is little choice for those who live in rainfall conditions where jute is the most realistic crop for the wet season. On the other hand, the converse is true for India. The area planted to jute has not changed but instead, farmers use higher yielding seeds, extra fertilizer and other inputs to give higher yields when prices are particularly favorable.

There is price support for rice production but not for jute in Bangladesh, and although the public sector mills do set a price, the general trend has been for the area used for jute cultivation to decrease. Jute has been steadily retreating to those core areas most suited to its cultivation. The two main factors behind this trend have been the relatively poor income returns to the jute farmers, and secondly, since jute yields have increased less land is required.

The seeds used in India are of Indian origin and mostly grown by specialist seed producing farmers in the states of Andhra Pradesh and Maharashtra. In Bangladesh increasing amounts of Indian seed are being sown as they provide higher yields than the local varieties and importantly they are available in times of seed shortage. The downside is that although it gives higher fiber yields per hectare this is obtained at the cost of lower fiber quality. This decline in the availability of better quality jute in recent years has become a major concern for spinners in both India and Bangladesh. Non-availability of adequate water in some regions for the seeping and retting process has long been a concern. To counter this, equipment to strip the inner stick from the plant has been developed in India. Although such equipment greatly reduces the amount of water needed for retting, even such simple machines are beyond the financial means of most farmers. It reduces the labor time required but apparently not enough to be an attractive investment.

The cost differential is that in favorable growing areas farmers obtain between 1.7 and 2 tons of fiber per hectare. In less suitable growing areas yields are in the range 1.2 to 1.5 tons per hectare. Agricultural research in India[1031] has produced higher yielding varieties of jute claimed to yield up to 3 tons per hectare. However the quality attributes of these latest varieties are as yet unknown, and could well be worse than the presently used varieties. Jute plant strains capable of high yields coupled with improved fiber fineness, better strength, and lower lignin content are also claimed to exist but their commercial application has yet to be demonstrated.

There are no reliable figures available on farm gate prices in India although there is a nominal MSP. Some at the workshop claimed that generally speaking the farmer receives about 70% of the fiber price paid by the mill of 1,200 rupees/quintal (equivalent to US$ 285 per ton). Such claims are not unusual with commodities.

[1031] The Central Research Institute for Jute and Allied Fibres

The implication is that the farmer would in this case theoretically receive in cash roughly $200 per ton. Based on the above assumptions, and since labor represents between 60% and 70% of the small farmer's average cost of production, the notional income for the farmer per man day of work can be estimated as 750 rupees per quintal of jute including the value of its associated stick Based on 215 MDT, then it follows that the farmer earns about 35 rupees per day when working on his jute crop, (roughly 80 US cents per man day).

There are those who have researched value chains in jute based farming systems in Bangladesh and who claim that actual farmer incomes are far lower. This is often the norm as far as commodity production in the regions is concerned. The figures given above must remain nominal until more detailed field research is undertaken which reveals a more accurate value chain analysis.

An Indian farmer's rice crop (grown during the same period of the year) requires about 145 man days per ton to grow and harvest and the rice earns him about 450 rupees a Quintal, about 31 rupees per man day (approximately US$ 74 cents per MD). In India a kilo of jute is worth about 2 kilos of rice at the grower level. In Bangladesh the situation is less favorable for jute growers. If in fact in Bangladesh jute is earning the farmer about 1,100 Taka per quintal at the farm gate, (US$175 per ton) and rice 1,200 Taka per quintal, (US$ 190 per ton) he is faced with a differential of 50% in the reward for his day's labor, and his interest in growing jute is bound to be reduced. Of course his jute crop plays an important part in the crop rotation cycle and provides a readily cashable product, but as alternative crops become available and are developed, the farmer is becoming less locked into jute cultivation.

The main thrust in the past two decades has been to improve the jute grower's income by encouraging the use of higher yielding seeds. This has definitely improved the cash returns to farmers but at the cost of pulling down overall levels of fiber quality, in other word's its spinning ability.

5.16.2 Mill Use of Fiber

Jute mills are very sophisticated in their use of raw materials because it accounts for about half the product cost. Each yarn or end product is allocated its own special grades of raw material in a blend tailored to fit its needs. An important appraisal of the Indian raw jute quality situation was presented to the Kolkata IJSG workshop by a jute mill located in Andhra Pradesh. It may be summarized as follows,

"The Indian jute crop can cover in general the volume requirements of the industry, but there is a serious mismatch in the availability in quality terms between availability and industrial needs. Indian industry is short by about 200,000 tons of superior grades needed to make high quality goods both for export and the home market. The industry has been offsetting this problem by importing higher grades of fiber from Bangladesh. There is heading towards the same problem. For example grade BTB, the top grade in Bangladesh used for fine count high quality export yarns, in 2000 made up about 7%-8% of the purchasing order that over the long term, say the last 25 years, that average quality had declined by about 33% while average yields per hectare had increased by some 36%. Volumes of top grades have shrunk at a time when the industry in both India and Bangladesh wish to move decisively towards higher quality value added products. In turn these items demand higher grades of raw material in their manufacture. The deterioration in earnings for jute farmers over time has been dramatic. In 1960 the jute farmer received the equivalent of about US 20 cents per kilo for D grade fiber. In 1990 values this was equivalent to roughly US$ 1.0 per kilo. In the year 2000 he received in current currency values about 30 cents per kilo, and in real adjusted income, based on 1990 levels, this was the equivalent of about $ 26 cents per kilo.

5.16.3 Mill Processing Technology

Ever since it was first mechanically spun in Dundee jute has used a modified version of flax carding preparing and spinning technology. Jute, like flax is demanding in its processing requirements. The last major technological change was in the 1950s when the industry adopted sliver spinning instead of spinning from twisted 'rovings.' Jute is spun too much heavier counts of yarn than cotton and modern short staple technology allows a typical cotton yarn to be spun using only 100 worker hours per ton. Jute by contrast requires about 200 worker hours per ton to spin a yarn that is five times thicker than the average cotton one.

As mentioned on many occasions during the workshops, the industry is seeking a new generation of improved technology machinery capable of performing efficiently under jute mill conditions in the Indian sub-continent.

The present jute processing machinery was largely designed and made in the UK prior to the 1980s, although jute-spinning machinery has been made in Calcutta since 1954.

In broad terms the existing jute conversion process from raw material to finished yarn or fabric requires about 40 man-days per ton of product. The three workshops quoted in the paper from which Ideas for this section have been borrowed[1032], identified an industry wide target to reduce the labor content by half, in other words to double labor productivity in the jute spinning and weaving process. A start has been made to develop more efficient and productive jute processing equipment in India. A modest portion of the UNDP/Indian government funded program in the early 1990s was given to jute machinery developers in India but more of the US$ 22 million aid program was spent encouraging the use of short staple cotton spinning technology for jute.

The main thrust of mill modernization for the industry during the last decade and more has been import of second-hand equipment designed for jute or which can be modified for jute processing. One can note the import into India and Bangladesh of a large amount of UK jute machinery previously installed in Europe, Thailand, South America, Pakistan, Indonesia, and Africa. In addition, some used machinery of Chinese manufacture (originally copied from earlier UK designs) has been imported into India during the last few years.

In the case of machinery which can be adapted to work successfully with jute, are ring twisters of various makes, precision winders of German and local Indian or Bangladesh manufacture. Today out of the fifty or so thousand looms operated by the industry in India and Bangladesh about 800 are shuttles looms originally constructed in Germany or in Switzerland. They were purchased second hand but had been originally delivered to weave jute or similar fibers in Europe and other countries.

About 100 machines made to 1960s and 1970s UK designs have been made each year in Kolkata during the past several decades. In the past carding machines and shuttle looms and winders were made in volume in India. Given the new and more productive designs and a demand from the industry such machines could be made locally in India or Bangladesh.

Much of the jute machinery being operated in India and Bangladesh has been running for three shifts since it was originally built in the 1960s. Some of the machines are even older dating back from the 1930s era. Many individual components have been replaced many times. Any new process technology has to surpass what exists by a generous margin to justify its investment cost. It will have to double the productivity of the workforce and yet remain simple, efficient and practical to operate. That is the challenge that faces machinery designers and manufacturers. Up to now it has proven too difficult or too daunting a challenge for Indian machinery makers who are aware of the huge investment and effort needed to finance and complete new machinery designs and their commercial development.

To develop new jute machinery the manufacturer has to be confident he will have buyers and a willing market prepared to invest in the future of the jute industry. There is no certainty that efforts will not simply be copied and thus there would be no return on his R&D investment. A leading Jute machinery building company in India expressed the present situation to the IJSG in the following terms. “Machinery development requires adequate funding and gestation time to incubate and commercialize new equipment. It is difficult for a company like ours to develop the envisaged new spinning and weaving technology by itself without assistance from either national or international agencies.”

It was pointed out by a delegate attending a Geneva workshop and also by another in a paper presented at a Kolkata workshop that significant reductions in manpower requirements and improvements in machine running efficiency can also be made through improved management and better maintenance[1033]. This strategy can only take the industry part of the way towards a doubling of its labor productivity. New equipment will have to work in tandem with the old as no mill can afford to change all its jute preparing or spinning for example in one move. Modernization is inevitably going to be a step-by-step affair with leaders and laggards.

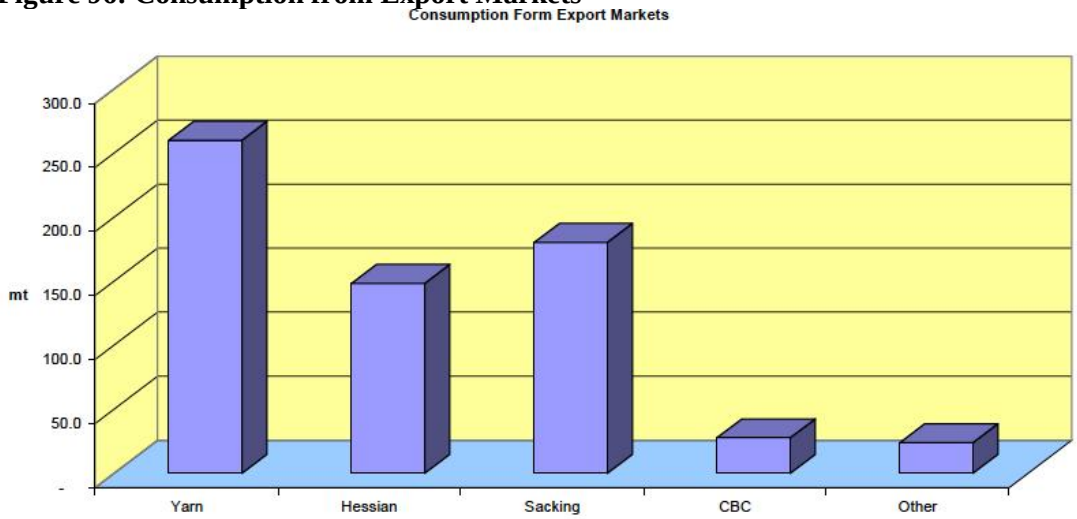
5.16.4 Existing Products and New Product Development

The specifications and standards of classic jute products have been unchanged for tens of decades. First comes sacking, which is used to make heavy bags for food grains and other commodities, generally each sack weighs about one kilo net and is used to transport or to hold fifty kilos of produce. This most important item represents

[1032] ibid
[1033] Ibid

about half of the industry's output. In the last decade or so an improved 'food grade' of sack has been developed, produced and marketed. This sack is physically very similar to the conventional one but does not contain any mineral oil. Importers of Cocoa and Coffee beans specify the use of 'food grade' bags.

Figure 96: Consumption from Export Markets



Next the so called 'Hessian,' which is a cloth made from finer yarns than sacking and which generally weighs half as much per square meter as sacking. Some Hessian is used to make sacks and bags and the rest is used in a wide variety of applications from wrapping plants or collecting grass cuttings to furniture and as a support cloth for linoleum flooring. Hessian cloth represents a little less than twenty percent of the total output of the world jute industry.

Yarn and twine are also major traditional products. The yarns are primarily exported to carpet weavers in Europe and the Middle East where they are woven into the back of the carpet to provide bulk and stability. Jute sold on in the form of yarns for carpet or twines represents close to twenty percent of total industrial out put. Wide Hessian cloth, known as carpet backing cloth is used on the back of tufted carpets. At one time it was used for both, primary and secondary backing but has been phased out of primary backing altogether. This application once consumed far larger volumes of jute than it does today when it accounts for less than two percent of output and a very minor part of the market.

A wide range of small amounts of specialist products takes up the remaining ten percent or so of output. Among these one can mention 'soil saver' an open weave construction using very heavy yarns used for geo-textiles, which are laid on the ground. Jute woven matting or carpets and used as household floor coverings.

Shopping bags made from the better qualities of Hessian cloth. Furnishing fabrics, and rope-soled shoes are also produced from jute and find consumer acceptance. Considerable emphasis has been placed by the jute industry on the production of nontraditional products. These are the so-called diversified products. Mostly this term can be taken to mean the ten percent or so of items mentioned just above and similar products.

Some estimate that the Indian jute industry's product mix may well move in this direction by two or three percent over the next five years, but the likelihood of a major transformation in the industry's product balance is remote. The central Indian government, it appears, would like to reduce the level of protection given to jute sacks under the mandatory packaging order, however to prolong the current level of protection the industry has compromised itself by suggesting a significant move towards a more diversified product mix.

The intention to move towards 'diversified' products made wholly or partially from jute fibers has important consequences for the industry. The yarns used in such applications are generally finer in count and considerably higher in quality than those used in the 'traditional' products. Significantly finer counts will mean a move to ring spinning and away from the conventional flyer spinning.

In the case of Bangladesh, there is the additional problem that banks are generally over exposed to the sector due to a very lengthy period of losses and bad debts. They are extremely reluctant to increase their exposure. The borrowers, for their part, often lack credit worthiness due to a history of inadequate loan performance.

In short, the manufacture of diversified jute products requires the use of the best grades of raw jute, more capital investment, higher 'textile' levels of design and marketing skill, more capable and focused mill management, a degree of entrepreneurship above and beyond that usually found in the traditional industry, and on top of that, considerable R&D expenditure. High value addition inevitably means high levels of R&D expenditure. It is thus not at all surprising that diversification has so far proved to be an elusive goal.

One area of product development attracting attention is the use of jute fibers to reinforce plastic mouldings, either via non-woven mats or dispersed in plastic resin used for injection moulding. Small quantities of more or less processed jute fibers are now being used in these applications. However the potential is arguably very considerable and in ten years time these applications could provide a market for between one hundred and two hundred thousand tons of jute fibers.

Use of whole jute stems or of low-grade jute fiber for pulp and paper manufacturing has been under active consideration for twenty years and more. Although technically feasible the economic benefits are marginal and since modern pulp mills have a minimum economic size of around one hundred tons a day the logistics of supply and the relatively high cost of jute stem as raw material for pulp manufacture have, up to now, proved to be the major problems. The global market for superior grade papers made from natural fibers such as flax, abaca (Manila hemp) and true hemp and jute, has not been increasing[1034].

5.16.5 Market Structure of Raw Jute

The raw jute market in the Indian subcontinent and elsewhere exhibits the peculiar characteristics of a primary agricultural commodity in the developing world. The market for raw jute is highly fragmented and the number of channels involved in the market is quite large. The fragmented nature of the market or absence of market in these countries leads to a series of market inefficiencies. The difference between the consumer price (ultimate users of raw jute) and the price received by the farmer is a rough barometer of such market inefficiency. The difference varies between 40-50 percent depending on the location of the grower's field and the nature of communication and transport infrastructure in and around the jute growing areas. Government intervention in arresting the market inefficiencies has not been that successful in all the jute producing countries. The Indian intervention has taken the form of the Minimum support Price Operations (MSP) by the Jute Corporation of India (JCI) , regulating the forwards market (which, since the turn of the twentieth century, had been controlled by prominent Marwari families in the guise of a peculiar trading system called 'fatka'), introduction of compulsory packaging ensuring reasonable demand for jute goods and indirectly for raw jute.

Now, most of the jute farmers belong to the small and marginal farmer categories. These farmers have inadequate holding capacity, which propels them to offload their produce at the earliest opportunity. More than 75 percent of the total fiber production arrives in the markets during the four months period from September to December in each jute seasons. As per Sur and Khastagir (2005), on an average 37 percent of the requirements of the jute mills are sources from the marketable surplus sold by the growers at village level, 57 percent from the primary markets and only 7 percent from the secondary markets. Generally, traders (Beoparies) collect the raw jute from the cultivators' house; others transport their raw jute to the nearest market. The village traders (Beoparies) sell their jute to the Aratdars or to the local agent of a baler or shipper or jute mills. These agents also buy from aratdars. Hence, the following market channels are prevalent in raw jute marketing:

i. Farmer - Village Trader – Aratdars – Agent of Jute Mills
ii. Farmer - Village Trader – Aratdars – Agent of Jute Balers – Jute Mills
iii. Farmer - Village Trader – Aratdars – Agent of Shippers - Jute Mills
iv. Farmer - Village Trader – Aratdars – Agent of Balers/Jute Mills / Shippers - Jute Mills
v. Farmer - Village Trader – Agent of Balers/Jute Mills / Shippers - Jute Mills
vi. Farmer – BJMC Agent – BJMC
vii. Farmer - Village Trader – Aratdars – Agent of Balers/Jute Mills / Shippers - BJMC

5.17 Aggregate Results Table Showing Hypotheses Testing

[1034] This information provided privately to the consultants by Hurter Consult of Canada

To validate the 'problem statement' and test 'assumptions', designs have been drawn on the following sets of hypotheses:

For defining a prioritized Agricultural Business Policy Framework for Bangladesh with respect to (a) International Trading and (b) homegrown competitive/comparative advantages using Fuzzy TOPSIS (Technique for Order Preference by Similarity to Ideal Solution) with special reference to jute – with RCA (Revealed Comparative Advantage):	
e) Bangladesh was an 'active' participant in international trade in agriculture, and especially jute, during the whole of the recorded history of this region through:	[NULL HYPOTHESES PROVEN]
i) Production inputs	[NULL HYPOTHESES PROVEN]
ii) Products	[NULL HYPOTHESES PROVEN]
iii) Services	[NULL HYPOTHESES PROVEN]
iv) Value added derivatives	[NULL HYPOTHESES PROVEN]
v) Wholesale farming solutions	[NULL HYPOTHESES PROVEN]
The following reasons positively impacted the patterns for international reach/activities of Bangladesh agricultural sector, specially jute:	
vi) Favorable natural endowments	[NULL HYPOTHESES PROVEN]
vii) Favorable climatic conditions	[NULL HYPOTHESES PROVEN]
viii) Favorable position in the learning curve for production and value addition in jute	[NULL HYPOTHESES PROVEN]
ix) Entrepreneurial capabilities of the population	[NULL HYPOTHESES DISPROVED – INDIGENOUS POPULATION WAS NOT ENTREPRENURIALLY CAPABLE]
x) Social structure/composition of the population	[NULL HYPOTHESES PROVEN]
xi) Administrative strength of the political / bureaucratic institutions	[NULL HYPOTHESES PROVEN]
xii) Colonial regimes – starting with the Mughal invasion and leading through British Raj and Pakistan occupation	[NULL HYPOTHESES PROVEN]
xiii) Structured administrative architecture – leading to steady markets for both inputs and outputs	[NULL HYPOTHESES PROVEN]
The following reasons determine the shifts and changes in the international trade patterns for Bangladesh agricultural sector, especially jute:	
xiv) Adverse changes in the composition of natural endowments	[NULL HYPOTHESES DISPROVED – IT WAS THE TERRITORIAL DISCONNECTEDNESS OF

		THE SECTOR]
xv) Impact of natural calamities		[NULL HYPOTHESES DISPROVED – NATURAL DISASTERS DID NOT DIRECTLY COMMIT TO THE FAILURE OF A COMMODITY]
xvi) Impact of man-made disasters/wars		[NULL HYPOTHESES DISPROVED – MAN-MADE DISASTERS DID NOT DIRECTLY COMMIT TO THE FAILURE OF THE COMMODITY]
xvii) Rise of more favorable factor markets (i.e., input sources)		[NULL HYPOTHESES PROVEN]
xviii) Rise of alternative produce and substitutes		[NULL HYPOTHESES PROVEN]
xix) Adverse changes in learning curve management		[NULL HYPOTHESES PROVEN]
xx) Impact of the division of Indian sub-continent, especially, fragmentation of the natural value chains of the sub-continent		[NULL HYPOTHESES PROVEN]
xxi) Independence of Bangladesh and consequent divestiture by established jute merchants		[NULL HYPOTHESES PROVEN]
xxii)Impact of global, multilateral and regional trade negotiations		[NULL HYPOTHESES DISPROVED – IT WAS THE TERRITORIAL DISCONNECTEDNESS OF THE SECTOR]
xxiii) Impact of inefficiency/inadequacy in policy formulation by Government (especially with nationalization of the jute sector)		[NULL HYPOTHESES PROVEN]
xxiv) Impact of inefficient decision making by trade bodies (for inputs) led to the gradual degeneration of international trade in agriculture for Bangladesh, especially with regards to jute and jute derivatives.		[NULL HYPOTHESES PROVEN]
xxv)Adverse impact of policy interventions by International Bodies, such as World Bank and IMF		[NULL HYPOTHESES DISPROVED – IT WAS THE TERRITORIAL DISCONNECTEDNESS OF THE SECTOR]
xxvi) Adverse impact rising out of political instability in the country		[NULL HYPOTHESES DISPROVED – IT WAS THE TERRITORIAL DISCONNECTEDNESS OF THE SECTOR]
xxvii) Adverse impact of politicization of the input and output markets		[NULL HYPOTHESES DISPROVED – IT WAS THE TERRITORIAL DISCONNECTEDNESS OF

	THE SECTOR]
xxviii) Lack of technological innovation and adaptation in the jute sector	[NULL HYPOTHESES PROVEN]
xxix) Lack of marketing initiatives and branding for jute and jute derivatives	[NULL HYPOTHESES PROVEN]
xxx)Lack of working capital supply in the sector	[NULL HYPOTHESES PROVEN]
xxxi) Lack of investment grade surplus for the sector	[NULL HYPOTHESES PROVEN]
For formulating a comprehensive scenario with regards to emerging trends in trade in agricultural sector, Bangladesh holds Revealed Comparative Advantage (RCA), in jute, in	
xxxii) Factor inputs	[NULL HYPOTHESES PROVEN]
xxxiii) Learning Curve Position	[NULL HYPOTHESES PROVEN]
xxxiv) Mid-to-long term production sustainability	[NULL HYPOTHESES PROVEN]
xxxv) Mid-to-long term absence of productive competitors	[NULL HYPOTHESES PROVEN]
xxxvi) Product variations	[NULL HYPOTHESES DISPROVED]
xxxvii) Product varieties	[NULL HYPOTHESES DISPROVED]
xxxviii) Product innovations/discoveries	[NULL HYPOTHESES DISPROVED]
xxxix) Agricultural services	[NULL HYPOTHESES PROVEN]
Wholesale operations/solutions through:	
(1) Composite farms	[NULL HYPOTHESES PROVEN]
(2) Contract farming, and	[NULL HYPOTHESES PROVEN]
(3) Setting up Wholesale farms abroad in regions where factors of production suit the needs of the entrepreneurs.	[NULL HYPOTHESES PROVEN]
For analyzing markets, which could host (a) products, (b) services, and (c) farming solutions from Bangladesh in terms of: (a) revenue generating capabilities, (b) revenue sustainability, and (c) employment generation capabilities – in the backdrop of major multilateral and regional trade negotiations – using a muted form of General Gravity Model. While Jute forms the core analytical framework, hypotheses spectrum is codified through	
f) Multilateral trade negotiations have impacted international trade in agricultural products, services and solutions, especially, in the jute sector	[NULL HYPOTHESES DISPROVED]
g) Regional trade negotiations and treaties have impacted international trade in agricultural products, services and solutions, especially, in the jute sector	[NULL HYPOTHESES DISPROVED]
h) Bilateral trade negotiations have impacted international trade in agricultural products, services	[NULL HYPOTHESES DISPROVED]

and solutions, especially, in the jute sector	
i) Migration (or lack thereof) has impacted international trade in agriculture, especially in the jute sector	[NULL HYPOTHESES DISPROVED]
There exists in international trade in agricultural products, services, and solutions, 'venture-worthy-markets' with regards to	
i) Revenue generating capabilities	[NULL HYPOTHESES PROVEN]
ii) Revenue sustainability, and	[NULL HYPOTHESES PROVEN]
iii) Employment generation capabilities	[NULL HYPOTHESES PROVEN]
For analyzing how Bangladesh, and specifically, jute, would be able to provide/complement the markets identified (at) above with:	
j) Areas (i.e., connecting spatial distribution of products and services from Bangladesh to specific region(s) of the world): there are specific areas of Bangladesh, especially with regards to jute and in relation to the ancient value-chains existing between and amongst regions of the world, which could be connected to the international factor input and exchange markets for providing	[NULL HYPOTHESES PROVEN FOR ALL SUB-GROUPS]
i) Products	[NULL HYPOTHESES PROVEN FOR ALL SUB-GROUPS]
ii) Services	[NULL HYPOTHESES PROVEN FOR ALL SUB-GROUPS]
iii) Wholesale solutions	[NULL HYPOTHESES PROVEN FOR ALL SUB-GROUPS]
k) Products (i.e., product/production specialization for providing complements to the international markets in agricultural sector): there are specific value added products in which Bangladesh Jute holds competitive and/or comparative advantages for complementing international markets over the period 2010 – 2030 (i.e., identification of product-variations)	[NULL HYPOTHESES PROVEN FOR ALL SUB-GROUPS]
l) Services (i.e., service specialization for providing complements to the international markets in agricultural sector): there are specific services which Bangladesh holds competitive and/or comparative advantages for complementing international markets over the period 2010 – 2030 (i.e., identification of service areas), and	[NULL HYPOTHESES PROVEN FOR ALL SUB-GROUPS]
m) Bangladesh can complement the international markets by providing comprehensive operations/solutions in jute farming and jute derivatives through:	[NULL HYPOTHESES PROVEN FOR ALL SUB-GROUPS]
i) Composite farms	[NULL HYPOTHESES

	PROVEN FOR ALL SUB-GROUPS]
ii) Contract farming, and	[NULL HYPOTHESES PROVEN FOR ALL SUB-GROUPS]
iii) Setting up wholesale farms abroad in regions where factors of production suit the needs of the entrepreneurs.	[NULL HYPOTHESES PROVEN FOR ALL SUB-GROUPS]
For identifying the hindrances affecting the performance of Bangladesh agricultural sector with regards to international trade, it is implied that the following impact in a direct way:	
n) Technological inferiority	[NULL HYPOTHESES PROVEN]
o) Management inefficiency	[NULL HYPOTHESES PROVEN]
p) Absence of advanced marketing focus/control	[NULL HYPOTHESES PROVEN]
q) Input unavailability	[NULL HYPOTHESES DISPROVED]
Adverse changes in the environment/ecological factors, through:	
i) Internal displacement/relocation of people/business	[NULL HYPOTHESES DISPROVED]
ii) External movement of people/business	[NULL HYPOTHESES DISPROVED]
iii) Changes in the factor endowments for agriculture	[NULL HYPOTHESES DISPROVED]
r) Trans-boundary (i.e., across national borders) movement of factors of production and especially natural persons	[NULL HYPOTHESES DISPROVED]
s) (Trans)-Migration of personnel and service providers	[NULL HYPOTHESES DISPROVED]
t) Priority areas for intervention and support include:	
i) Increasing agricultural productivity, diversification, and value addition	[NULL HYPOTHESES PROVEN]
ii) Improving factor markets, access to assets and natural resource management (including, but not limited to:	
(1) Agricultural land	[NULL HYPOTHESES PROVEN]
(2) Agricultural inputs	[NULL HYPOTHESES PROVEN]
(3) Rural finance	[NULL HYPOTHESES PROVEN]
(4) Water resources management, and	[NULL HYPOTHESES PROVEN]
(5) Natural resource management	[NULL HYPOTHESES PROVEN]
(6) Strengthening Rural Institutions and Livelihood Support	[NULL HYPOTHESES PROVEN]
(7) Re-establishing connections to pre-existing (and now cut-off/disjointed) production and distribution points and channels (emphasis added)	[NULL HYPOTHESES PROVEN]

An action plan is needed for preparing a 'Value-Chain Framework' for international trade in agricultural sector, especially in jute, for:	
u) The Government	[NULL HYPOTHESES PROVEN FOR ALL SUB-GROUPS]
v) The Trade Bodies (i.e., Federations/Chambers/Associations)	[NULL HYPOTHESES PROVEN FOR ALL SUB-GROUPS]
w) The Established Business Houses, and	[NULL HYPOTHESES PROVEN FOR ALL SUB-GROUPS]
x) The Entrepreneurial/Green-Field institutions to take advantage of the situation identified above	[NULL HYPOTHESES PROVEN FOR ALL SUB-GROUPS]

6.0 MODEL

Now, the original thesis was not designed to study jute as a commodity. Rather, jute was found as a specimen case to test the boundary conditions for the research in a way which is both intuitive and analytical. The reasoning was to compel both the writer and the reader to think more intuitively and then support the findings with a solid reference frame (drawn from analytics and empirical evidences tested by the application of certain statistically sound models).

This author believes without a doubt that, common sense must be the most uncommon element in the human individual. However, the collective, i.e., the mob, the 'public', is usually endowed with the highest volume of this very uncommon trait called common sense. At least that is what is my experience. The 'public', as we so fondly call it for lack of better terminology, no matter how ignorant it is, usually understands the tone and tenor of the most advanced markets and their emerging trends! At least that is what is my experience. One only needs to listen carefully. One only needs to listen to a sizeably large number of this 'public' at a sizeably large number of public places. Or may be, intently, when this so-called 'public' chats in public. May be, just may be, this public's will is God's will too !

"I was just reading a personal review of an artist which states, quite unequivocally, "My artistic practice is based on an intuitive research of the deepest, most intimate layers of my own being. I am interested in the possibility of expressing the most profound human emotions and ideas through the filter of my personal experiences and perceptions. Since my creative process is very expressive, I usually work on big canvases which allow me more freedom and space for experimenting. My main 'tools' are color, light and gesture which I use to create my own language and open the view to some different reality. For me, art is the pure essence of life. It's constantly present in my heart, in my mind and in my hands." (En Attendat la Gloire; Gugi Goo).

This author of the paper and therefore, deemed researcher, supposes that it is high time that analytics return to its original premise. To appeal to reason. To appeal to intuition. To bring back the respect that 'common sense' and the so-called 'mango people' so deserve.

Hence, in the last part of the thesis, we conclude that:

i. In matters of Information Asymmetry -
    a. There exist significant differences in the data sets that individuals and institutions are dealing with
    b. There exist significant biases in the way information is reported and reflected across the whole range of decision-making bodies
    c. Individuals and institutions either intentionally or unintentionally hide segments of information which might be detrimental to their own status quo or to the coteries which they represent
ii. In matters of agricultural production –
    a. Flawed data sets have been in circulation which reveals only a partial picture of what is actually produced and what the returns of the production are
    b. Production patterns have undergone serious changes over last one hundred years and more than it is due to the seemingly tectonic changes in technology and process innovation related to production, seed, farming, implement, and even cropping pattern, it is due to the fact that fundamental rules of engagement in trading the crop have changed. That is, trade diversion, trade aversion (in case of sovereign preferences), trade barriers, and finally, trading access have all proved to be the principle drivers for the production decisions to have had taken place.
iii. In matters of industrial production –
    a. Skewed (not flawed) data sets are in circulation which reveals 'biased' use of industrial production which does not account for the true cost of production nor does it account for the true opportunity cost of producing (the right product) or not producing (the right product).
    b. The above (i.e., point (a) – ante) takes place because more than anything else, rade diversion, trade aversion (in case of sovereign preferences), trade barriers, and finally, trading access have all proved to be the principle drivers for the production facilities to have had grown and actual production to have had taken place. Case in sight, the industrialization of East Bengal after the partition of the Indian sub-continent.
    c. The partition of the Indian sub-continent gave rise to unnatural trading vectors so long as routing the traded goods and services were concerned. Abrupt disruptions of the natural manufacturing-trading-marketing corridors led to the formation of:

i. Alternative trading destinations
ii. Alternative trading mechanisms
iii. Distorted market signals
iv. Distorted price signals
v. Distorted decision making patterns
vi. Use of illegal trading channels to maintain older trading channels
vii. Use of illegal payment mechanisms to minimize the cost of transaction – which included now (after the partition) a cost portion each from both tariff and para/non-tariff barriers

iv. In matters of complete Value Chains:
    a. The existing value chains with components across the Indian sub-continent were disrupted
    b. New value chains formed with some components from the erstwhile value chains and inefficient new components – including distant marketing channels where premiums are shared with their local sponsors (i.e., at distant and faraway places)
    c. Unnatural trading mechanisms have forced the production and distribution agents to make choices and decisions which have negative implications for the
    d. A significant portion of the value created out of the transactions hence, are either unreported or under-reported to avoid legal and financial consequences. This have:
        i. Circular negative impact on production-expectation-pricing troika
        ii. Disjointed and unrepresentative data sets for policy makers
        iii. Flawed price signals for the market (at a casual observer level)
        iv. Flawed production-possibility frontier
        v. Flawed observational paradigm for matters related to national production and also Gross National Product (GDP)

v. In matter related to trade negotiations and rules of engagement
    a. Tariff and Para/Non-Tariff barriers have been found as significant hindrances towards optimization of economic decisions by the production-processing-trading communities
    b. Sovereign restrictions put in place by means of domestic laws have been found to hinder smoother movement of goods and services across the border
    c. Conventions or even negotiations to reintegrate the economies of the sub-continent have been found to have a decidedly positive effect on the expected outcome of the trading configurations existing in the current time
    d. Initial cut-off period from the existing Indian trade routes have been found to have positively affected the industrialization of East Bengal
    e. Resuscitation of the old trade routes and securing preferential trading concessions have been found as necessary pre-conditions for the revival of the jute sector, and as such, all possible products (both goods and services) where the region (i.e., Bangladesh) may hold a regional RCA (Revealed Comparative Advantage).
    f. That a comprehensive economic integration of the sub-continental production and trading lines along with the established marketing channels will be beneficial for the rejuvenation of both the produce and the innovation.

6.1 The Jute Trade Equation

6.1.1 DEDUCTION I: SUPPLY AND DEMAND PARADOX

It is observed that the Quantity Supplied and the Quantity Demanded for any commodity (product or service or a mix of both) can never be equal at any point in real terms. While it is true that there is always a clearing price for each commodity on a certain and at the clearing or at the equilibrium price when quantities demanded meet up quantities supplied, it is observed that in effect, from an observational point of view, the supply and demand schedules exist in different planes. So a simple linear sinusoid curve to represent their relationship is a partial view of their inter-connected nature of occurring. Not only that they have a set of multi-pronged impact on each other, but also that they have multi-plane co-variability (e.g., in 'expectation' of a rise in quantity demanded, 'quantity-which-could-be-supplied' is stacked up, or for that matter, in 'anticipation' of a fall in quantity demanded, 'quantity-which-could-have-been-supplied' is geared down). So when a Supply-demand curve is required to be plotted a whole new set of variables (including, but not limited to some inversely-proportional variables might become more pertinent.

For example, 'periods' or 'episodes' or for that matter even 'points' in time could be a variable with direct impact possibility and it would be possible to postulate probable outcome scenario or resulting outcomes (whereas, under the theoretical framework utilized for plotting Demand-Supply Schedules, time is used as a primary axis to observe quantities demanded or supplied match and vary).

If a simple 'reasoning by first principle' is applied for this variable, a paradox would emerge. For example, assuming that at a point in time an element A is moving towards another element B, but both of them are moving in the same direction or pattern (that is, to say, A is following the movement path of B). If A and B are at two different points in 'time', then it would never be possible for "A" to catch "B" (by following the same path). By the 'time' (t) "A" would reach (t-1)-position of "B", B will not be there and will have moved towards a new position (t+1). No matter what pace or acceleration is given or taken from both at a particular static point of observation they will not be able to catch each other. But this is not the case in observed reality. Question arises as to where the flaw is. The flaw is the conceptualization of the variable itself. As 'time' (as in an independent element in the overall calculation) moves, "A" takes a different path while following the same path taken by "B". Here it is obvious that 'time' is a very important characteristic of the Path-Line as this characteristic made superimposition of different paths possible. So what we actually observe is that two different paths crossing each other at a certain point in time. This is exactly what happens if we replace "A" by Demand and "B" by Supply in a real life simulation. Similarly the "commodity" induced "utility" and utility driven (production of) the "commodity", and "earning" based on "costing" and "costing" driven by (sales based) "earning" and everything in a two variable world of events and phenomena.

So the first Principle that we could derive from the exercise conducted during the course of writing the paper, 'time' can be used as it is a variable-onto-variable to intersect such components following the same Path-Lines. And then thus the Mathematical expression of $Q \quad f(p)$ is incorrect, rather, it would be $Q \quad f\frac{\partial(t)}{\partial t}$.

6.1.2 DEDUCTION II: THE COST PARADOX

What if we ask what is the cost of a 'jute bag'? To answer that question what we do is, quite literally, 'market analysis'. To find out manufacturing cost we calculate 'resource value' and then add necessary component to it, i.e.,

$$p \quad f(\text{Cost Component 1} | \text{Cost Component 2} | \text{Cost Component 3} | \ldots).$$

To calculate the 'resource value' we calculate what resources been utilized. But is that the actual cost? Before coming there, this cost assumption reciprocally make us set the market value of that commodity. Why coal is cheaper than iron? Does any commodity or 'material' has any value at all till it is thrown in the previous cycle? So it is the 'utility' value; not only the component-wise value of that material. Making the quantity demanded or quantity supplied a function of prices on offer is hardly an approximation of the real sequence of events which determine the actual incidence of sale and purchase of a certain commodity.

Now what could be the impact of a high 'utility value' in the market of that commodity and vice-versa? Pre-fixed high 'utility value' positively reinforces (read, feeds) the market, if taken as given. Branding comes to play a major synthesizing role here and so does the Total Value Chain – as they intuitively add up components of value into the total trade equation.

What is the impact of high pre-fixed 'market value' on 'utility value'? High market value creates negative impact on the utility value. The pre-fixation limits the utility potential.

6.1.3 DEDUCTION III: FLAW IN 'OBSERVABLE STATISTICS'

To determine the effect (read, co-linearity) of 'anything' on the outcome of another we use statistical comparison (read, regression). Here in our case AHP Values of both the constructs and the variables are supposed to guide us set priority on where to emphasize more.

During the course of the entire exercise, we have executed two different simulations and compared the outcome of two different sets of values. One set of AHP Value was determined by composite analysis of impact factors of variables based on logical deduction and reference to such impact is there. Another set of AHP Values is that

there by assessing the perception survey between key-workers in the Jute Field (From farmers to policy makers). Here the simulation takes a different pattern.
We need to clearly understand why this variation, when assuming or assessing the impact factors of key variables on competitive edge of Jute?
My inference here is because of the 'point of observation' this dissimilarity is happening. An analogy might be like the well-known simple one like 'publisher always blames the less number of book being sold for high price setting of published book and the reader always blames the publisher for not reading books as they are expensive'. This circular-domino effect continues for *n*-th iteration.

So I opted to construct a model in my thesis which would be able to get incorporated in any point of simulation and have the potential to move in any direction based on the variable-scenario it faces at the time it starts functioning; rather to have any pre-fix target point.

6.1.4 DEDUCTION IV: The Trade EQUATION

Approaching Trade Equation of Jute from Quantity Traded rather Price of Trading to avoid dummy variables:

$Q \quad f\frac{\partial(P)}{\partial t}$. ----------(1)

Where Q is the quantity traded in time t; which will be a direct f of $\partial(P)$ where P is the 'utility value' of Jute. From (2)-

$P \quad f(Cost\ Component\ 1|Cost\ Component\ 2|Cost\ Component\ 3\ |\ \ldots).$

$P \quad f(C1|C\ 2|C\ 3\ |\ \ldots)$----------(2)

Cost Component 1 $C1 \quad Production\ Cost \quad f(Input\ Costs) \quad f(a,b,c,d,\ldots\ldots)$
Cost Component 2 $C2 \quad Product\ Cost \quad f(Input\ Costs) \quad f(a,b,c,d,\ldots\ldots)$
Cost Component 3 $C3 \quad Cost\ after\ C2 \quad f(Input\ Costs) \quad f(a,b,c,d,\ldots\ldots)$
Cost Component 4 $C4 \quad Cost\ after\ C3 \quad f(Input\ Costs) \quad f(a,b,c,d,\ldots\ldots)$
……
Cost Component n $Cn \quad Cost\ after\ C(n\ \ 1) \quad f(Input\ Costs) \quad f(a,b,c,d,\ldots\ldots)$

Here a, b,c,d…. are factors affecting Each stage of Production Costs . For Jute

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$C1 \quad f(Land\ Constructs, Input\ Constructs, Exogenous\ Constructs, \ldots\ )$

But-
Land Constructs $f\{land\}$ [availability, Utilization, Administration]
Input Constructs $f\{Input\}$ [Seed, Irrigation, Fertilizer, Pesticide-cost]
Exogenous Constructs $f\{Exogenous\}|$ Entrepreneurship, Stability, Agreements (Bilateral, Regional, Global,…)]
& Stability $f\{stability\}|$ Unrest, Climatic change, Policy stability]

$C2$
$f(Labor\ Constructs, Capital\ Constructs, Agricultural\ Value\ Constructs, Industrial\ Value\ Constructs\ )$

But
Labor Constructs $f\{Labour\}|Cropping\ \ pattern, Pruning\ Intensity, Shift\ \ to\ \ alternate, \ldots|$
Capital Constructs $f\{Capital\}|National\ Economic\ Growth, Working\ Capital\ Flow, Investment\ \{private, public\{agriculture, industry\}\}\ \ldots|$
Agricultural Value Constructs $f\{AVC\}|Policy, R\&D, E\&T, Mechanization, Extension, \ldots|$

Industrial Value Constructs

f {IVC}|Policy, Management Overhead, Labor Employment, Quality Control, R &D, Advanced Technology, Product Variety, Position in Learning Curve … |

C3 *f {Conectivity Constructs, Market Constructs, Exogenous Factors, …)*

But
Connectivity Constructs *f {Connectivity}| Existing* Transport Architecture, Investment in Transport Architecture, Distance to Factor Market, Connectivity to World Marker, Distribution Networks]

Market
Constructs
f {Market}|Substitute Market, New Market, Destination Market, Loyalty of Network Chain]

C 4 *f {Advanced Derivative Constructs}*

AD
Constructs *f {Product diversification ,*
Alternative use of products, BrandingComposite & Contract farms. Portfolio investment .Total Value Chain (TVC)Integration & Ownership }

Cn *f { € error value}*

Since we got two-sets of Value for each variable and construct co-efficient:

From Meta-data it comes to be:

P f [**C1** {Land(.022) Input(.026)Exogenous (.31) } **C2** { Labor (.026), Capital (.049),Agricultural Value Addition (.015),Industrial Value Addition (.16) **C3 {** Connectivity (.082) , Market (.126), Exogenous (.031) **C4** { Product diversification(.085),Alternative use of products (.014),Branding (.17)Composite & Contract farms (.045),Portfolio investment(.014) ,Total Value Chain (TVC)Integration & Ownership Product (.227) }…..Cn {(€…) } …]

From Survey it comes to be:

P f [**C1** {Land(.054) Input(.063), Exogenous (.55) } **C2** { Labor (.061), Capital (.069),Agricultural Value Addition (.052),Industrial Value Addition (.051) **C3 {** Connectivity (.076) , Market (.091), Exogenous (.055) **C4** { Product diversification(.079),Alternative use of products (.043),Branding (.85)Composite & Contract farms (.058),Portfolio investment(.039) ,Total Value Chain (TVC)Integration & Ownership Product (.069) }…..Cn {(€…) } …]

RATIONALITY: We have contrasted the findings from the meta-data and the survey data and have found that the trading equation heavily depends on the control conditions set by regional trading constraints. While WTO does not hinder the trading jute, a disconnect with the traditional trading functions seriously jeopardize the profitability and hence, sustainability of the product.

6.2 How bringing back the natural value chains of jute trading would turn back the fortunes of jute

Actually if mathematically seen bringing back the natural value chain can be synonymously stated as bringing back or apply previous known factors in the equation. As an equation enjoys freedom of legality and mean value is always only a value; it can be assumed safely that once proven factors will make the equation function again.

The important thing here to note is that, the reverting process and mechanism itself will act as a new variable for the Jute trade and must be considered in any experimental method or test. However, that should not dissuade the determined policy maker to turn back the tides and ride the waves!

Here in the paper, we have tried to construct a representative model with detailed constituent components to see what trading under boundary conditions of regional and multilateral trade negotiations would look like and with regards to the agricultural products and services we conclude that:

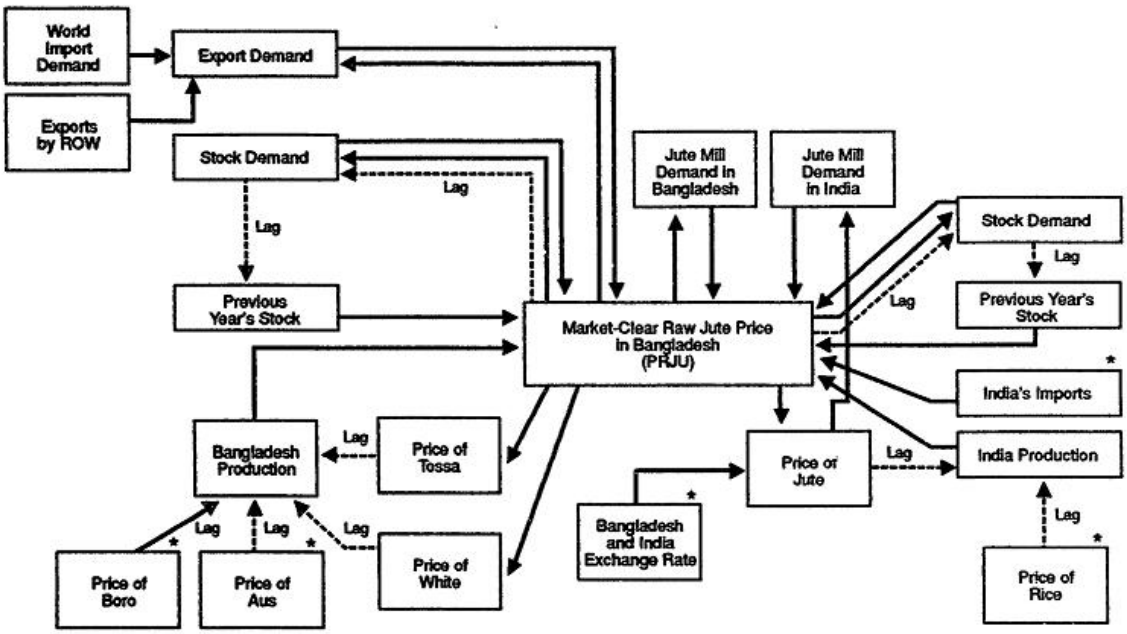
a. Regional and Multilateral Trade Negotiations do not affect the mobility of trading (and therefore, production) in the short-run because of the sheer time-lag which is required to induce changes in the composition and formation of product-matrix
b. However, because of the same logic, Regional and Multilateral Trade Negotiations do seriously affect the mobility of trading (and therefore, production) in the short-run because of the time-induced changes in anticipation and expectation for the composition and formation of product-matrix
c. That reconnecting the regional value chains once again is expected to yield positive outcomes for the domestic production scenario in agricultural products and services.
d. Therefore, reconnecting the ancient value chains connecting the centers of production to their eventual markets have to be centerpiece of all diplomatic negotiations in this regard.
e. For the private sector to come up with a plausible model for taking full advantage of such negotiations and outcomes above would be to integrate the components of the complete value chains and hedge its expectations with components of the advanced derivatives in both commodity production and pricing.

The idea is simple. To construct the optimized jute trade equation, we need to take off the procedural and legal blockades which hinder the smooth operation of a 'natural' value system. To draw the most competitive market forces out into the open we need to actually let the markets roll and turn back to their most natural shape. While this is literally impossible given the changes which has happened over last seventy odd years, it is in fact much better to let the barriers roll and let natural markets re-emerge in their current optimum because:

a. Infusion of advanced capital has already taken place in the Bangladesh (East Bengal) economy.
b. Bangladesh, that is, East Bengal, has tasted superior capital and technology, and therefore, the knowledge divide which had prevented the eastern Bengal landscape from acquiring the colors of Kolkata does not exist. Now, it is almost level playing field – so long as inter
c. Bangladesh has now established firm and sustainable market access for other goods and services across the Asian, European and American markets. Therefore, the over-dependency on a single agricultural commodity does not exist any more. As a result, though far from being perfectly balanced as an economy, Bangladesh can afford to play a more stable role in the regional and sub-regional configurations of the Indian economic systems – which would shift the advantage of the economic fulcrum in favor of Bangladesh (as an economy). This could very well serve as the counter-argument against the anti-integration stakeholders
d. One important area which deters both Bangladesh and India from more actively engaging each other is the issue of the Land Boundary Agreement (LBA). Now, Two issues dominate any discussion on India-Bangladesh relationship: (a) the yawning trade gap (10:1 in favor of India), and (b) the Land Boundary Agreement (LBA) - the ratification of which is stuck at the Indian parliament for last four decades. The dynamics between these two seemingly unrelated issues cannot be fathomed unless seen from both ends and analyzed with rigorous quantitative methods. The formal trade between Bangladesh and India is around US$5.5 billion. What is not visible is the depth and breadth of the informal sector, estimated to be anywhere between US$15 to US$25 billion a year. Governed by a strong 'gravity formulation', a significant share of the flow of economic elements between the two countries across the 4,096-kilometer long porous border is *de facto* and not *de jure*. Even if a 10%-share of this informal sector is accounted for in multipliers, it gives rise to a formidable economic coterie, which could affect the political game playing across North and Northeast India. Studies done by this author suggest that resolving the LBA adversely affects the rent-seeking behavior of the *de facto* gatekeepers of this porous border and wrests the control back to the legal institutions. Time

series analysis of the use of spoilers in the guise of parliamentary action by smaller peripheral parties and turbulence in the border districts tacitly supported by the larger coalitions in power suggests that the economic consequences of not ratifying the LBA could very well be quantified and grouped as a constant in the trade equation. Therefore, it could be hypothesized that only when the Central Government can effectively assert control over the informal gateways of the India-Bangladesh trading routes will there be a resolution of the LBA at the Indian parliament. Intuitive understanding supported by mathematical reasoning suggests that Bangladesh may, finally attain its long-cherished diplomatic objective now with the current Indian center governed by a strong leader with absolute majority of a single party. Trivia: some such indications are already visible.

Figure 1: Jute Model for Bangladesh and India: Raw Jute Block



Note: "*" signifies exogenous variable

6.3 How regional economic integration would be beneficial for jute.

Achieving a higher level of development appears to be inseparably linked with the industrialisation and technological progress of an economy. Prebisch along with Singer (1950) argued that developing countries being labour abundant economies predominantly specialised in primary commodities combined with a relatively slow rate of technical progress, while the developed countries specialised in manufacturing. They drew policy implications from what they had found. Both argued that the developing countries should foster industrialization as the way out of their dilemma. Thus, Prebisch and Singer provided intellectual support for the industrialisation policies that prevailed in many developing countries through the 1970s (Cuddington et al 2002).

Since the mid-1970s the troubled circumstances of the world economy have emphasised the need for a significant structural adaptation of transition countries (Weiss 2002). In case of transition economies, the debate about structural adaptation has been focused on the industrial sector and on the need for policies to restructure. The issue of government policies towards restructuring and rationalisation of industry has increasingly come to the fore since the 1980s as the world economy has become more interdependent and internationally linked. As a result, global pressure has increased substantially. Globalisation has opened enormous new markets and as a necessary new corollary, an enormous number of new competitors. The path of development in the globalisation era is efficiency driven and guided by market principles. Now, the sudden

exposure to the market principle may have a differential impact on different industrial units, depending on their nature of output, scale of operation and other structural features.

What we have found from the various studies made and researched on this subject, first on jute and how its story is linked closely with the evolution of the political economy of the entire South Asia and especially of Bangladesh, West Bengal and the Northeast. Bangladesh is, literally, the land bridge, which connects the ASEAN and BIMSTEC regions and the northeast of india with the vast seas to the south and through the seas to the littoral states surrounding first the indian and then the Pacific Ocean rims.

It is true that we live in interesting times. In our very life times we have seen profound changes affecting the way we live and work, and in general, visualize ourselves and our countries. Last one hundred years have seen two world wars, six wars of extra-ordinary magnitude, even a Cold War, end of essentially European colonization, formation of the United Nations, and many other regional and strategic groups, Oil spikes and oil troughs, and thirty years later property shocks and dot-com-bubbles, internet and network centric configurations in business, administration and knowledge. But these are to name only a few. There are so many more and the time is so short that I would be obliged to refer to all of them in a set and call them our new existential paradigm. I would characterize these changes as evolution - as metamorphosis - in our being as humans, as conscious creatures cognizant of his time, context and place in the history of civilization itself. South Asia for one changed colours in the most dramatic of ways. An ancient and living civilization of five thousand years was divided into a host of countries at the stroke of a certain midnight a couple of decades back by a foreign Raj. But the artificiality of the religion-based creation soon gave rise to political dissent and saw the bloody end to a violent regime in the east and the emergence of Bangladesh - the newest actor in the South Asian political theatre. That too is a matter of four decades and a half now.

It is said that visions grow out of facts of the past, appreciation of the present and ideas of the future. We have vividly seen the past and experiencing the present. What fascinates me is the ideas that we are toying with for the future. What would the future hold ? Que sera, sera. But truly, how would we envision the future and how would that be relevant to the discussions that we are having today and for next three days? As is understood, we need to be moving towards "prosperity" by forming "regional partnerships" both east and west. These are strong words and very articulate directions. Strong constructs, nuanced with diplomatic undertones, which have a host of complex concepts and variables associated with them.

Connected by history, geography, heritage and a synchretic faith system which transcends and permeates through the boundaries of republics, religions, and colors, South and Southeast Asian nations have a very generic and common set of goals and challenges in the sphere of economy and society. Although located at different levels of human development, one way or the other these young countries and ancient nations share very similar dreams, prosperity, development, food, democracy, just to name a few again.

To the author of this paper, prosperity is not only economic in nature. Rather, economic prosperity is only a mere sub-set of the paradigm of human, societal and ecological well-being that we understand. Prosperity, to me, is inclusive. Prosperity to me is not only in building tall sky-scrappers and fleets of ocean going vessels and large multiplex theatres but also the capability of the community or the society to sustain the human life form in all its magnificent galore. Prosperity to me is the ability of the state system to enable the individual to live with pride and dignity. Access to nutrition, shelter, health, education, and an otherwise decent living is all part of the prosperity that we understand.

Given such a backdrop, this is where we could try to see and envision the pan-South-and-Souteast-Asian partnerships coming into play. For millennia, peoples in this part of the world have lived, loved and prospered together. What suddenly makes us different from one another? We don't see a reason. And therefore, we endorse to take the idea of reconnecting the ancient value-based chains and networks of service, production, trade, commerce and communication into its pristine natural configurations. Since days have changed and times have passed, a host of value-added services and productions possibilities have been added to the paradigm of our interconnectedness. Telecommunications, power, energy, university and skill-building centers, hospitals and hospitality services have been added to the regional and sub-regional architecture of cooperation.

Studies in political economy of South Asia suggest that it is finally time to believe in synergy. And a great possibility of synergy in the way that we could connect, reconnect and network in meaningful subsistence can easily be seen if we would only want to see it coming. We must remember that the aspiration of our peoples in all our countries have significantly changed. The peoples across South Asia now dream of conquering not only the Mars and the Moon, but also, the outreaches of the universe. This is a serious matter considering the fact that the various ethnic identities have finally started to dream and that too, dream big! We must do all that we can to ensure that their dreams can be fulfilled and that we as countries and peoples can live, and grow with them and their dreams.

Governments cannot do anything alone. It has to be a partnership between the private and the public sectors to achieve the maximum and optimize the sets of resources and possibilities available at our disposal.

It is imperative that we do not only make the policies and rules, but that we effectively implement all those to boost both South Asian trade and trading with the Southeast Asian nations. It is understood from the deliberations contained in the paper that Bangladesh and the Indian Northeast are co-located at the "Fulcrum Advantage Point" of such a configuration to emerge. Better connectivity in the value-networks and instilling a component of trust amongst the nations party to such a Grand Design is crucial in this regard. The leadership of the region must demonstrate determined and forward-looking 'political will' to bring peace and prosperity to the region which, in spite of its glorious past, remains least integrated in the world of the day. It is a firm conviction of the author of this paper that with proper and visionary integration of the socio-economic processes, South Asia and Southeast Asia could come together in meaningful ways and bring about revolutionary changes in the way people all over the world looks at us.

The borders we have drawn during the end of the British colonial rule, never served the economic purpose of peoples of the region. While countries and nations may and can always have differences in ideas and identities, it would probably be wiser to believe those differences should not preclude them from interacting in win-win solutions at the economic paradigm. This is time that we change the rules of the game. We have to recognise the potential that our countries and the regions concerned have especially in terms of our productive human resources, capabilities, skills snd even markets. We have, between us, almost one third of the entire human race. We have the two fastest growing economic superpowers of the globe both within and just next to us. We have maritime resources which none of our countries have sufficiently tapped or even, probably, thought about.

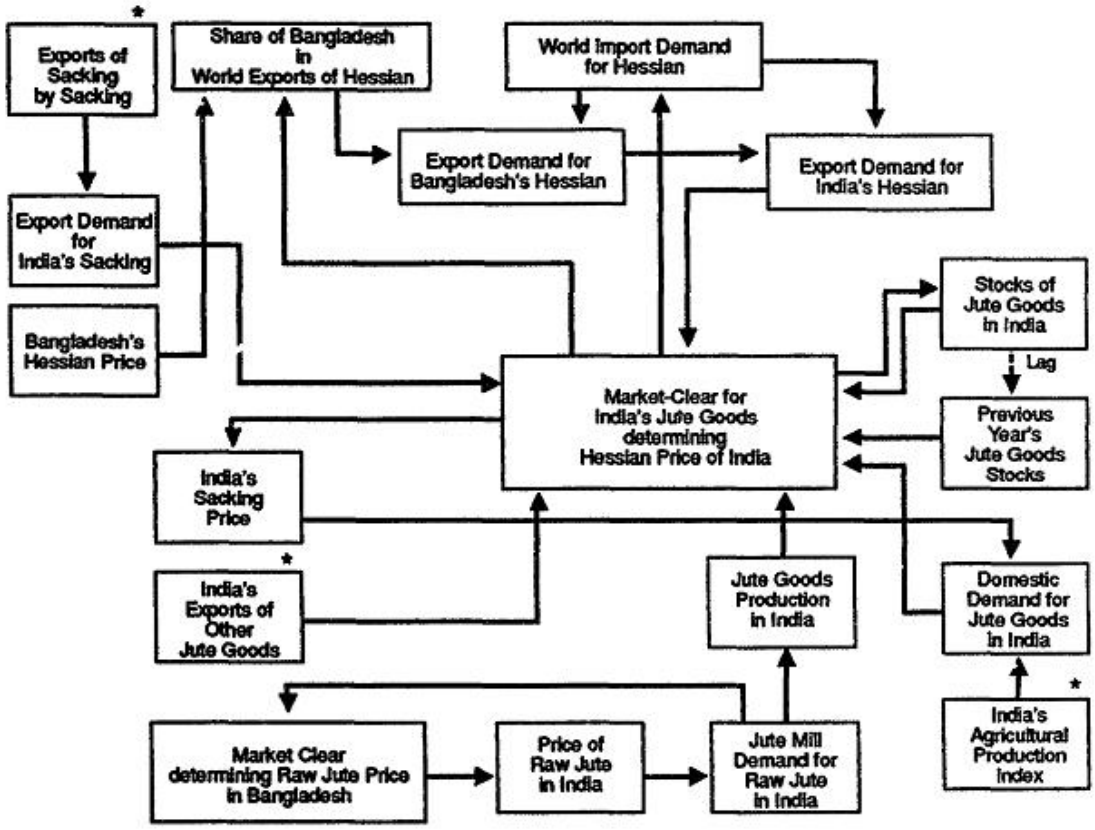
Sadly, what binds us all are rules and protocols which have far outlived their reasonable life spans. My exports cannot reach markets in India in spite of zero tariff entry for almost all categories of goods because non and para tariff barriers like delays in harmonisation of standards, and non availability of integrated cleaning points, or for that matter, unavailability of adequate communication infrastructure to reach and connect growth centres which once defined the landmasses even till the partition of 1947.

Especially with the Northeast, Bangladesh's interests are in building integrated power and energy corridors - complete with generation and distribution of affordable and Sustainable energy; transit and trans-shipment; inland waterways; rail and road corridors and developing the Chittagong Port as an entry port for all multimodal transit - built and used for regional usage. We must understand now that we can move forward only when we move together. Take for example the inland waterways. India has enjoyed full access to our rivers for all these decades. But tell me, has anything been done to actually take advantage of this transit ever? We have let our rivers dry - when they had and still have - the capability to connect the entire north INdia with the northeast and various points including Chittagong in Bangladesh.

It was the single-minded determination of Bangladesh political leadership, in spite of the grave peril, that has rooted out the scourge of terrorism from this part of the world. Northeast of India now understands the benefits of our daring and bold actions. It is time that we move forward with even bolder visions for our peoples.

The two figures which are presented in the pages following this are assorted images drawn from various sources to depict the flow of raw and finished jute across the Bangladesh-India strategic business space. The design credit is not of the author.

Figure 2: Jute Model for Bangladesh and India: India Jute Goods Block



Note: * * * signifies exogenous variable

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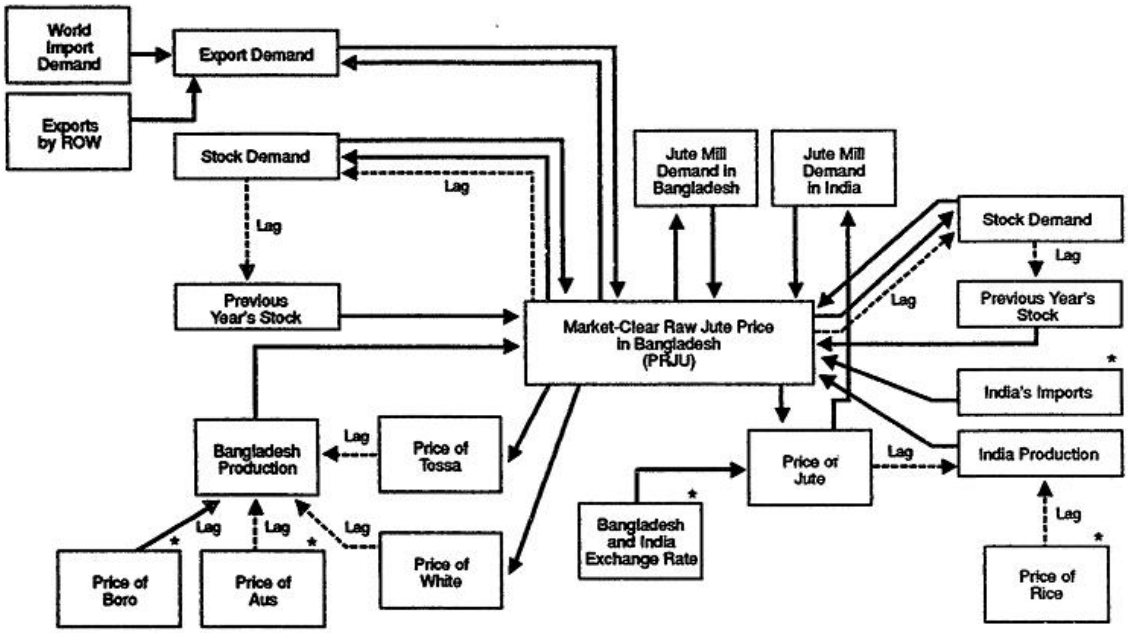
[1035] Figure assorted from multiple sources, including that of Baghchi (2006)

Figure 1: **Jute Model for Bangladesh and India: Raw Jute Block**



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6.4 Encoding a New Economic Security Perspective for South Asia

Two things I keep on repeating to my friends across South Asia.

First, in a matter of a thousand years, not much has inherently changed in matters related to political preferences of peoples across this region. Second, there needs to be a sea change in the way security discourses are composed in South Asia.

The first proposition may come somewhat as a shock to many. But if one would care to look at the issues involved, the shock may soon turn into something of awe. The sub-continent, with a few additions, and essentially the geographic contiguity termed as the South Asian landscape, has seen spectacular changes in the realm of power and authority over the last millennium. Communal and feudal systems gave way to colonial occupation. From the Palas to the Cholas and from the Afghans to the Mughals and from Nawabs to the British. All very different forms and genres of governance ultimately leading to the division of the sub-continent in a containment of the modern day republics. All said and done, hardly do we notice how the 'mindsets' of the various peoples concerned have evolved over time. While advances in nutrition, health, literacy, technology, and various emancipatory forms of empowerment have morphed the social psyche of the peoples, slowly replacing oriental despotism with a somewhat skeletal form of mondiale administrative pluralism, the core tenets of life, living and probably everything in between has remained much the same. Still today, for at least one third of the population in the sub-continent, uncertainties related to basic amenities of life, i.e., food, water, shelter, and health dominate the daily prayer list. This highly negative and contagiously pessimistic state-of-affairs for such a large proportion of humanity, funneled though the tunnels of myopic coteries and energized by the political rent-seeking behavior of vested interest groups, transcribe into a visible component of mistrust – or rather distrust – that characterize the inter-state relationship between and amongst the countries of South Asia.

[1036] Figure assorted from multiple sources, including that of Baghchi (2006)

Which brings us to my second point, the need for a sea change in security discourse. There needs to be a reckoning that the past few decades have witnessed tremendous changes both in the political and the economic arena. Challenges in security, economy, and ecology have all become, rather delicately, interwoven. Systems and institutions have been profoundly affected – and consequently, been transformed. Discounting the theatre perspectives of conventional warfare – which were only three in all real senses over a span of six decades – and with the more recent emergence of non-state actors, I would straight-up propose the need for prioritizing our security focus in the following order: (a) ensuring equitable economic progress – which is not only actually equitable but is perceived as such as well, (b) ensuring comprehensive ecological sustainability of both the individual and the institution – with focus on protection of natural habitation patterns and minimization of internal displacements, and (c) enforcement of a universal code of legal instrumentation – which would be shared on common denominations across the entire spectrum of South Asia – minimizing opportunities for arbitrage.

It is a must that the administrative core acknowledges that some things have changed forever. Myths broken. Perceptions demystified. Slowly, but surely, the old is giving way to the new. Like the renewals promised in the Vedantic scriptures. The average age of leadership in politics, administration, business, has already started to come down to fifties and forties. Almost unthinkable even as late as in the 90s. It is a very personal observation, but the current reality of the sub-continent appears to be like a medley of dreams. It is like the time when the butterfly is struggling to get out of its deafening cocoon and fly into a whole new world full of possibilities of all shades and colors. Under such strain, a few things need to be underscored in conceptualizing the security question: (a) institution of a solid regional perspective in the national security discourse for all security issues, (b) inclusion of purely humanitarian dimensions in all discourses related to the security paradigms, (c) inclusion of a value-framework based economic modeling in the inter-state trade and investment regimes, (d) opening of frontiers for free exchange of ideas (which would include fostering propagation of public media channels) and people (for both business and pleasure) across the state boundaries, (e) inclusion of the youth in the policy-making framework, and (f) formulation of a comprehensive and widely circulated superstructure of texts and documents which would clearly delineate the (positive) roles and (progressive) responsibilities of each country concerned in matters related but not limited to both inter-connectivity and inter-operability in (i) education, (ii) health, (iii) agriculture, (iv) river-basin and water bodies management, (v) environment, (vi) communication networks, (vii) energy and power grids, (viii) border and boundary management, and (ix) law enforcement.

Given the rather painful realization of governments across the region over last few decades in dealing with insurgencies stemming out of very much-localized disenfranchisement and deprivation of the disadvantageous sections of the community, it is high time that we understand stabilizing the economy, coupled with poverty alleviation and mainstreaming underprivileged sections, has virtually emerged as our foremost security priority. Recognition of Human Rights is not confined to materializing certain UN documents only. It is a mix of stories, streams, and speculations – condimented with not only women empowerment – but gender mainstreaming; complemented with not only the protection of the rights of the child – but the very protection of the child even when she is yet to be born; corollaried with not only livelihood – but with access to meaningful livelihood. Complementing greater depths in intra-regional trading, which is yet to cross over the fatal six percent jinx, it is critical that the individual components of South Asian economies engage with each other through a greater flow of intra-regional investments and remittances. For countries to exist in peace with themselves, with their constituent peoples and with their neighbors across borders, it is imperative that we ensure for each: (a) an equitable market access commensurate to the merit of comparative economic advantage (negating the infant industry argument) in the other, (b) a rapid expansion of the environmentally sustainable regional export basket in both goods and services – contributing to the reconstruction of the ancient value-chains (essentially supplementing its gamut with free movement of cargo and seasonal workforces), (c) quick transfer and assimilation of critical technologies, (d) broader employment of both professionals and workers in regional economies based purely on the principle of 'dead-weight burden' reduction, (e) commencement of regional power, energy and communication grids, and (f) embedding the youth, the media, the civil society (Track II?), and the social media, in the discourses related to policy formulation.

This in short is call for a recall of what had been. Plus a whole lot more. As is said, political preferences and priorities of each of the peoples living in the greater paradigm of South Asia have evolved, rather

metamorphed, into what they are now. But the process of being such was not entirely intrinsic. Intrusion of extra-territorial forces over the course of time has intensely influenced the hardening of the mindsets. My personal take after traveling and living across all the countries in the region is that there exist very deep pockets of information asymmetry across the boundaries. People in one part of the sub-continent do not necessarily know the remarkable strides made by people at another part of the sub-continent. And at the same time, people in one part of the sub-continent fail to know, understand and empathize with the legitimate wishes and desires of people at another part – even when these would concern matters related to the very existence and sustainability of life and living – as they have been from time immemorial – giving rise to the possibility of the emergence of strong non-state and sub-state actors – and more importantly, of aggressively chauvinistic social personalities.

It may come as a fiction, but it is my observation that much of the stereotyping done by peoples and countries within the region have essentially remained at the era of August-1947 – which saw the opening of the deepest wounds the peace-loving people of South Asia ever suffered. The natural flows of livelihood, income generation, communication and trade, and as an apposition, of friendship, which were cut off most abruptly, were never restored. Rather, the ideas of a post-Westphalian state-system were toyed with in the mosaic of a civilization as old as humanity itself.

Arbitrary borders. Artificial systems. What else do we need to create heightened states of insecurity? Irrationality in the foundation leads only to irrationality in the structure. Given the complexity involved, it is of paramount import to visualize where South Asia fits in the context of time and space. The answer appears to be simple, used time and again in morbid diplomatic negotiations, we need to work on finding a “common minimum agenda” to begin with. Beginning point? Come up with a widely discussed and authoritatively endorsed “Master Document for South Asia”.

As for myself, I would give only the hope of love the unique prerogative to override rationality.

7.0 CONCLUSION

This paper is considerably large – considering both the length of the text and also the areas covered in focus. However, every good thing has to come to an end and here we are – summarizing the findings into condensed theories under certain boundary conditions. The Conclusion will focus on the following:

i. WTO and its Rules of Engagement
ii. WTO, AOA, RTA and their significance in setting the boundary conditions for the research.
iii. History of Jute Agriculture with special reference to Bangladesh
iv. [Summary of Key findings from Area # 1: RCA and F-TOPSIS]
v. [Summary of Key findings from Area # 2: Gravity]
vi. [Summary of Key findings from Area # 3: AHP]
vii. [Summary of Key findings from Area # 4: Q-SWOT]
viii. Status of Hypotheses
ix. Political Economy of Jute (as a composite commodity) in Bangladesh
x. Theory:
    a. Trade Equation for Jute
    b. How bringing back the natural value chains of jute trading would turn back the fortunes of jute
    c. How regional economic integration would be beneficial for jute.
    d. How regional economic integration could be beneficial for all commodities (goods and services)

We have given a very extensive description of the discussions and negotiations which have taken place under the rubrique of the WTO to build the case for taking a new look at the regional and bilateral solutions which could present themselves in the days ahead.

We have also built a political economy scenario with the help of Dr. Tariq Ali's PhD dissertation (which contains a plethora of detailed references which could not have otherwise been reproduced without copying in tact[1037]) and with detailed records from the Archives of India (for Bangladesh archives data were either destroyed or not found at at all – thanks to the wholesale destruction caused by the War of Liberation 1971) to portray a case argument for instituting an operations based approach for jute sector.

We have also built the trading model as an equation to ensure that whatever the understanding distilled from the discussions under various chapters and areas of this thesis could be summarized in one full block of numbers.

7.1 WTO and its Rules of Engagement

Prior to the WTO there were several important differences with respect to the rules that applied to agricultural primary products as opposed to industrial products for instance, GATT 1947 allowed countries to use export subsidies on agricultural primary products whereas export subsidies on industrial products were prohibited.). The GATT rules also allowed countries to resort to import restrictions (e.g. import quotas) under certain conditions. The present rules and commitments on agriculture are often called the "Uruguay Round reform programme" — they were negotiated in the Uruguay Round and they include reductions in subsidies and protection as well as other disciplines on the trade. All WTO agreements and understandings on trade in goods apply to agriculture, including the GATT 1994 and WTO agreements on such matters as customs valuation, import licensing procedures etc. The Agreement also established a Committee on Agriculture. The Committee oversees the implementation of the Agreement on Agriculture and affords Members the opportunity of consulting on any matter relating to the implementation of commitments, including rule-based commitments.

7.1.1 Market access

The Uruguay Round resulted in a key systemic change in the market access: the switch from a situation where a myriad of non-tariff measures impeded agricultural trade flows to a regime of bound tariff-only protection

[1037] Appropriate references given at the earlier instances

plus reduction commitments. Each WTO Member has a "schedule" of tariff concessions covering all agricultural products. These concessions are an integral part of the results of the Uruguay Round, are formally annexed to the Marrakesh Protocol and have become an integral part of the GATT 1994. Moreover WTO Members were required to maintain, for tariffied products, current import access opportunities at levels corresponding to those existing during the 1986-88 base period.
Agreement on Agriculture also prohibits the use of agriculture-specific non-tariff measures. Such measures include quantitative import restrictions, variable import levies, minimum import prices, discretionary import licensing procedures, voluntary export restraint agreements and non-tariff measures maintained through state-trading enterprises. In addition to this right to invoke for tariffed products, and special treatment are the special features of AoA.

7.1.2 Doha Development Round

The Doha Round began with high expectations of reforms in agricultural trade, but members did not agree on the first draft on modalities which was presented in February 2003. The Cairns Group found the draft unambitious, conversely the EU, Japan, Norway and Switzerland found it not only overly ambitious but also unbalanced in terms of the three pillars of negotiations. Among many disagreements and contretemps in the 5th Ministerial Conference, held in Cancún, were the sectoral initiative taken by the Cotton-4 opposing cotton subsidies in the industrial economies.
Its objective is to lower trade barriers around the world, and thus facilitate increased global trade. Since 2008, talks have stalled over a divide on major issues, such as agriculture, industrial tariffs and non-tariff barriers, services, and trade remedies. The most significant differences are between developed nations led by the European Union (EU), the United States (USA), and Japan and the major developing countries led and represented mainly by India, Brazil, China, South Korea, and South Africa. There is also considerable contention against and between the EU and the USA over their maintenance of agricultural subsidies—seen to operate effectively as trade barriers.
After intense negotiations, an elaborate "Framework for Establishing Modalities in Agriculture" was prepared and made into an Annex of the Framework Agreement July 2004. It was agreed in the Framework Agreement that the new discipline will include deeper cuts in farm subsidies in countries which have the highest levels of subsidies. "Progressive tariff reductions" was also a part of the Framework Agreement. However, the timeframe of implementation was left without mention.

7.1.3 Other Issues of Relevance to Agriculture

Apart from the main reduction commitments in market access, domestic support and export subsidies, the Agriculture Agreement contains other provisions, including export restrictions, a "peace clause", dispute settlement and further negotiations. The Agreement on Agriculture requires Members which consider to institute new export restrictions on foodstuffs to give due consideration to the effects of such restrictions on importing Members' food security. "Peace clause" or "due restraint" regulates the application of other WTO agreements to subsidies in respect of agricultural products. Furthermore, In the case of disputes involving provisions of the Agreement on Agriculture, the general WTO dispute settlement procedures apply. In addition to this the Committee on Agriculture provides a forum for discussion, consultations and mediation.

7.1.4 Current Scenario

Many a times WTO is also posed with allegations of being in conflict with food security in poor countries during the negotiations. In the middle of such situation the experts suggest that "The results of the selection process reveal that most members of the WTO (World Trade Organisation), the majority of whom are developing countries, are dissatisfied with the current status quo - which Blanco represented"[1038]. There are many challenges in front of WTO in current scenario, such as, transformation of the existing system, to ensure that it can provide countries sufficient policy space to pursue a positive agenda for development and job creation, and so that trade rules can facilitate, rather than hinder, (a) global efforts to ensure true food security, (b) sustainable economic development, (c) global access to health and medicines, and (d) global financial stability.

[1038] Deborah James, coordinator of the Our World Is Not For Sale (OWINFS) network of dozens of organisations, activists and social movements worldwide (http://www.iede.co.uk; accessed on 15 May 2013).

7.1.5 Lesson from the regional trading platforms

NAFTA: NAFTA broke new ground in several dimensions. It was first major free trade agreement between a developing country and developed countries. FTAs between developed and developing countries are now more common, so it's logical to look at NAFTA for lessons. Many economists and business representatives generally look at NAFTA as a success and credit it for fueling unprecedented North American trade and creating job growth in the United States. They look to build on NAFTA's momentum to improve trade relations and economic integration within the region. However, labor groups and some consumer-advocacy groups argue that the agreement has had negative effects.

Both proponents and critics of NAFTA agree that the three countries should look at what the agreement has failed to do as they look to the future of North American trade and economic relations. Policies could include strengthening institutions to protect the environment and worker rights; considering the establishment of a border infrastructure plan; increasing regulatory cooperation; promoting research and development to enhance the global competiveness of North American industries; investing in more border infrastructure to make border crossings more efficient; and/or creating more efforts to lessen income differentials within the region. Furthermore, though this initiative has resulted in improvements along the border, some observers contend that policy makers could devote more energy to improving cooperation and enhancing efficiency in cross-border trade. Other experts have proposed ideas to address ongoing problems in the region and make North American industries more competitive. Some proposals that have emerged include calls for rethinking the current trade relationship under NAFTA by broadening the scope of North American integration and cooperation.

7.2 Theoretical framework for economic analysis for Free-Trade Agreements

Preferential trading agreements, such as free trade agreements (FTAs), have both positive and negative effects. This is why they are known as "second-best" initiatives. However, when the "first-best" option (i.e., multilateral liberalization) is unattainable, they provide an alternative vehicle for trade policy.

It is the preferential nature of an FTA that primarily concerns economists when analyzing its trade and welfare effects. In general, non-discriminatory trade liberalization allows countries to export their products if they are the most efficient producers, and to source their imports from the lowest-cost suppliers. This also happens in the context of an FTA in that it allows for a more efficient regional division of labor but, due to the fact that it creates preferences for partner-country producers (who may not be the most efficient), sourcing is not necessarily from the lowest-cost producer. A member country may be able to export its products to another member country simply because it enjoys tariff preferences under the FTA. In other words, the FTA would have the same effect as non-discriminatory liberalization. Also, there is the assumption that the home country imposes a non-discriminatory tariff before the FTA.

Unlike Viner model, which concerns only a single good, modern authors have been able to study FTAs in the context of many goods. These models produce a rich set of analytical results about the welfare consequences of regional trading agreement. The substantial size of the FTA, therefore, implies the possibility to improve the collective terms of trade and greater bargaining power in trade negotiations. Although trade liberalization in an FTA is preferential, the reduction in trade barriers still allows members to benefit from healthy increased intra-bloc competition. Increased exposure to competition from partner countries weeds out less productive firms and favors more productive ones. It also gives firms an incentive to invest in more efficient productive pro-cesses and technology. For each member economy and for the FTA as a whole, these competitive forces may improve structural efficiency and resource allocation as different members specialize in the production of different final and intermediate commodities.

Outcome of various studies states that the big economic players have strong incentives to form bilateral FTAs with each other since many of them consider bilateral FTAs as a promising avenue towards trade liberalization in the absence of alternative measures at the broad-based, multilateral level. Second, the growing interest in bilateral FTAs as an "insurance policy" to liberalize trade often goes beyond trade in goods and services. Many of the current and prospective bilateral FTAs among Asia-Pacific countries cover broader areas and elements like factor mobility, investment rules, intellectual property rights, government procurement, and other trade

facilitation measures such as mutual recognition of product standards and harmonization of customs and quarantine procedures. big economic players have strong incentives to form bilateral FTAs with each other since many of them consider bilateral FTAs as a promising avenue towards trade liberalization in the absence of alternative measures at the broad-based, multilateral level. Second, the growing interest in bilateral FTAs as an "insurance policy" to liberalize trade often goes beyond trade in goods and services. Many of the current and prospective bilateral FTAs among Asia-Pacific countries cover broader areas and elements like factor mobility, investment rules, intellectual property rights, government procurement, and other trade facilitation measures such as mutual recognition of product standards and harmonization of customs and quarantine procedures

7.3 WTO, AOA, RTA and their significance in setting the boundary conditions

7.3.1 Agricultural Trade Liberalization In South-Asia

The changes in economic policies in 1980s and early 1990s in South Asian Economies (SAEs), which include Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka, were not successful in completely reforming protectionist policies. Relatively higher tariff rates on agricultural commodities remained one of the features of trade regimes.[1039] However, the institutional developments related to trade policy have paved the way to some liberalization of agricultural trade. All the SAEs, except Bhutan, are members of the WTO and their involvement in regional trading arrangements has rapidly expanded during the years following the establishment of the WTO.[1040]

It is pertinent to note that agriculture is extremely important for providing livelihood and food security in South Asian countries. Furthermore, agriculture sector also has a close economic link with other sectors of the economy mainly because South Asian countries in general have weak external economic linkages.[1041] The agricultural tradability indices measure the relative openness of SAEs to agricultural trade and may indicate how vulnerable a country is to liberalization of agricultural trade.[1042] Still the factors like lack of complementarities, diversification of export baskets and trade facilities are important barriers to trade, supply-constraints appear to be the most important barrier despite a scope for progress in the elimination of tariff and non-tariff barriers.

Moreover**,** the inclusion of agriculture in the Uruguay Round marked a major turning point in trade negotiations. Even though this momentous development created a sense of euphoria among developing countries, challenges still lie ahead. However Developing countries did not gain as much as expected because of the ways in which rules have been implemented, and these countries have strongly argued that market access opportunities have been greatly affected by increased protection and subsidies in developed countries.

Tariffs (customs duties) are a component of market access and the Uruguay Round AoA addressed three key elements: (a) the "tariffication" of nontariff barriers, (b) reduction of tariffs to reasonable levels, and (c) maintenance of current access levels for each individual product.

Although ASEAN members had little stomach for preferential tariffs, they used their association as a vehicle for concerted trade facilitation. The driving force behind these policies in Southeast Asia was the emergence of regional value chains and the desire of governments to increase the efficiency of these arrangements.

Although measures such as common documentation or single windows may have been intended to facilitate first and foremost intra-regional trade, such measures are rarely discriminatory. The twenty-first century trade agreements in Asia show a similar pattern of limited attention to tariff cuts and greater attention to trade facilitation, reflecting the strengthening and extension of regional value chains to include, in particular, China.

[1039] Merlinda D. Ingco, AGRICULTURE, TRADE AND WTO IN SOUTH ASIA, World Bank, Washington, 2003.
[1040] Ibid, p. 23
[1041] Raghbendra Jha, ROUTLEDGE HANDBOOK OF SOUTH-ASIAN ECONOMICS, Routledge, Oxon, 2011.
[1042] Central Bank of Sri Lanka (2004): Central Bank Annual Report 2004, Colombo.

In some quarters, notably in research funded by the Asian Development Bank, an emerging Asian regionalism is viewed in the traditional sense of a bloc with preferential trade among members. Others see a reincarnation of the APEC ideal of non-preferential regionalism, in which countries collaborate in coordinated reduction of trade barriers, which in the twenty-first century means focusing on trade facilitation. The interpretation is important, because the former implies a challenge to the non-discrimination principle underpinning the multilateral trading system, whereas the latter has a more benign implication of a multi-speed movement towards non-discriminatory trade liberalization.

7.3.2 Trade In Agricultural Products And Its Implications: South-Asian Perpective

Compared to the rest of the world, South-Asian region is not open enough in international trade the reason being major economies such as India, Pakistan and Bangladesh are not outward-oriented. It is evident from the fact that the indices of trade to GDP ratio for Bangladesh, India and Pakistan are 38.0, 27.4 and 37 respectively.[1043] The establishment of WTO in 1995 resulted in increasing openness among the South Asian countries. It promoted imposition of the new multilateral trading system that helped developing countries to pursue export led growth. Moreover it is for the first time after the advent of WTO that agriculture was brought under the effective purview of a multilateral trading system. In addition to this WTO encouraged the developing countries to liberalize trade in services, which traditionally, was under very high level of protection and was kept out of any multilateral trading system.

For South Asia, the studies had estimated the impacts of the Uruguay Round to be positive.[1044] For a major agricultural producing region such as South Asia, where yields (despite some improvements brought about by the Green Revolution) have remained well below the world average, increased commodity prices and reduction of trade barriers provide incentives for increased production and exports.[1045] The trade volume of Bangladesh has continuously risen before and after the WTO. The trade volume in India has also continuously risen before and after the WTO. The trade volume of Pakistan was increasing before the WTO implementation, though not at so good rate but after 1995 it has shown a declining trend. It was higher than Bangladesh and Sri-Lanka before the WTO implementation but after that it became lesser than those. In 2000 it just becomes equal to Sri-Lanka and lower than Bangladesh. In the after years it increased but even up to 2006 it remained below Sri-Lanka and Bangladesh.

7.3.3 Multilateral Trade in Agricultural Products

It is well known that agriculture is the mainstay of most developing countries' economies, underpinning food security, export earnings and rural development. The Uruguay Round essentially subjected domestic agricultural supports and subsidies to international review, although the scrutiny did not necessarily result in reduced support, especially for the most sensitive agricultural products such as sugar, cotton, rice or dairy.[1046] The Uruguay Round also, for the first time, negotiated an agreement to establish specific disciplines for the application of sanitary and phytosanitary (SPS) measures for multilateral trade in agricultural products.[1047]

7.3.3.1 Econometric Measures of Impact of WTO

This reveals that South Asia faced disadvantages of the WTO. It contradicts the estimation by statisticians who argued that the WTO has enhanced the trade bulk of developing countries, for instance, the chain index of trade (percentage of GDP) of Bangladesh before the WTO was 147 and after the WTO it is 140, which shows that trade has been reduced after the WTO. The same type of results is for Sri Lanka, i.e. before WTO it was

[1043] Ershad Ali, Dayal K. Talukder, "Preferential Trade among the SAARC Countries: Prospects and Challenges of Regional Integration in South Asia", JOAAG, Vol. 4. No. 1, Available at http://joaag.com/uploads/5_-_4_1__AliFinal.pdf
[1044] Ibid.
[1045] Rana Ejaz Ali Khan, Analysis of Trade Before and After the WTO: A Case Study of South Asia, Pakistan Journal of Commerce and Social Sciences, Vol.2 (2009), Available at http://www.jespk.net/publications/19.pdf.
[1046] Pitigala, N. (2008)," What Does Regional Trade in South Asia Reveal about Future Trade Integration? Some Empirical Evidence", World Bank Policy Research Working Paper 3497, Washington DC, the World Bank.
[1047] Ibid.

126 and after the WTO it is 96. Though, the situation is different in case of India. The chain index of trade of India before the WTO was 178 and after the WTO it is 227.

7.3.3.2 Commodities in Agricultural Trade Basket

Sugar: International trade in sugar and sugar products has contracted because of increased sugar production by countries that heavily subsidize their domestic sector. This has been narrowing markets for traditional exporters, including those under preferential trade agreements.[1048] International trade in sugar and sugar products has contracted because of increased sugar production by countries that heavily subsidize their domestic sector. This has been narrowing markets for traditional exporters, including those under preferential trade agreements.[1049]

Cotton: The trade in raw cotton is predominantly from developed countries to developing countries, trade among developing countries is growing. Developing countries in Asia absorb 55 percent of global imports. Restrictions on trade in textiles and apparel have severely impacted on global trade of these goods. Tariff reductions for all manufactured goods including textiles and clothing have been proposed under the Doha Development Agenda (DDA).

Banana, and other fruit and vegetables: Fruit and vegetables are important commodities for SAARC countries seeking to diversify exports. The main trade interventions are government tariffs, tariff quotas and minimum entry prices, and market access issues are complex, particularly in the case of banana. Tariff escalation is apparent in the fruit and vegetable sector, with tariffs on imported processed produce generally higher than on fresh produce.

7.4 Trade in Agricultural Products and its Implications: South-Asian Perpective

7.4.1 Trade in South Asia- Regional and Multilateral

Compared to the rest of the world, South-Asian region is not open enough in international trade, rather, it is very much inward oriented. This is partly because the major economies such as India, Pakistan and Bangladesh are not outward-oriented. The indices of trade to GDP ratio for Bangladesh, India and Pakistan are 38.0, 27.4 and 37 respectively.[1050]A higher index indicates a more open economy towards international trade. Though, Maldives and Sri Lanka have a higher percentage of trade to GDP ratios, their economies are very small. Therefore, they have insignificant contribution to the amount of region's trade.[1051]

Although Bangladesh, India and Pakistan have been continuing trade liberalization since the early 1990s, the progress is still very slow. Considering tariff levels, South Asia has still been considered one of the most highly protected regions in the world. Amongst the seven economies, Sri Lanka has got the lowest protection level with 11.2 percent of average tariffs for all goods and Bhutan has persistently the highest average tariffs level with 22.1 percent.[1052] The tariff levels for three large economies-Bangladesh, India and Pakistan are also very high with 15.2, 19.2 and 14.3 percent respectively. This figure is 16.6 percent for South Asian region. Moreover, trade liberalization in South Asia is far from uniform.[1053] Bangladesh, India and Pakistan are still adhering to several interventionist policies.

[1048] International Monetary Fund (2008), Direction of Trade Statistics, June 2008.
[1049] International Monetary Fund (2008), Direction of Trade Statistics, June 2008.
[1050]Ershad Ali, Dayal K. Talukder, "Preferential Trade among the SAARC Countries: Prospects and Challenges of Regional Integration in South Asia", JOAAG, Vol. 4. No. 1, Available at http://joaag.com/uploads/5_-_4_1__AliFinal.pdf
[1051] Ibid.
[1052]Pitigala, N. (2008)," What Does Regional Trade in South Asia Reveal about Future Trade Integration? Some Empirical Evidence", World Bank Policy Research Working Paper 3497, Washington DC, the World Bank.
[1053]Ibid., See also World Bank (2007), World Development Report, Washington DC, The World Bank.

7.4.2 WTO more beneficial than GATT for Agricultural Export

It is widely believed by the policymakers that the WTO would be a vast improvement over its predecessor GATT and the imposition of the new multilateral trading system would help developing countries to pursue export led growth. There were three main reasons behind this optimism.[1054]
First, in the WTO, agriculture was brought for the first time under the effective purview of a multilateral trading system.
Secondly, prior to the WTO, market access for textile products in developed countries were constrained by the extremely restrictive Multi Fiber Agreement (MFA), which allowed the developed countries to selectively impose quantitative restrictions on imports of textiles and clothing from developing countries.
The third aspect of the WTO which encouraged the developing countries was the attempt to liberalize trade in services. Traditionally trade in services was under very high level of protection and was kept out of any multilateral trading system.

7.4.2.1 Benefits accrued to Developing Countries

It was projected that developing countries would be net gainers as the benefits accruing to them from the liberalization of the three key sectors like agriculture, textiles and services were likely to more than offset the expected losses from the other two areas.[1055]
Most of the studies that looked at the impact of the Uruguay Round on developing countries noted that the implementation of the Uruguay Round may marginally increase agricultural commodity prices. For South Asia, the studies had estimated the impacts of the Uruguay Round to be positive.[1056]For a major agricultural producing region such as South Asia, where yields (despite some improvements brought about by the Green Revolution) have remained well below the world average, increased commodity prices and reduction of trade barriers provide incentives for increased production and exports.[1057]It was indicated that the Uruguay Round Agreement may result in a net trade surplus of over US$1.3 billion in South Asia, with food imports reduced by about $1 billion and additional exports of about $300 million.[1058]

7.4.2.2 Multilateral Trade in Agricultural Products

Agriculture is the mainstay of most developing countries' economies, underpinning food security, export earnings and rural development.The poor performance of agriculture in many developing countries is mainly related to, on the one hand, the historical unfavourable terms of trade for agricultural commodities, while on the other hand to internal structural problems such as low productivity; rigid production and trade structures; short life expectancy, low educational qualifications; and inadequate infrastructure, institutional and policy frameworks.[1059]
The Uruguay Round essentially subjected domestic agricultural supports and subsidies to international review, although the scrutiny did not necessarily result in reduced support, especially for the most sensitive agricultural products such as sugar, cotton, rice or dairy.[1060] The UR also, for the first time, negotiated an agreement to establish specific disciplines for the application of sanitary and phytosanitary (SPS) measures for multilateral trade in agricultural products.[1061]
Of particular interest to developing countries were the changes made to the scope and significance of agricultural preferences and market access for African, Caribbean and Pacific (ACP) countries and generalized system of preferences (GSP) beneficiaries into the European Union.[1062] Tariff liberalization for major tropical

[1054] Ibid., See also Rajeev Jain, Trade Pattern in SAARC Countries, Reserve Bank of India Publication, Available at http://www.rbi.org.in/scripts/bs_viewcontent.aspx?Id=2255.
[1055] UNCTAD.(2013),United Nations Conference on Trade and Development, World Investment Report.
[1056] Ibid.
[1057]RanaEjaz Ali Khan, Analysis of Trade Before and After the WTO: A Case Study of South Asia, Pakistan Journal of Commerce and Social Sciences, Vol.2 (2009), Available at http://www.jespk.net/publications/19.pdf.
[1058] Ibid.
[1059] Ibid.
[1060]Pitigala, N. (2008)," What Does Regional Trade in South Asia Reveal about Future Trade Integration? Some Empirical Evidence", World Bank Policy Research Working Paper 3497, Washington DC, the World Bank.
[1061] Ibid.
[1062]Available at http://unctad.org/en/docs/edmmisc232add32_en.pdf.

products resulted in a gradual phasing-out of remaining preferences (ending in mid-2000) for raw coffee and cocoa, papaya, mango and several other tropical fruits. Tariffs were not reduced for processed forms of coffee and cocoa,though, and tariff escalation remains a barrier to increase in-country value-adding for producer countries.

7.4.2.3 Commodities in Agricultural Trade Basket

Sugar production and exports are crucial for many developing countries but trade and prices have been falling. Domestic supports and tariff levels are high in developed countries, creating huge trade distortions which the Uruguay Round has done little to reduce.International trade in sugar and sugar products has contracted because of increased sugar production by countries that heavily subsidize their domestic sector. This has been narrowing markets for traditional exporters, including those under preferential trade agreements.[1063] Uruguay Round negotiations resulted in minimal reductions in sugar trade distortions. Market access has not improved and production subsidies weight global markets against South Asian exporters.

Also many SAARC countries are increasing their production of and trade in cotton, with the help of new technologies, and the industry is an important rural employer. Major exporters such as the United States and European Union support cotton production and exports, driving down international prices and thereby limiting production growth in these countries. Import tariff reductions, and import quota removal will bring major changes to the cotton and textile/apparel markets, intensifying competition among suppliers.[1064]

Fruit and vegetables are important commodities for SAARC countries seeking to diversify exports. World trade in all categories has significantly increased, while the value of exports from such countries increased by US$ 4.5 billion from 1992 to 2011, up 55 percent, from 31 to 37 percent of total world exports.

In terms of value, coffee is one of the most important globally traded commodities and is critically important to millions of rural households throughout the world. It is the primary source of income for an estimated 25 million small coffee farmers in more than 50 countries. Coffee is emblematic of the problems faced by commodity exports from developing countries. South-Asian countries primarily export unprocessed coffee.

7.4.3 Agricultural Trade Liberalization In South-Asia

The changes in economic policies in 1980s and early 1990s in South Asian Economies (SAEs), which include Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka, were not successful in completely reforming protectionist policies. Relatively higher tariff rates on agricultural commodities remained one of the features of trade regimes.[1065] However, the institutional developments related to trade policy have paved the way to some liberalization of agricultural trade. All the SAEs, except Bhutan, are members of the WTO and their involvement in regional trading arrangements has rapidly expanded during the years following the establishment of the WTO.[1066]

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[1063] International Monetary Fund (2008), Direction of Trade Statistics, June 2008.
[1064] Mohanty, S.K and Chaturvedi, Sachin (2006), "Impact of SAFTA on Trade in Environmentally Sensitive Goods in South Asia: Emerging Challenges and Policy Options", Asia-Pacific Trade and Investment Review, Vol. 2, No. 2, December
[1065] Merlinda D. Ingco, AGRICULTURE, TRADE AND WTO IN SOUTH ASIA, World Bank, Washington, 2003.
[1066] Ibid, p. 23
[1067] Raghbendra Jha, ROUTLEDGE HANDBOOK OF SOUTH-ASIAN ECONOMICS, Routledge, Oxon, 2011.
[1068] Central Bank of Sri Lanka (2004): Central Bank Annual Report 2004, Colombo.

Moreover**,** the inclusion of agriculture in the Uruguay Round marked a major turning point in trade negotiations. Even though this momentous development created a sense of euphoria among developing countries, challenges still lie ahead. However Developing countries did not gain as much as expected because of the ways in which rules have been implemented, and these countries have strongly argued that market access opportunities have been greatly affected by increased protection and subsidies in developed countries.

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In some quarters, notably in research funded by the Asian Development Bank, an emerging Asian regionalism is viewed in the traditional sense of a bloc with preferential trade among members. Others see a reincarnation of the APEC ideal of non-preferential regionalism, in which countries collaborate in coordinated reduction of trade barriers, which in the twenty-first century means focusing on trade facilitation. The interpretation is important, because the former implies a challenge to the non-discrimination principle underpinning the multilateral trading system, whereas the latter has a more benign implication of a multi-speed movement towards non-discriminatory trade liberalization.

7.5 History of Jute Agriculture with special reference to Bangladesh

The people of India traditionally used jute to make rope, sacks, paper, and coarse hand woven fabrics for matting and bedding. English traders saw the potential of jute as a substitute for hemp and flax as early as 1793, and eventually a consignment found its way to Dundee in Scotland. The flax spinners there learned how to spin jute yarn by batching fibres with whale oil and water and modifying power-driven flax machinery. Before long they were producing jute goods in substantial quantities. The rise of the jute industry in Dundee and elsewhere in Europe saw a corresponding increase in the export of raw jute from the Indian sub-continent. World production reached one million tons per annum by 1900. By independence in 1947, production grew to over 1.5 million tons and jute was one of the leading producing and export sectors in the sub-continent. The coming of independence to India and the partition of Bengal into part India and part East Pakistan (later to become Bangladesh in 1971) can be seen as a major watershed for the industry. For centuries, jute has been an integral part of the culture of East Bengal, in the entire southwest of the present day Bangladesh. Since the seventeenth century the British East India Company started trading in Jute. During the reign of the British Empire Jute was also used in the military. English Jute Barons grew rich processing jute and selling manufactured products made from jute. Dundee Jute Barons and the British East India Company set up many jute mills in Bengal and by 1895 jute industries in Bengal overtook the Scottish jute trade. Many Scots immigrated to Bengal to set up jute factories. More than a billion jute sandbags were exported from Bengal to the trenches during World War I and also exported to the United States southern region to bag cotton and was used in the fishing, construction, art and the arms industry. Initially, due to its texture, it could only be processed by hand until it was discovered in Dundee that by treating it with whale oil, it could be treated by machine. The industry boomed throughout the eighteenth and nineteenth centuries ("jute weaver" was a recognised trade occupation in the 1900 UK census).

After the end of the First World War in 1918, the world demand for raw jute decreased. This had a negative impact on the area under jute cultivation. The situation worsened for jute cultivation during the Great Depression of 1929-33. The prices sank so low that jute growing became unprofitable. As a result, peasants greatly reduced their area under jute cultivation. By 1939, economic recovery took place. The breaking out of

the Second World War caused an increase in the demand for jute and between 1939 and 1945; peasants put more areas under jute cultivation. However, this trade had largely ceased by about 1970 due to the appearance of synthetic fibres and also misdirected efforts and policy options pursued at the insistence of the Brettong Woods institutions. In the 21st century Jute again rose to be an important crop for export around the world in contrast to synthetic fibre, mainly from Bangladesh.

The jute trade is centered around Bangladesh as discussed above, which is the major jute producing country and also jute is widely grown here due to its natural fertile soil which suits the crop. Raw jute was imported from Bengal by the British East India Company. English Jute Barons grew rich processing jute and selling manufactured products made from jute. Dundee Jute Barons and the British East India Company began to set up jute mills in Bengal and by 1895 jute industries in Bengal overtook the Scottish jute trade due to which many Scots immigrated to Bengal to set up jute factories. More than a billion jute sandbags were exported from Bengal to the trenches during World War I and more predominantly during WWII, also exporting to the Americas, especially the southern region of United States to bag cotton and coffee.

However, exports of jute goods face a number of long-run problems like export marketing, mill management and raw jute supply. Competition from the synthetic substitutes has been the most important challenge faced. Jute goods and synthetic substitutes compete heavily, especially in hessian and carpet backing markets, the share of which is mostly determined by the sales prices of both. Recently, the global demand for diversified jute products has been growing particularly in developed country markets such as USA, Canada, Australia and Japan, where consumer groups are becoming increasingly conscious about carbon footprint of consumer goods. Bangladesh is in a unique situation to take advantage of this growing consumer concern and the resultant interest.

For the five years period from 2005 to 2009, export of raw jute in the world market has increased by 39.5 per cent, and export of jute products has increased by 57.6 per cent. In 2009, Bangladesh was the largest raw jute exporter with a share of about 85.7 per cent of the total global export. On the other hand, China occupied the topmost position among the exporters of jute goods accounting for 58.1 per cent of the total global export. India accounted for 8.5 per cent and Bangladesh for 6 per cent of export of jute products in the world market. Between 2005 and 2009, China's export of jute goods increased by 181.1 percent, whilst that of Bangladesh declined by 11.1 per cent, although the benchmark figures for the two countries were significantly different.

According to the annual statistical report of the Bangladesh Jute Mills Corporation (BJMC), among the major exported jute products export of such items as hessian, sacking and carpet backing cloth (CBC) accounted for 82.6 per cent of total jute goods exports from Bangladesh in FY2007-08.

Major destinations of Bangladesh's jute goods export were Middle East, North Africa, European Economic Community (EEC) countries, South East Asia, Australia, USA and East Africa in FY2007-08, which accounted for 94.3 per cent of total export of jute goods in FY2006-07 compared to 93.5 per cent in FY 1999-00.

Region-wise distribution of jute goods export revealed that Middle East was the major destination (21.6 per cent) of exported jute items from Bangladesh (Table 5). North Africa, the second most important destination, imports about 11.9 per cent of Bangladeshi jute items. Other major importers were – EEC countries, South East Asia and Australia. Hessians were mainly exported to Middle East, EEC countries, America and North Africa. Sackings were exported to North Africa, South East Asia, Middle East, East Africa, West and South Africa and Australia. CBC is generally exported to Australia, EEC countries, Middle East, rest of America, rest of Europe and USA.

Market analysis shows that, Bangladesh's top export destinations (country-wise), in the year 2009 were Pakistan, China, Turkey, India, Belgium, Australia and Indonesia. Exports to majority of these countries had declined during 2009 compared to 2008. Pakistan imported almost the entire quantity of its jute fibre requirements from Bangladesh (96.6 per cent of her total import). China and India obtained 99.8 per cent and 100 per cent of their total raw jute import from Bangladesh. Yarn export of Bangladesh to Turkey, India and USA covers 96.7 per cent, 98.9 per cent and 89.5 per cent of their total market demand respectively. Fabric export to Australia meets 79.5 per cent and sacks export to India meets 69.1 per cent of the respective total market volume. Turkey and Belgium primarily imported multiple jute yarn from Bangladesh, which accounted for 91.3 per cent and 65.1 per cent of their total jute yarn import.

India was the largest exporter of jute fabrics. India met 54.9 per cent of the world's total demand which was followed by Bangladesh with 27.2 per cent of the global export share.

In case of jute fabric (531010), India's major markets were USA (15.1 per cent), Netherlands (11.6 per cent), Germany (11.4 per cent), Egypt (8.6 per cent), and Iran (6.7 per cent). These are also the potential export markets for Bangladesh. For woven fabric (531090), China was the largest exporter in 2009, whose exports to Thailand and USA markets covered 42.4 per cent and 4.7 per cent of the respective total global markets.

China is also a major exporter for carpets. Her market for this product is mainly concentrated to Germany, Japan, USA and Italy which could be potential markets for Bangladesh. India is the nearest competitor of Bangladesh for sacks and bags. With a view to expand her global market, Bangladesh should design a strategy to gain additional market share away from countries which have in recent years eaten into her market, particularly in Thailand, Ghana, USA and UK.

There are good prospects and possibilities for export of jute and jute products by Bangladesh in the North America, particularly in the USA market. Bans on polythene bags and related legislations such as in San Francisco (in 2007), or taxation on plastic bags in Italy and Belgium have boosted the demand for jute manifold, thus creating significant possibilities for export of jute bags from Bangladesh. UK, Belgium, Germany, Netherlands and a number of other EU countries have good demand for jute products in their home market.

Bangladesh's export to EU market have also benefited from preferential treatment. Bangladesh, thus, should strategise to further expand her market share in the EU countries. As the quality of jute produced in Bangladesh is best among those available in the world, she could leverage on this advantage in view of renewed emphasis on and interest in quality in the major jute markets. It has been found that jute also possesses excellent properties for packaging of food items. From this perspective, this could potentially create new markets which could be targeted by Bangladesh. Egypt is one of the major importers of jute goods.

Also, exports of such items as shopping bags and food grade jute clothing bags are on the rise in Asia in recent times. Price competitiveness of some of the Bangladeshi jute export to East Asian market is also found to be significantly strong, and should serve as a contributing factor in raising her market share in this growing market.

7.6 [Summary of Key findings from Area # 1: RCA and F-TOPSIS]

COSTRUCTS & VARIABLES

We have categorized 16 key constructs having a dynamic influence on competitive edge of Jute trade in International Market and weight of each constructs again varied with changing impact of the key variables inside a constructs. Namely they are-

When evaluated the source we find interesting complementary and sometimes even contradictory 'data-sets' regarding the impact of these variables and constructs over the decades. If, grossly, the last century could be divided into three slots, i.e., the British Raj, the (East) Pakistan time, and a soverign Bangladesh reign. We calculated the impact ratio based on both 'survey' and 'scientific -literature', which we'd like to refer to as Meta-data.

Besides Progressive increasing impact of some Advanced variables none of the constructs or variables follow any synchronous development after Pakistan period and sometimes the impact are shown to be completely opposite for same variable/construct from different data source.

This is finding is often ignored by many researcher as to be sample/observation error. But if the political scenario or the nature of trade of Jute is taken in account this can actually make sense.

The rough-bizarre impact of many variables and constructs give us the clue for some unnatural trade-potential of that commodity namely Jute here and later in our study we tried to look into those dis-harmonious correlation more carefully.

A Different Picture

	Category	Priority	Rank
1	Land	2.2%	12
2	Input Availability	2.6%	10
3	Labour	2.6%	10
4	Capital	4.9%	7
5	Agricultural Value Addition	1.5%	14
6	Industrial Value Addition	1.6%	13
7	Connectivity and Transportation	8.2%	5
8	Markets	12.6%	3
9	Climatic Conditions	5.0%	6
10	Exogenous Factors	3.1%	9
11	AD: Product Diversification	8.5%	4
12	AD: Alternative Product Usages	1.4%	15
13	AD: Branding	17.0%	2
14	AD:Composite farm,contract farm abr	4.5%	8
15	AD: Portfolio Investments	1.4%	15
16	AD: TVC Integration and Ownership	22.7%	1

CR= 7.9 %

AHP Values From Metadata

	Category	Priority	Rank
1	Land	5.4%	12
2	Input Availability	6.3%	7
3	Labor	6.0%	8
4	Capital	6.9%	6
5	Agricultural Value Addition	5.2%	13
6	Industrial Value Addition	5.1%	14
7	Connectivity and Transportation	7.6%	4
8	Markets and Market Access	9.0%	1
9	Climatic Conditions	5.8%	9
10	Exogeneous Factors	5.5%	11
11	Product Diversification	7.9%	3
12	Alternative Usage Existing Product	4.3%	15
13	Branding	8.5%	2
14	Composite & Contract Farms	5.8%	10
15	Portfolio Investment	3.9%	16
16	TVC Integration and Ownership	6.9%	5

CR = 2.3 %

AHP Values From Survey

We find a varied picture of the 'priority' and rank of some 'constructs' influencing competitive edge of International Jute trade when comparing primary and secondary survey results. Survey provides us with a better consistency ratio [2.3% vs 7.9%] which is rational as in 'Survey data' the interviewer's own rationality is reflected in AHP ranking.

Land has 5.4% priority in survey as 2.2% in Meta-data as Land Administration and Utilization came out to be an important impact factor among farmers and private industry interviewers and their need was directly reflected while in most Meta-data other policy/strategy is emphasized keeping land to be of almost constant value. Though in our study both angles put Land in the priority rank 12.

Input availability had 6.3% priority in survey (rank-7) while in meta-data only 2.6% (rank-10). Here the difference may be due to the flaw in 'input' to reach the worthy hand due to unnatural means.

Labor is found to have less impact in meta-data (2.6% vs 6.0%). Here this can be said a loop-hole of the meta-data to realize the actual value of labor.

Capital has similar impact (4.9 vs 6.99) in both survey with similar rank of 6.

Agricultural Value Addition is poorly found in meta-data (1.5%), whereas survey dictates an impact of 5.29%. This is an interesting finding! The only logical explanation for this kind of scenario to surface is when 'value' of jute is not acknowledged properly in meta-data; but it is seen and notified by survey. Here comes the tendency of an Unnatural trade of Jute. Same was found true for Industrial Value Addition.

Connectivity & transport remains equally important from both survey. (8.2 vs 7.69)

Markets & Market access have high impact on meta-data (12.6% vs 9.09 %) than survey. But the rank in Meta data is 3 while in survey it is 1. A relative high impact is due to the intuitive analysis of increased trade with increased market option but survey along-side market option opted to account other variables like value in the market and its sustainability.

7.7 [Summary of Key findings from Area # 2: Gravity]

Our empirical approach requires data on bilateral trade as well as on various gravity variables. Bilateral trade data are obtained from the BACI dataset from CEPII (Gaulier and Zignago, 2010).This dataset includes bilateral trade values between any two countries from 1998 onwards. The data is complete up to 2009 at the time of writing, so we have a panel of 12 years. The BACI dataset is based on data from the UN Comtrade dataset, but enhanced through inclusion of 'missing trade values'. These trade data are used as dependent variable as well as to calculate the network indicators using the open source network analysis program Gephi (Bastian, Heymann and Jacomy, 2009). Data on bilateral distance and geographic indicators are also collected from CEPII. Country characteristics such as GDP are collected from the World Bank (2012). Data on regional trade agreements (RTA) are collected from the website of de Sousa (2012). They consist of dummy variables equal to one if any RTA was active between any two countries at the given time. WTO membership data has been downloaded from the WTO site.

Empirical specification: We estimate the following augmented gravity model for Jute Trade (with excerpts from Balasa, 1965)-

$$\ln x_{ijt} = \beta_0 + \beta_1 \ln y_{it} + \beta_2 \ln y_{jt} - \beta_3 \ln t_{ijt} + \beta_4 \ln k_{it}^{out} + \beta_5 \ln k_{jt}^{in} + \beta_6 C_{it} + \beta_7 C_{jt}$$

$$+\eta_i + \zeta_j + \upsilon_t + \epsilon_{ijt}$$

Exports from country i to country j at time t (x_{ijt}) is given by a constant β_0 (including world income y_w), the log of the GDPs of both exporter and importer, y_{it} and y_{jt} respectively, the bilateral trade cost function t_{ijt} assumed to be linear in its arguments (with $t_{ijt} = \gamma_1 lndist_{ij} + \gamma_2 contig + \gamma_3 language + \gamma_4 colonizer + \gamma_5 colonial + \gamma_6 WTO_i + \gamma_7 WTO_j + \gamma_8 RTA$), the out-degree of the exporter k_{it}^{out}, the in-degree of the importer k_{jt}^{in}, and the clustering coefficients of exporter and importer, C_{it} and C_{jt} respectively. We will discuss each of these variables in the next paragraph. η_i, ζ_j and υ_t are exporter, importer and time dummies which capture the remaining theoretically specified MTR factors (cfr. supra). ϵ_{ijt} is the idiosyncratic error term. Note that the estimated coefficients for bilateral and multilateral trade impediments depend, theoretically speaking, on the elasticity of substitution.

OLS Gravity Panel Estimates				
	1	2	3	4
ln(GDP exporter **Bangladesh***)*	0.57209	0.06404		
ln(GDP importer **India***)*	0.47840	0.55249		
ln(distance)				
Contiguity	0.01871	0.06847		
official common language	-0.84720	-0.80211		
common colonizer > 1945	0.89017	0.89017		
colonial ties	0.97468	0.97468		

WTO membership exporter				
WTO membership importer				
regional trade agreements	1.03995	1.12451		
ln(weighted out-degree exporter		0.23974		
ln(weighted in-degree importer)		-0.14926		
clustering coefficient exporter				
clustering coefficient importer				
Constant	-16.74219	-6.70531		
R-squared				
Number of observations				

* Robust Standard Error needs to be put below each value in parenthesis

In a nutshell, OLS Table gives the coefficients for the panel data, using OLS and importer, exporter and year dummies. Column (1) is a benchmark column, estimating a standard gravity model without the addition of the network measures. This ensures us to compare the stability of the model when the network statistics are added. The variables included in each model as control variables, are standard gravity variables that have shown to be significant in the gravity model.
GDP is measured in the natural log of current us dollars. Bilateral distance is in kilometers between the trading partners. Contiguity is expressed as a dummy: 1 if both countries share a common border, 0 otherwise. Here 0 can be used as [nlog0] will have a value and it's a integer.
Official common language is also a dummy, with value 1 as both countries share a common official language. Common colonizer/ History between 'Both Country' is a dummy with value 1 as both country shared a common colonizer or positive History. Colony is also a dummy, with value 1 as both country had a colonial relationship.

WTO membership exporter is a dummy with value 1 if the exporter is a WTO member, and similarly for the importer. The regional trade agreements dummy has value 1 when both countries have some regional trade agreement signed between them and zero otherwise.

They so far in my limited knowledge will remain (estimated parameters) well within the traditional range of gravity estimates.

In the OLS setting, we used robust standard errors [Not Given the Limit Here] to cope with possible heteroscedasticity, and clustered standard errors to counter-act the assumption of independent errors in the model.

Regarding fixed effects, we followed the HMR specification, and capture unobserved heterogeneity at the country level and over time using the importer, exporter and year dummies. MTR (Multilateral Trade Resistance) is taken into account in this approach only as far as these fixed effects capture the unobserved third country dependence.

Since the network indicators reveal various aspects of MTR, we opt to add them both separately and jointly to the specification. As such we are able, firstly, to estimate the impact of each indicator separately. Secondly, we also assess whether and to what extent these factors strengthen or cancel each other out.

Note that in none of the specifications, multi-collinearity appears to influence the estimated coefficients. Column (2) includes the out-degrees of the exporters and the in-degrees of the importers, while column (3) includes the clustering coefficients of the importers and exporters respectively. Finally, in column (4), both network statistics are simultaneously included.

It is notable that the control variables remain stable; this will/can be the case for all commodity models considered. One key importance of this column is that only degrees have a positive highly significant impact

on bilateral trade (qualitatively); an increase of 1 % in an exporter's weighted out degree increases bilateral trade with 0,12% per partner on average.[ref. CEI II website]
* Robust Standard Error needs to be put below each value in parenthesis

7.8 [Summary of Key findings from Area # 3: AHP]

A divergent picture:

	Category	Priority	Rank
1	Land	2.2%	12
2	Input Availability	2.6%	10
3	Labour	2.6%	10
4	Capital	4.9%	7
5	Agricultural Value Addition	1.5%	14
6	Industrial Value Addition	1.6%	13
7	Connectivity and Transportation	8.2%	5
8	Markets	12.6%	3
9	Climatic Conditions	5.0%	6
10	Exogenous Factors	3.1%	9
11	AD: Product Diversification	8.5%	4
12	AD: Alternative Product Usages	1.4%	15
13	AD: Branding	17.0%	2
14	AD:Composite farm,contract farm abr	4.5%	8
15	AD: Portfolio Investments	1.4%	15
16	AD: TVC Integration and Ownership	22.7%	1

CR= 7.9 %

AHP Values From Metadata

	Category	Priority	Rank
1	Land	5.4%	12
2	Input Availability	6.3%	7
3	Labor	6.0%	8
4	Capital	6.9%	6
5	Agricultural Value Addition	5.2%	13
6	Industrial Value Addition	5.1%	14
7	Connectivity and Transportation	7.6%	4
8	Markets and Market Access	9.0%	1
9	Climatic Conditions	5.8%	9
10	Exogeneous Factors	5.5%	11
11	Product Diversification	7.9%	3
12	Alternative Usage Existing Product	4.3%	15
13	Branding	8.5%	2
14	Composite & Contract Farms	5.8%	10
15	Portfolio Investment	3.9%	16
16	TVC Integration and Ownership	6.9%	5

CR = 2.3 %

AHP Values From Survey

We find a deeply divergent picture of the 'priority' and rank of some 'constructs' influencing competitive edge of International Jute trade when comparing primary and secondary survey results. Survey provides us with a better consistency ratio [2.3% vs 7.9%] which is rational as in 'Survey data' the interviewer's own rationality is reflected in AHP ranking.

Land has 5.4% priority in survey as 2.2% in Meta-data as Land Administration and Utilization came out to be an important impact factor among farmers and private industry interviewers and their need was directly reflected while in most Meta-data other policy/strategy is emphasized keeping land to be of almost constant value. Though in our study both angles put Land in the priority rank 12.

Input availability had 6.3% priority in survey (rank-7) while in meta-data only 2.6% (rank-10). Here the difference may be due to the flaw in 'input' to reach the worthy hand due to unnatural means.

Labor is found to have less impact in meta-data (2.6% vs 6.0%). Here this can be said a loop-hole of the meta-data to realize the actual value of labor.

Capital has similar impact (4.9 vs 6.99) in both the surveys with a similar ranking of 6.

Agricultural Value Addition is found fairing very poorly in meta-data (1.5%), whereas survey dictates an impact of 5.29%. This is an interesting finding! The only logical explanation for this kind of scenario to surface is when

'value' of jute is not acknowledged properly in meta-data; but it is seen and notified by survey. Here comes the tendency of an Unnatural trade of Jute. The same is true for Industrial Value Addition.

Connectivity & transport remains equally important from both survey. (8.2 vs 7.69)

(Developing) Markets and Market access have high impact on meta-data (12.6% vs 9.09 %) than survey. But the rank in Meta data is 3 while in survey it is 1. A relative high impact is due to the intuitive analysis of increased trade with increased market option but survey along-side market option opted to account other variables like value in the market and its sustainability.

Advanced Derivatives in the production, manufacturing and trade of jute and jute goods have found traction in our studies conducted under the Broad Area 4.

7.9 [Summary of Key findings from Area # 4: Q-SWOT]

The following table aptly summarizes the priority matrix for the sector:

CONSTRUCTs	AHP Values (%)		Priority Rank		Co- efficient	
	As per Survey	As per Meta-Data	As per Survey	As per Meta-Data	Survey	Meta-Data
Land	5.3	2.2	12	12	0.053	0.022
Input Availability	6.2	3.1	10	7	0.062	0.031
Labor	6.1	2.6	10	8	0.061	0.026
Capital	6.8	4.9	7	6	0.068	0.049
Agricultural Value Addition	5.2	1.5	14	13	0.052	0.015
Industrial Value Addition	5.1	1.6	13	14	0.051	0.016
Connectivity & Transportation	7.6	8.2	5	4	0.076	0.082
Markets	9.1	12.6	3	1	0.091	0.126
Climatic Condition	5.8	5	6	9	0.058	0.05
Exogenous Factors	5.5	3.1	9	11	0.055	0.031
AD. Product Diversification	7.9	8.5	4	3	0.079	0.085
AD. Alternative Product Usage	4.3	1.4	15	15	0.043	0.014
AD. Branding	8.5	17.1	2	2	0.085	0.171
AD: Composite & Contract Farming	5.8	4.5	8	10	0.058	0.045
AD: Portfolio Management	3.9	1.4	15	16	0.039	0.014
AD: Total Value Chain	6.9	22.3	1	5	0.069	0.223
	100	**100**				

Aggressive marketing and reconnecting the value chains which had dominated the jute trading sector have found traction in the analysis of the sector.

7.10 Political Economy of Jute (as a composite commodity) in Bangladesh and the Partition of the Indian Sub-Continent

By all means, it is quite evident that the history and evolution of Jute Commodity system is, quite literally, the history of the political-economic evolution of this part of the world, i.e., the Indian sub-continent. First, its production and processing was encouraged (because of its Indian usage) in the most fertile and alluvial soils of the Bengal Delta and then, the British took over the control of the trading once they gained a foothold after the Battle of Plassey. Slowly, as it appears, the natural course of time and economy started shifting the jute mills from Dundee to Kolkata. Marwaris replaced the British and took over the control of the entire jute commodity trading system. At one point, except for the mills, the entire range of jute commodity system was owned by the Marwaris and their Bengali counterparts and then the Mills started coming to Indian domestic

capital. By the beginning of the twentieth century, the jute mills started featuring squarely within the indian domestic capital territory with Kolkata being the primary manufacturing hub and with Narayanganj and Gualando being the jute collection and transit terminals. The detailed case study that we have conducted on the jute commodity system adequately documents how the commodity trading system evolved and by the beginning of the Second World War had acquired a very complex yet essentially pan-Indian nature of business – complete with capital, cultivation, processing, trading, transportation and consumption schedules.

However, notwithstanding the literally negligible effect of the-then Bengal provincial government's pursuing a set of incongruent policy options, the trading architecture remained optimized and a free flow of goods and services took shape.

However, the partition of the Indian sub-continent brought about unforeseen challenges. It was not only that ancient value chains going across several independent republics were abruptly cut it was also true that they were cut most arbitrarily and most haphazardly – leading to first a breakdown in the commodity chain system and then the rise of a thriving underground economy out of the carcass of the old trading order. The first instances of smuggling and hawala (aka Hundi) grew out of a breakdown of the trans-Indian productive value chains.

The Partition of British India in 1947, which created the two independent states of India and Pakistan, was followed by one of the cruelest and bloodiest migrations and ethnic cleansings in history. The religious fury and violence that it unleashed caused the deaths of some 2 million Hindus, Muslims and Sikhs. An estimated 12 to 15 million people were forcibly transferred between the two countries. At least 75,000 women were raped. The trauma incurred in the process has been profound. Consequently relations between the two states, between them and some of their people, and between some of their groups have not normalized even after more than half a century; on the contrary they have consistently worsened with each passing year. Ethnic conflict currently pervades the domestic politics of the two states and the hawks in their defense establishments have been calling the shots for quite some time. The two states have been on the verge of a nuclear war since May 1998, when both demonstrated their ability to explode nuclear devices. Such a war would in all probability seriously jeopardize human existence and civilization in this region. Currently, South Asia is undoubtedly the most dangerous nuclear flash point in the world.

An educated contention[1069] is that this potential for self-destruction derives from a paradigm for pathologically ethnicised politics that informs the behaviour of the involved actors. Papers have tried to shed light on the way a pathological socio-political system comes into being. Such a system needs to be distinguished from the normal type of socio-political system in which ethnic groups, besides voluntary associations such as class-based or ideology-oriented parties and organised pressure groups, serve as bases for peaceful competition for power over goods and services in society. Even in peaceful situations, ethnic groups maintain their boundaries and both insiders and outsiders are in some sense aware of them. Some degree of tension may also exist between them, but their leaders and spokespersons are usually able to resolve such problems peacefully. By contrast, pathological politics thrive on the logic of rejection, exclusion, subordination and the threat or use of force and violence.

The significance of ethnicity as a variable in social analysis is far from satisfactorily theorised, although the current period has seen an unusual flurry in the literature. This study seeks to advance the theoretical frontiers of current understanding of ethnicity in a special, though by no means unusual situation: that in which tension and conflict, involving organised and recurrent violence, have become endemic. The main argument set forth in some of the studies which correlate with this part of the paper is that in the formation of a pathological socio-political system, a particular happening or event can sometimes be identified clearly and unambiguously as the determinant pivot. Its force or intensity is of such proportions that it sets in motion processes that in due course begin to liken a paradigm which, in a path-determinant manner, produces and reproduces pathological, ethnicised behaviour patterns. Rational ideas, policies and solutions, which may also be present, are set aside, rendered ineffective or eliminated by force. The pathological paradigm continues to inform and

[1069] Quoted from http://www.sacw.net/partition/IshtiaqAhmed2002.html: Asian Ethnicity, Volume 3, number 1, March 2002, ISSN 1463-1369; **The 1947 Partition of India: A Paradigm for Pathological Politics in India and Pakistan; Ishtiaq Ahmed** (University of Stockholm, Sweden)

affect politics till such time that it ceases to be efficacious and useful for its practitioners, or it is undermined by a revolutionary new paradigm.

Here, a study of the pre and post partition impact of the Radcliffe Line becomes important – which we have portrayed in the Case Study section of the paper to depict a 'trend' and 'pattern' which emerged as a direct consequence of the partition of the Indian sub-continent and especially Bengal – which was for all reasons one economic unit with a very particular set of economic actors and underlying rationale for economic interaction between and amongst its various components.

Radcliffe's line split Bengal, which historically was always a single economic zone, into two-halves. The two-halves were intricately connected with each other. The fertile East produced food and raw materials which the West consumed and the industrialised West produced manufactured goods which were consumed by the East. This mutually beneficial trade and exchange was severely disrupted by the partition. Rail, road and water communication routes were severed between the two. After partition West Bengal suffered from a substantial food shortage as the fertile rice producing districts of Bengal went to the eastern half. The shortage continued throughout the 1950s and 1960s. By 1959, West Bengal faced an annual food shortage of 950,000 tones. Hunger marches became a common site in Kolkata. Rice is the staple diet of Bengalis. After partition West Bengal faced severe grain shortage and the Government introduced Rationing. On the other hand, Jute was the largest industry in Bengal at the time of partition. Radcliffe's line left every single jute mill in West Bengal but four fifth of the jute producing land in East Bengal. The best quality fibre yielding breeds of jute were cultivated mostly in East Bengal. India and Pakistan initially went into a trade agreement to import raw jute from East Bengal for West Bengal's mills. However, Pakistan had plans to set up its own mills and put restrictions on raw jute export to India. West Bengal's mills faced acute shortage. The industry faced a crisis. On the other hand jute farmers in East Bengal was now without a market to sell their produce. Jute export to West Bengal suddenly became an anti-national act for Pakistan. Smuggling of raw jute shot up across the border. However West Bengal rapidly increased jute production and by mid-to-late 1950s became largely self-sufficient in jute. West Bengal's mills became less dependent on East Bengal for raw material. Pakistan also set up new factories to process its local produce instead of exporting to India. The following table shows jute production details in two countries in 1961.

Year 1961	Area Harvested (Ha)	Yield (Hg/Ha)	Production (tonnes)
Bangladesh (then East Pakistan)	834000	15761	1314540
India	917000	12479	1144400

West Bengal's paper and leather industry faced similar problems. The paper mills used East Bengal's Bamboo and the tanneries consumed leather, also mainly produced in East Bengal. Like jute, lack of raw material pushed these two industries into decline (while at the same time, the jute sector in the east suffered unbearably for the lack of the natural markets – halted most abruptly).

Despite center and state governments' best efforts, the pressure of millions of refugees, food shortages and industrial decline put post-independence West Bengal in a severe crisis. Dr. B. C. Roy's government tried to cope up with the situation by initiating several projects. The government built irrigation networks like DVC and Mayurakshi project, the Durgapur industrial zone and the Salt Lake City. But these failed to arrest West Bengal's decline. Poverty rose. West Bengal lost its top place and lagged well behind other Indian states in industrial development. Massive political unrest, strikes and violence crippled the state throughout the next three decades after partition.

Rail and road links connecting North East India to the rest of the country passed through East Bengal territory. The lines connecting Siliguri in North Bengal to Kolkata and Assam to Chittagong were severed. The whole Assam Railway was cut off from the rest of the Indian system. These lines carried almost all freight traffic from these regions. The most important commodities were tea and timber. The tea industry in Assam depended on the Chittagong port to export its produce and import raw materials for the industry such as coal, which was used as the fuel to dry the tea leaves. The industry was severely hit as Chittagong port went to Pakistan. Initially India and Pakistan reached an agreement to allow cross border transit traffic but now India had to pay a tariff. By 1950, India reconnected Assam to the rest of the country's rail network by building a 229 km meter

gauge rail link through the Siliguri Corridor. But now the Tea chests from Assam's gardens would have to be carried over a much longer distance to reach the Kolkata port. Exporting tea via the nearby Chittagong port was still an option but after 1965's war all transit traffic was switched off by Pakistan.

At the time of partition, East Bengal had no large industry. There were few mineral resources in this region. Its economy was completely agrarian. The main produce was food grains and other crops, jute, bamboo, leather and fish. These raw materials were consumed by factories in and around Kolkata. Kolkata was the center of Bengal's economic and social development for both Hindus and Muslims. All large industries, Military bases, Government offices and most of the institutions of higher education were situated in Kolkata. Without Kolkata Muslim East Bengal was decapitated. It lost its traditional market for agricultural products. It also lost the Kolkata port, the premium port of the whole country at that time. East Bengal had to begin from nothing. Dhaka at that time was only a district headquarters. The Government offices had to be placed inside makeshift buildings. Dhaka also faced a severe human resource crisis. The majority of high-ranking officers in British Indian administration were Hindu and they migrated to West Bengal. Often these posts had to be filled up by West Pakistani officers. Desperately poor, East Bengal soon became politically dominated by West Pakistan. Urdu was imposed upon the whole country. Economic disparities and subjugation of Bengalis by the Punjabi elite eventually led to struggle for separation.

East Pakistan became independent Bangladesh in 1971 but cross border railway traffic did not resume until 2003 and that too in a disjointed fashion. By the 1990s, India upgraded the Assam rail link to broad gauge right up to Dibrugarh thereby easing the traffic problem in Brahmaputra valley region. But the southern section of this area, which comprises Tripura, Mizoram, Manipur and Barak valley of Assam still faces serious connectivity problem. Talks between the two countries are currently underway to allow transit traffic between this area and mainland India through Bangladesh.

Now, what happened with the Jute sector can be schematized as follows:

Partition of Bengal 1947	• The natural supply lines of Jute breaks down • Kolkata loses its natural agricultural hinterland • Narayanganj and Gualondo lose their natural trading advantages as jute transit terminals. • Connection between natural markets and natural hinterlands are severed • Financing architecture for the production and trading in jute is stymied
Power Struggle between East Pakistan and Central Government	• Jute sector tries to revive itself by continuing with the established trading routes in an informal mechanism • Illegal and contraband methods are established to smuggle jute out of East Pakistan into the Kolkata Markets • Central Government try to weigh-in • Eastern Traders try to subvert the Center and continue with the natural value lines • For the first time, words like smuggling and hundi become institutionalized in the regular economy of the Indian sub-continent
Infusion of West Pakistani Capital in East Pakistan Jute Sector	• Jute Mills Start Growing in East Pakistan • Narayanganj emerges as the new processing and manufacturing hub for East Pakistan • Chittagong emerges as a natural industrial processing region • Jute Sector starts picking up; more than 73 jute mills established in a span of 23 years; a first in East Bengal (that is, East Pakistan) • Control of the Jute Processing, Export and Financing Sector moves to the hands of West Pakistan • Underground economy thrives on; gives increasingly enhancing

	economic returns to investment in the underground economy. • Disenfranchisement begins for Political control
Liberation War of 1971	• Production and manufacturing is halted for a whole year • Jute mills are locked down; machines stolen or destroyed • Farmers and farm-holds are killed by invading soldiers and their local collaborators • Kolkata re-emerges as the single stable natural industrial corridor for jute production for the year and the next
Post-1971 Nationalizations of Jute Mills	• Jute mills are nationalized to restart production and maintain continuity of debt and equity • Production commences in full swing • Politically induced employment adds up as managerial and production overhead and adds to the cost structure of the jute production and manufacturing cycles • Bangladesh jute products continue to slide down in the international competitiveness index; alternative production schedules for other products take preference • Illegal (eulogized as informal) trading continues – complete with barters and cross-border fund transfers
Attempted jute sector rehabilitation of the eighties	• GOB tries to 'manage' the jute sector by maintaining a steady flow of state- credit programs and still maintaining the imposed overhead • World Bank and IBRD run projects for managing supply of spares and also up-gradation of equipment fall short of requirement and the mills failed to keep pace with the changing realities of the modern world and the dynamics of the evolving jute sector – especially in the face of rising threats from polypropylene products. • Slowly and gradually, in spite of a general reckoning of the fact that superior marketing, R&D and managerial skills were required for the revival of the jute sector, GOB continues to manage the sector with state intervention • International Organizations like the International Jute Organisation (IJO) limits itself to the formulation of policy documents from the perspective of the public sector only. • In spite of gains in the R&D in jute seed, farming technology and cropping intensity, the jute sector in Bangladesh fails to institutionalize and capitalize significant strategic advantage in international trading in jute. • Kolkata-centric jute ecology continues to garner superior state support, and therefore, manages to artificially sustain the sector's profitability and comparative advantage
Divestment in the Nineties	• With rising public expenditure and pressure from the donor agencies (the terminology of donors, as opposed to development partners, is remarkable) GOB divests wholesale from the jute sector – Adamjee Jute Mills become the iconic landmark of 'successful' public sector divestment • With productivity in the agricultural sector remaining stable, smuggling and illegal cross border trades pick up again • GOB divests wholesale and sells of both the machinery and land of the erstwhile jute mills at a time when jute mills start growing at

	neighboring West Bengal with generous state support • Private sector starts regenerating in Bangladesh

Interestingly, what we see from our research throughout last one hundred years' of published Government records of, first, the British Indian Government (of Delhi and Kolkata), the Central and East Pakistan Government, and then Bangladesh Government, what we see is that there is a disturbing pattern in the production, processing and trading in jute across the Indian sub-continent. Put simply, something does not match. We can not really match why one vector of production is falling in one sector of the Indian sub-continent while the same vector is rising in another sector without really juxtaposing the facts and figures and trying to make sense of what is going on in reality.

If we would care to revisit what we have seen in Areas 1 and 3, and then in Areas 3 and 4, we would see that the published records (i.e., the meta data) and our survey from the field do not match up. The differences and the discrepancies are yawning and appear to misrepresent each other. After all, one could not be so far away from the other. Now, we tried to bring the two results together by reshaping the questions and rephrasing the options. But nothing worked. The differences remained. And we have reasons to believe that there are reasons for such.

8.0 Recommended Policies

Jute, as a commodity category, has gone through life, death and rebirth in the perspective of Bangladesh. What was once being considered as dead and gone has come back in full force – thanks to imaginative public recourse and also changing conditions in the climate. These two perspectives could be recombined to produce results would be phenomenal in their implication. Taking into account major changes that are taking place in the global market and global thinking as far as the jute products and jute production are concerned, new initiatives will be required to access the potential opportunities. An appropriate broad roadmap needs to be developed towards this. Bangladesh will need to pursue a number of strategies, both short and medium-term, to regain her lost position in the global market by way of higher market share, increased consumption of jute goods, both at local and international markets, and better marketing and linkages. Both product and market diversification should be targeted based on this[1070].

8.1 Short-term Strategies

8.1.1 Product Promotional Activities

In order to make significant inroads into the global market, promotional campaigns including marketing programmes (such as fairs) need to be undertaken in the target markets. Consumer awareness programmes should focus environmental advantages of using jute items. Bangladesh missions abroad can play a pivotal role in promoting jute products in target markets – taking into account and leveraging the green initiatives across the globe. But this can not be done single handedly by the missions abroad. Rather, the missions need to be connected to the grassroot level administrative set-up in the country to leverage the competitive advantages that the Bangladesh jute sector enjoys. Also, taking advantage of the complementary assets already in place and catapulting on the fulcrum advantages which define the strategic market spaces for jute and allied products. Re-imagining the spectrum is one avenue which needs focus.

8.1.2 Support for the Small and Medium Enterprises

[1070] Ibid (Jute Roadmap); quoted.

The trend at present is for the world market, excluding jute producing countries, to be decreasing at anything up to 50,000 tons per annum but for this to be compensated by decreasing Bangladesh production (by up to 30,000 tons per annum) and for the Indian market to absorb up to an additional 50,000 tons per annum. The result is gradually increasing global jute production. However, within this overall growth in global production, there are important nuances. The most important is the growing importance of India, both as a producer and as a consumer. India used to account for 32% of production in 1961 but today accounts for 60% and accounts for just below 50% of global annual consumption.

At the same time exports to non jute producing countries have moved in the opposite direction from 1976 when half of the annual production was traded. Today the volume traded is one-third. India used to export 28% of national production in 1976; today it is below 14%. Jute is now far less dependent on exports than it used to be. Production is also becoming far more concentrated with India and Bangladesh, always the leading producers, but who have had their dominance reinforced with the decline in production in China and in Thailand. Myanmar and Nepal continue to remain producers.

There is a general recognition that this increasing level of concentration of consumption in the domestic Indian economy is an inherently unstable development and that it would be better if it were reduced. This is accompanied by a conviction that a reduction in costs in the conversion process could enhance both the internal competitiveness of jute and in export markets for higher value diversified products.

SMEs are crucial for industrializing the economic spectrum of any country. It has been suggested by numerous scholars and practitioners and this author also endorses that the small and medium enterprises (SMEs) which manufactures shopping bags and other decorative items of jute should get adequate financial as well as the technical support from the government (ibid). Development partners can also provide assistance in this regard. In India, International Trade Centre (ITC) worked with designers, market specialists, jute mills and SMEs to promote marketability of jute products. ITC helped SMEs in design of appropriate brochures and catalogues, and organising displays and exhibitions, and helped to improve the design of jute items both from aesthetic and utility viewpoints. At present, diversified jute products include about 20 per cent of the total sale of jute products in India. This subsector involves more than 1,000 SMEs, which have created employment opportunities for 80,000 people in India (ITC 2004). ITC and the Norwegian Agency for Development Cooperation (NORAD) have assisted industries in Bangladesh to produce high quality yarn, fabric, shoes and particle-boards. Such assistance should be widened to cover SMEs producing jute items, raising quality and diversifying markets (ibid). The current impetus drawn for the green and sustainable sectors of manufacturing can be coupled to access funds and technological support for such initiatives (CPD, 2014).

8.1.3 Increasing Market of Traditional Items

Much of jute related manufacturing depends on the momentum derived from sacks and bags which create the baselines for financial sustainability of the mills. It has been observed by research institutions that The most immediate export development would take the form of reducing the decline in markets for jute sacks, a process that will inevitably be assisted by a perceived narrowing of the gap between jute and synthetic costs of production[1071]. the immediate future of the industry will continue to depend on traditional markets. There can be no doubt of the efforts the industry has made and is making to diversify its product range and to move towards higher value added products but progress has been slow since the challenges are formidable[1072]. Increased use of bulk handling makes this task more difficult but there is sufficient scope for defensive and active measures. There is also scope for looking at possible action to defend use as secondary carpet backing and for hessian[1073]. In the longer term there are known potential markets for substantial quantities of jute in

[1071] Also, The meaning of 'traditional markets' for jute goods is well understood. It is taken to describe the classical products such as sacking, hessian cloth, and variants such as the wider Hessians used for the secondary backing of tufted carpets and as well as support cloth for linoleum. Jute yarns are also a traditional jute product and were first used to replace flax/linen yarns in the backing structure of machine woven carpets over seventy years ago.

[1072] World jute and allied fibre output generally runs between 2.5 and 3 million tons a year, with a current median of around 2.8 million tons. About 0.2 million tons of the output is used at village level, so the amount annually available for local mill use or export is some 2.6 million tons. As can be seen above, the 'Traditional' or 'Classic' jute products amount in overall to a total of roughly 2.2 million tons of output. This production of jute goods requires the input of about 2.4 million tons a year of raw jute and similar fibres. Thus the traditional products represent some 85% of raw jute consumption, village use about 7%, and other uses including non-wovens and diversified products, the remaining 8%.

[1073] Ibid; worldwide, the current annual breakdown may be assumed as follows:

plastic composites, of higher value fabrics in apparel and household furnishings, in niche market applications and others that are yet to be developed[1074].

Traditional items of jute exported from Bangladesh primarily involved packaging items and floor coverings. Traditional packaging products still accounted for a major share of jute products market for Bangladesh. Some development of food grade jute bags, light weight packaging materials, sacks are made in accordance to consumers', or buyers' preference. A more proactive support was called for in order to address key concerns and demands of buyers/consumers, which relate to quality, design, specifications, timelines of delivery, etc. It will be important to focus on the woven/ braided/ tufted carpets, rugs (sataranchis) which are enjoying growing demand in the world market at present. Technical and design support to these kinds of manufacturers will be important to meet consumers' demand. Initiatives will also need to be taken to develop markets for shopping bags and other jute-blended bags. Ensuring more use of jute for packaging of different products including food, fertilizer and cement under a packaging act could create a secured domestic market for jute. Product improvement along with proactive market promotion will play a crucial role in terms of attaining higher market share in the global market.

Heavy sacking bags, (700- 1,100 grams)	India	1,000,000 tons
	Bangladesh	180,000 tons
	China	100,000 tons
	Pakistan	45,000 tons
	Myanmar	30,000 tons
	Nepal	20,000 tons
	Ivory Coast	10,000 tons
	Others (est.)	15,000 tons
	TOTAL	1,400,000 tons
Hessians, (includes	India	320,000 tons
Cloth or bags,	Bangladesh	70,000 tons
and wide or	China	30,000 tons
specialised fabrics).	Pakistan	10,000 tons
	Brazil	10,000 tons
	Others (est)	20,000 tons
	TOTAL	460,000 tons
Jute Yarns & Twines	Bangladesh	240,000 tons
	India	140,000 tons
	China (est)	15,000 tons
	Pakistan (est)	10,000 tons
	Others (est)	10,000 tons
	TOTAL	415,000 tons

[1074] The advent of low cost polypropylene plastic resin in the 1960s and 1970s made the efficient manufacture of low cost lightweight bags possible and these bags now dominate world woven bag consumption with the exception of India.

The recent dramatic increase of crude oil and PP polymer prices, if maintained in the longer term, will push woven plastic bags prices into a price range from US$ 25 to US$ 35 cents each. By comparison jute-sacking bags are sold in a range from US$ 45 cents to US$ 55 cents each. The increasing use of bulk handling and containerisation by road and sea has also significantly reduced the market scope for both jute and woven plastic bags and it is a transport trend which continues to grow. The market for Hessian cloth which is used both for lighter weight bags and for all sorts of loose wrapping and packaging protection has also been declining as alternative options take its place. In the carpet manufacturing industry the performance of jute yarns has been very positive. There remains the threat that as the speeds of the latest designs of carpet weaving looms increases and if jute fibre qualities decline further that jute yarns even when coated will not meet the strength requirements the new higher speed looms and lose market share to PP slit film yarns on that account.

The vast bulk of jute goods production remains in the classical product lines of sacking bags, Hessian cloth, and yarns for the carpet weaving industry.

Jute has to be more competitive to enable this development and that requires a thorough understanding of the commodity chain and action at every stage to result in a leaner and stronger competitive posture[1075].

A few strands of reasoning may help taking a call on the issue[1076]. On economic grounds there is very little to choose between a jute sack costing US 50 cents and which has a lifetime use of say 5/6 journeys to carry produce and the utility of a woven plastic sack costing US$ 25 cents and which is used for 3/4 journeys. The first cost of a bag is important, no doubt, but for a national economy the overall lifetime utility is even more decisive. In environmental terms jute wins the competition hands down. Provided jute, a renewable resource with a very low environmental footprint it is to be greatly preferred to using plastic packaging, which for the next few decades will inevitably be based on mineral oil, a non-renewable resource and one which costs India valuable foreign exchange. In social terms, the arguments are also almost all in jute's favour (Deb, 2005). We can note the part time employment jute gives to about 4 million farmers in India and to the several hundred thousand employees in the mills and also needed for raw jute transport and jute goods distribution (CPD 2014). As we have noted in the case of agriculture these may be arduous and poorly paid jobs but they are available to people at the bottom of the income scale and for that reason alone these jobs are all the more important for social reasons (Deb 2005).

8.2 Medium-term Strategies

8.2.1 Removal of Administrative and Trade Barriers

Several scholars have clearly identified that Tariff barriers and NTBs inhibit the export performance of a number of jute items in the global market. We also believe that TBTs in jute and jute products inhibit the free flow of the commodity category in conjunction with the service potentials associated with the trade in the manufactured commodities and associated mill services (Deb, 2005). Hence, TBTs will need to be resolved through negotiation in appropriate platforms. Concerned organisations should undertake elaborative study on technical barriers such as standards and certification system and/or produceres related to the jute sector. Attempts should be taken to resolve any dispute through the available for a such as WTO, Regional Trading Agreements (RTAs) and other bilateral negotiating platforms. Research and development (R&D) support will need to be provided to concerned institutions to develop technical hands for the purpose of certification and developing appropriate standards (Rahman & Khaled 2011).

Also, there are three main potential directions that can be set as objectives under the regulatory framework arrangements[1077]:

(1) Extend regulatory protection[1078]

[1075] Ibid

[1076] Ibid; excerpts from the proceedings of the conferences.

[1077] Ibid

[1078] Ibid;

India has a regulatory packaging order, which presently mandates that a stipulated proportion of commodities such as food grains (100%) and sugar be carried in jute. With the growth of the Indian economy, demand for jute sacks has been increasing for these end-uses. In Bangladesh, there is no such legislative act as yet, but there is a campaign for limiting the use of PP carrier bags on environmental grounds. The packaging order in India leads to those wishing to transport designated commodities having to use jute sacks, even when they could use cheaper PP sacks. They make best of the present situation and maximise the numbers of times jute sacks are re-used. The small extra cost of sacks is absorbed by the buyers of the contents and passed on where possible to consumers.

(2) Continue as at present[1079]

(3) De-regulate[1080] (esp. India[1081])

One way of helping the rural community which both, India and Bangladesh are anxious to do, would be for Bangladesh to adopt a similar regulation as India and if possible, to extend the list of designated commodities. The measures would lead to increased demand in the domestic market. There is some sentiment that there should be an organised effort to try to persuade countries to follow the republic of Ireland and to ban the use of blown film shopping bags as an example of what can be done. It is, however, unclear how many other countries would go as far as this, although the idea can be used in an international marketing campaign for reusable jute shopping bags. This campaign would appeal to environmentally aware consumers. Pollution from PP sacks and bags and in particular disposal problems are attracting more and more attention. The State Government of Maharashtra has decided to ban use of synthetic shopping and other bags. There was already a campaign in Bangladesh to promote the same idea there.

If it were the policy of India and Bangladesh to extend regulatory cover for jute, it is likely that in a 5 year period there could be additional demand for over 250,000 tons and over a 10 years period, over 500,000 tons of jute sacking. But at the same time it has to be recognised that such a policy would represent a substantial reversal of direction for the two countries.

[1079] Ibid;

As has been noted by noted strategists in the field, the most likely strategy is going to be a continuation of current policy. No changes in direction are required and the political, social, and. economic forces that have brought about the current situation are likely to continue and to determine what happens in the future. As for Bangladesh, support for rice prices has led to a gradual reduction in hectares devoted to jute in Bangladesh and this has helped to achieve self sufficiency in rice for the country and, indeed, a surplus now available for export. A no-change policy would probably lead to a continuation of the trend with falling production and a further reduction of the area under jute. This would exacerbate the situation regarding capacity utilisation particularly in the public sector and increase pressures on government to rationalise the public sector mills.

[1080] Ibid;

In the case of both India and Bangladesh there is no shortage of advice from some donor countries and organisations which would like to further the cause of liberalisation, as they see it, through the de-regulation of the two economies.

It has been repeatedly found (quoted above and after as well) that there was a tacit understanding between the industry and the Government of India that the packaging order would remain in force but over a five-year period there should be a shift from sacking for the domestic market to exports of diversified products. A figure giving a
20% reduction of sacking use within 5 years with subsequent further reductions on the same scale was mentioned, and this would amount to around 200,000 tons in the first period. However, although a 20% reduction over 5 years may sound like an achievable figure, it would represent a 100% increase in exports and a ten fold of diversified product exports, which is most unlikely. There is a growing woven plastic bag industry in India, which lobbies hard for relaxation and abolition of the purchasing order, which restricts end-use of non-jute sacks. There has indeed been a gradual relaxation of restrictions and it is official policy to liberalise the economy. However, it is not likely at the peril of disruptive dislocation in the jute sector.

There are at least 30 Companies producing woven plastic sacks and containers in India. The number of jute sack equivalents producer by these companies per annum is not known. A rational assessment of probable overall production capacity indicates that over a billion bags are now being made each year. If so, that means one woven plastic bag for each jute sack.

[1081] Ibid;

The Indian Government has announced the National Jute Policy 2005 of India. A basic objective of the policy is to increase the quantity of exports of jute and jute products by achieving a CAGR of 15% per annum. The policy takes into account the strong environmental arguments. It is also designed to enable jute farmers to produce better quality jute fibre for the production of higher value added jute products and to enable them to enhance their per hectare yield of raw jute.

The policy proposes the creation of a National Jute Board, which will subsume, merge or integrate as soon as possible the functions of the various institutions currently operating in the jute sector. The Jute Board will seek to rectify the systemic ills of lack of coordination among the several jute related organizations under different ministries of the government and is intended to be a facilitator rather than a regulator for the jute sector.

As has been noted across different workshops in the subject, the future survival and growth of the industry depends on becoming more competitive and in developing new market opportunities. Both these objectives require a number of priority steps to be taken[1082] (also, (Bhattacharya & Rahman, 2011):

1. Adequate supply of improved seeds, which give higher, yields of superior fibre preferably with lower lignin content.

2. A substantial reduction in conversion costs.

3. Developing diversified markets.

4. Continued compulsory Packaging Order protection.

It only needs to be seen whether and how large an improvement that could be made depends on detailed value chain analysis to reveal the potential for savings. It is clear that on average yields are now approaching 2 tons per hectare, and they could be increased further, but that there was a particular need for higher quality fibres even at the expense of less than the maximum possible yields. As have been suggested by experts, potential conversion cost savings are available at every stage, from retting to carding to spinning to weaving and finishing. There is a consensus that these savings must be achieved for the sake of the future of the industry and that although the task was difficult with many obstacles, ways can be developed to achieve it (CPD, 2014; Deb, 2005, Rahman & Bhattacharya, 2011).

8.2.2 Appropriate Market Development Strategies

Policy statements are interesting things. They need to be corroborated and connected to prevailing conditions in the field. The key to hopes and strategy is markets[1083] (also, WTO 2014). The strategy

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The jute board will pro-actively explore the possibility of establishing a National Institute of Natural Fibres with the objective of harmonizing development and promotional activities pertaining to all natural fibres. A Jute Technology Mission, approved earlier by the Planning Commission, is intended to make the jute sector an intrinsically competitive and integrated entity. The Mission will encompass the sub-systems pertaining to agricultural research and seed development, agronomic practices, harvest and post harvest techniques, the primary and secondary processing of raw jute, diversified product and market development and marketing distribution.

The Policy Statement also noted to develop the next generation Jute Machinery through a comprehensive technology benchmarking (after a technology audit), five year plan for machinery development, and establish R & D set-up in the area of a public private partnership. The five-year plan will cover machinery development for both the organised and decentralized sectors (and also for the cottage industry). Professional benchmarking will be needed to assess the present technological status of the jute industry. The National Jute Policy 2005 calls for a new commodity development strategy to focus on positioning jute as a superior and green material, to enhance the productivity of raw jute, increase exports through innovative marketing, and better the working conditions of the workers engaged in the jute industry. Considering the ongoing potential of jute products in the domestic market, focused attention will be given to untapped sectors. The thrust will be on adopting suitable market promotion programs for increasing consumer awareness, and highlighting the environmental advantages of jute by working closely with environment groups. The government aims to increase the exports of jute and jute products to nearly Rs. 5,000 Crores by 2010 from the current level of almost Rs.1,000 Crores. (1 Crore = 10 millions). For this, a multidisciplinary institutional mechanism is to be established to formulate policy measures and to suggest specific action plans, creation of a new equity fund for jute products consistent with the WTO norms will be needed, and also incorporation of the present Export Promotion Council in the proposed Jute Board.

[1082] Ibid

[1083] The key element in any Road Map is markets and marketing. The industry has long concentrated on trying to reduce prices through higher yields and cutting processing labour costs combined with trying to develop techniques that would make jute more like other fibres with larger market demand. In doing so, there has been considerable success. Yield rates have gone up with falling real fibre prices for farmers increasing competitiveness. There has been some reduction in processing costs. A considerable effort has gone into developing higher quality yarns and fabrics that potentially could increase end-use applications.

has to be market driven (WTO 2014). Without market development and promotion, there was and is not enough incentive in undertaking investments. The market developments required are major. It will not be enough to develop niche markets. WTO suggests that if there is to be a shift from Indian consumption of sacking to alternatives, it will involve developing markets for hundreds of thousands of tons[1084] (also, CPD, 2014).

However, it is also true that markets are the most important single factor since there was no point in undertaking new investment without market incentives to do so. The traditional markets are in decline save for yarn. There are no disagreements to attest that there are measures that can be taken to delay the rate of decline in use for Sacking and Hessian and there might be scope for recovering part of the CBC market (Deb, 2005; WTO 2014). Given the degree of importance of traditional markets, there is no immediate way to improve the global situation for jute other than by taking action to lower the rate of loss of markets. It is diversified markets that must provide new scope but this strategy is a much longer term one[1085].

It is important to now focus on the fact that the trading conditions between Bangladesh and India are changing and there can not be any alternative to a greater juste sector integration for taking advantage of the sailing winds (CPD, 2014). The importance of the domestic markets in jute producing countries cannot be under-estimated. The Indian demand for jute sacks and, the factors, which help sustain it, has countered declining global markets. Bangladesh internal consumption too has been growing and can grow further. In addition, there is something of a wild card in the form of consumption in China (Deb 2005). Production has stopped going down and is perhaps recovering slightly. China is importing more raw jute fibre and could import far larger quantities if it were public policy to do so (WTO 2014).

It is important to understand that the task of developing local market for jute products often tends to get side-tracked and underrated (WTO 2014). Development of local market was important for two aspects: a) enhancement of market size; and b) as a stepping stone for accessing global market by drawing on advantage of scale economies and product development. Producers of diversified products need to be informed about comparative advantage situation, cost and return, and international price and demand situation. Market development efforts, which did not receive the required attention in the past should be given due priority (Deb 2005).

One critical area which can also work as a strategic lever for the jute sector stems from the environmental considerations associated with the production and manufacturing of jute (CPD 2014). Environmental concerns have encouraged many countries to legislate in favour of natural fibres. However, opportunities emanating from this have been missed due to the absence of appropriate product development strategies. Market intelligence was called for on the part of Bangladeshi exporters for competing in the global market and to negotiate with buyers. Development of new products will also create new market opportunities. A market promotion and development programme needs to be undertaken by the Government of Bangladesh (GoB) to popularise and highlight the advantages of jute and its environment friendly nature which imbue it with distinctive advantages vis-à-vis synthetic fibres (WTO 2014).

It ought to be understood clearly that at a technical paradigm, the impact of lower cost synthetics has gone through a cycle. The initial affect was that it gave buyers an alternative that they exercised as much due to unreliability of supply and prices as falling synthetic prices (Bhattacharya & Rahman,

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[1084] Ibid;
A ROAD MAP FOR JUTE, Common Fund for Commodities, Technical Paper No. 44, In association with International Jute Study Group (IJSG), Dhaka, Bangladesh and International Trade Centre; UNCTAD/WTO (ITC); Geneva, Switzerland

[1085] Ibid

2010). Although in the case of sacking at least, substantially lower prices were very important. Rising oil prices now offer a substantial reduction of the price advantage held by synthetic substitutes. At the same time, environmental considerations that favour use of natural fibres such as jute are gathering ground even if they are not yet strongly reflected in consumer buying decisions. For example 'Soil Savers' are heavy open woven fabrics made with the lowest grades of mill sweepings and can contain 4/5% of mineral oil. These soil savers are sold as being environmentally sake and friendly (Bhuyan & Hasnat, 2016). Amongst the scholars, there seems little doubt that the only safe course for the jute industry over the long term is to progressively switch over to the use of mineral oil free fibre lubrication in the spinning process. This transition will clearly take time but it cannot be put off indefinitely especially for products destined to contain foodstuffs without a high risk of losing market share in export markets (Deb 2005). The following table is interesting as a starting point:

Figure 97: Estimated Global Scope for Jute in Tonnes per Annum

Item	Jute	5 years Trend	5-10 years Potential Jute
Sacking	1,400,000	- 250,000	1,400,000
CBC seconday backing	25,000	- 1,000	60,000
Yarn - jute relevant	322,000	75,000	450,000
Hessian	483,000	- 10,000	473,000
Carpets - jute relevant	10,000	- 2,000	30,000
Decoratives & household furnishings	500	2,000	20,000
Other textiles	10	1,000	30,000
Geotextiles	10,000	- 2,000	20,000
Felt	2,000	1,000	6,000
Tarpaulin	38,000	- 2,000	40,000
Canvas	50,000	- 2,000	48,000
Webbing	600	-	2,000
Twine	100,000	10,000	120,000
Shopping bags		20,000	60,000
Plastic reinforcement	-	1,000	60,000
Market Garden Products	3,000	1,000	10,000
Total	2,444,110	- 158,000	2,829,000

The current trend for most end uses is declining demand with the exception of Indian demand for sacking and yarn in export markets (Baghchi, 2006). Assuming that the target of reducing Indian consumption of sacking is valid, even with some return to jute in China and Thailand and a defensive campaign, all other actions would have to compensate for such a development. The current trend appears to lead to a reduction in demand for jute of around 160,000 tons with much depending on demand for sacking in India (WTO, 2014; Deb 2005; Bhaskar &Khan 1995).

8.2.3 Improve Technical Properties and Quality

In the absence of a detailed value chain analysis, there is no easily accessed information on the farmers except that jute is part of the jute/rice farming system of East and North India and Bangladesh[1086] (also, Bhuyian & Hasnat, 2016). There are normally two crops and where jute is being cultivated; farmers generally grow one of rice and one of jute. Interestingly, average yield rates of both crops are around the 2 tons per ha level. Farmers cultivating the two crops therefore obtain 2 tons of jute and 2 of rice but with the jute they also obtain 2 tons of jute sticks (Bhattacharya & Rahman, 2010, 2011; Deb 2005; WTO 2014).

In India, jute is quoted at a MSP price just above $200 with rice $150. While in Bangladesh, jute has been reported at $160 and rice at above $180 per ton (WTO 2014, Bhuyian & Hasnat, 2016). What only field surveys can tell is what farmers actually get in cash after taking into account various credit transactions and the role and mode of rural finance and other deductions have been made (Baghchi,

[1086] Ibid

2006). The processing industry is quite rightly concerned to secure its raw material supply. Jute provides a cash crop for several millions of small scale and mostly impoverished farmers in India, Bangladesh, and to a lesser extent in China, Thailand, Myanmar and Brazil[1087].

[1087] Ibid;

In broad terms, and despite the occasional year with a smaller harvest than normal in East ands West Bengal, the problem is not simply one of supply or of price to the jute mills or exporters, but of quality. The rate of decline in raw jute quality has notably speeded up over the last decade in both India and Bangladesh. (China and Thailand have seen a collapse in volumes rather than in quality).

The reason for this phenomenon lies in the introduction of higher yielding varieties of jute (including similar plants such as mesta). The farmer benefited from the higher yields, which over time have increased the amount of dry retted fibre from one hectare of land. This was on average about 1.1 tons back in 1960. In the period 1980 to 2000, yields increased from 1.4 tons to an average of 1.9 to 2 tons. This is now the current yield today in the 'best' districts of West Bengal and Assam. One should note that in India only about 15% of the areas in which jute is grown falls into the category of 'best' district, so the accuracy of official statistics of jute yields per hectare may well be suspect.

In Bangladesh for example the amount of land under jute cultivation dropped from 600,000 hectares in 1991 to about 400,000 today, even though average yields climbed from 1.4 Tons/Ha to 1.9 Tons/Ha during that period.
Farmers face a long litany of perennial problems, but the first among them is the fact that for about 215 man-days of work (assuming a 7 hour day) per hectare of fibre grown, the farmer generally earns the equivalent of less than US$0.7 per day for his labour. On top of that the grower is poorly rewarded for the production fibres of superior quality. This favours delaying harvesting, which increases the yield (the weight) of fibre per hectare, but it also lowers quality as the fibres become stiffer and more highly lignified.

Other important factors, which have a negative impact and handicap the jute growers, typically are,
1) The availability, supply and distribution of good quality jute seeds.
2) Late rainfall and consequently delayed sowing.
3) Pest attacks on the plants,
4) Scarcity of retting water at harvest time.
5) Access to a seed drill instead of broadcast sowing.
6) Seed production in many jute fibre-growing areas is no longer economic.
7) Lack of awareness of optimum techniques to improve quality, especially in retting.
8) In Bangladesh jute is officially considered as an industrial crop and is barred from the incentives paid to grow food crops.
9) Traditional loan finance leads to farmers selling early at low prices.

In India there exists a longstanding Minimum Support Price for jute growers. It has climbed steadily from a base level of 110 rupees per quintal in 1972-73 to 953 rupees per quintal in 2004-2005. On the surface this would appear to be a substantial improvement in the minimum prices for the jute growers. However it can be seen that in real purchasing power (inflation adjusted rupees) the value of minimum support price for the Indian jute grower has fallen by 20% since the late 1970s.

In Bangladesh there is no Minimum support price and so from a theoretical point of the farm gate price is the current mill (or fibre baling buyer) price less the cost of intermediaries and transport. The cash price at grower level for a middling quality was claimed to be about 400 Takas per maund, (nominally US$ 170 per ton)). It is not possible from this information to arrive at reliable farm gate price data. A commodity chain study is required to be able to tell it with accuracy. There are various claims as to what happens but they are all somewhat theoretical. The fibre quality issue is a major concern in India and is becoming a major concern in Bangladesh. In the Kolkata workshop a prominent jute spinner from South India presented numbers to show that in overall terms the Indian jute crop was short of 210,000 tons of the higher-grade fibres. Over the last seven years the fibre imports by India from Bangladesh have ranged between 70,000 and 150,000 tons per year. The competitive pressure to buy superior grades of Bangladesh raw jute has had knock on effect as it puts pressure on the availability of those same superior grades for the important Bangladesh yarn mills and CBC mills. They now require something like 250,000 tons a year of the better sorts, and will require even more as time goes by and they continue to expand output.

The Bangladesh jute and mesta crop averages some 750,000 – 800,000 tons a year, so bearing in mind that 200,000 tons are exported to countries other than India (for example Pakistan and China) and that high grade fibre is also exported to those countries, then we may say that the demand for high grade jute grown in Bangladesh is probably like this.

Improvement of the quality of fibre should be one of the major areas of focus in view of the new opportunities[1088]. In line with the experts, it is recommended that good quality seeds will need to be developed and their adaptation by farmers should be encouraged towards higher production and quality fibre[1089].

There seems to be a real problem in getting the new jute seeds developed and available (Baghchi, 2006). The reluctance of farmers to risk on new things undoubtedly plays a part (Deb 2005). At present the seed programmes in both India and Bangladesh are not delivering satisfactory results to their farmers. In the final analysis unless the farmer has with a fair degree of certainty the assurance of higher cash returns, there is no incentive to change[1090]. It can safely be suggested that to improve the seed quality[1091], production of HYV seeds, certification and distribution through the public-private partnership (PPP) channel should be the way forward[1092]. This will call for upgradation of

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Bangladesh mills 250,000 tons plus Indian mills 100,000 tons, and exported to third countries 100,000 tons. In total, this means some 450,000 tons or a bit over half the Bangladesh jute crop has to be of the higher grades to satisfy current demand.

[1088] An Indian survey reported to the Kolkata road map workshop expressed the Indian quality jute shortfall in different terms although amounting to a similar, although almost certainly, understated conclusion:

RAW JUTE GRADE	AVAILABLE	REQUIREMENT
1 & 2	2%	3%
3	9%	12%
4/M2/s.MID	25%	35%
5/M3/MID	33%	33%
6/M4/BOT	16%	12%
7/M5/B.BOT	11%	4%
8/M6/X.BOT	4%	1%

[1089] The shortage of high-grade fibres was discussed at a meeting of leading Indian jute mills on 25/05/04. The consensus at that meeting was that there was a shortage of about 400,000 bales or some 70,000 tons of superior grade fibre; (this is almost certainly an underestimate of the actual requirements). The jute industry in general is concentrating much of its emphasis and attention to moving towards so called diversified products. These diversified products, if they are in the textile realm, will, almost inevitably, require high-grade fibres.

[1090] Ibid

[1091] First and foremost there is the seeds and varieties question. The variety of jute employed to increase yields of fibre per hectare has undoubtedly boosted the amounts of fibre produced per hectare or per Bigha sown, (25 Bighas = one hectare). However this has been at the cost of having more low quality fibre. New jute varieties are under development or have already been developed at the Central Research Institute for Jute and allied fibres in India, (CRIJAF). The Institute claims to have available and ready for wide spread trials and dissemination, new jute varieties which can further increase yields to 3 tons per hectare and yet others which can produce finer fibres with low lignin content. (This an essential property from the point of view of spinning the fine jute yarns to be used in diversified products for consumer markets). At present the 3 major varieties of seed used in India are Navin - JRO525, Vaisakhi - JRO630, and Basudev - JRO 7835. These varieties were first developed some 25 years ago. The seed in India is grown in quite another area that the main fibre producing areas, which are North Bengal, Assam and Bihar; the main seed production is in Maharashtra and in Andhra Pradesh. (quoted; ibid)

[1092] Ibid;
An outline of the issues to be addressed will have to include the following,
1) Establish clearly which of the available new varieties is most suited to provide both high yields per hectare and fine strong fibre.
2) Encourage seed growers and seed merchanting companies to multiply the best newly selected varieties and bring them to market.
3) Extend the availability and improve the distribution of good quality certified seed. To do this one necessary step may be the establishing a series of small (40 foot container sized) cold stores in the more remote jute growing areas.
4) Should seed buffer stocks be considered essential, the current major seed stockists should be paid to hold strategic seed stocks rather than some less than competent government agency.
5) The jute agricultural research bodies could be given the additional function of Establishing and administering a programme of education and advice to farmers on the best methods of cultivation, harvesting, and retting. If this is not practical, some other body should be set up to perform this function.

technology at both the processing[1093] and manufacturing ends (Deb, 2005; WTO 2014; Bhuyian & Hasnat, 2016).

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6) An institutional or micro-credit programme to make simple in-line seed drills available to small groups of farmers would benefit the sector.
7) Weeding is a major and time-consuming activity in jute cultivation. Research to find a cheap and eco-friendly pre-emergence herbicide is indicated.
8) Mechanical extraction of the jute fibre in ribbon form is being worked on by the CRIJAF and the NIRJAFT in India and the BJRI in Bangladesh. There appears to be a duplication of effort.
9) The Indian machine is claimed to keep the stick intact, to require only a one horse power motor and to give as good a quality fibre after retting as would whole stick retting of the equivalent quality stem. As ribbon retting requires Significantly less water and still be effective than does whole stem retting, this technique should now be put into practice, (and subsidised if necessary) to obtain irrefutable proof of concept
10) At present few farmers practice the balanced use of fertilisers at the correct stage of plant growth and many do not use plant protection measures against pest attack. Instruction and education would go part of the way to improve this situation.
11) The more that can be done to improve primary market structures and thus improve the farm gate fibre price for the farmer, the better.
12) Price returns for higher grades of fibre will have to be improved and this fact made transparent to the farmer. Shortages are likely drive prices up at mill gate and this mechanism may be enough on its own, if not support is needed.

[1093] Ibid;
(Quoted) Participants in three workshops organized in recent times, opined that assuming that the representative average for the present processing of raw jute into conventional yarns and fabrics is now 40 man days per ton, a target figure was proposed of half that amount or 20 man days per ton.

In achieving this major advance in labour and machine productivity certain important constraints have to be observed. For example, the new machinery must be affordable by the industry, which means it will have to be efficiently made in low cost countries such as India, Bangladesh, Pakistan and China. The improved machinery and process should not demand a higher quality of raw material, (the more expensive grades of fibre) to operate efficiently. It should be no less energy efficient than the currently used technology, and occupy less mill floor space per ton of output. It should require generally similar levels of operator skills in its running and maintenance. Higher speed machinery will certainly bring with it higher maintenance costs than at present but the benefits will be large enough to compensate for higher maintenance costs. At present jute mill machinery maintenance costs are in the range of 4% to 6% of turnover. A fully modernised mill could find that these costs increase to 8% to 9% of turnover. Finally the quality of jute yarns and fabrics produced on higher output equipment must not be inferior and preferably superior to the present output for a given grade of raw material input.

To double machine/labour productivity whilst meeting all of the above performance parameters represents a formidable challenge to textile machinery designers and builders and one which will require a major investment of time, effort and money. Some new technology machines, mainly purchased second hand from Europe and America have already been adapted for use by jute mills with reasonable success. Nearly all the jute spinning machinery that had originally been installed in non-jute fibre growing countries such as Europe has been relocated in Bangladesh with some going to India. Machinery from other countries has followed as has machinery originally installed in Africa, Central and South America, Pakistan, Thailand, Indonesia, and China. This impressive volume of equipment has been used to create a major export yarn spinning industry in Bangladesh and to a far lesser extent in India.

It is fair to say that this second hand machinery, virtually all made by the Mackie Company, still has plenty of economic life left in it. Textile machinery builders from developed economies have now nearly all followed the market to have their designs of machinery built in those low cost countries which have built up major textile processing industries. The jute industry has particular and specialised machinery requirements, which can rarely be met by using designs originally produced for other long staple textile fibres such as flax or wool.

A programme to develop the next generation of affordable jute machinery will have to be undertaken if only for cost reasons in the countries where the machinery is needed, namely India, Bangladesh, Pakistan and China. The existing machinery builders in these countries have not had the design capability, nor have the financial resources to develop the wide range of machinery, which will be needed to achieve the agreed target of doubling jute mill productivity. Previous government assisted jute machinery development schemes to meet this challenge in India have had little positive impact. The US$ 23 millions UNDP assisted project in the 1990s funnelled money to short staple jute/cotton blend spinning rather than to jute machinery developers.

A new start and new impetus is needed to meet jute industry's future machinery requirements. At present the main sources of available supply are a machinery company in Kolkata and one in China. Both companies make the jute

Also, in the longer term there are known potential markets for substantial quantities of jute in plastic composites, of higher value fabrics in apparel and household furnishings, in niche market applications and others that are yet to be developed. This is an area which is being researched across the globe – and in particular in the advanced chemical synthetic labs in Europe and in China (Bhuyian & Hasnat 2016).

It may always be borne in mind that Jute farmers need a variety of improved inputs and conditions; if they are not forthcoming the farmers will continue to vote with their feet and walk right out of jute cultivation wherever they can (Baghchi, 2006). This has already become apparent in many of the marginal jute growing areas in Bangladesh. Those who remain and have no other alternative crop will be reluctant producers and the quality as well as the availability of jute will continue to decline (WTO 2014). There are millions of jute growers and their families affected by this issue. Taking average +/- 215 man-days to cultivate a hectare of jute and extract the fibre, and average yield of 1.75 tons/ha, 120 man-days of farm work per ton of jute are needed[1094] (also to be read in conjunction with relevant sections of Baghchi, 2006).

8.2.4 Market information and research

It is always true that the first battle for any marketing task has to be to retain existing markets for jute goods and to defend them by using whatever marketing resources, which, can be, brought to bear (Baghchi, 2006). In parallel with this defensive strategy there must be a concerted effort to improve fibre quality, to retain the farmer's interest in growing the crop and to reduce agricultural costs in ways that benefit the farmer (Deb, 2005). Secondly jute mill productivity can, and has to be improved and processing costs reduced (CPD, 2014). To do this, investment in machinery design and development is clearly needed (Bhattacharya & Rahman, 2010, 2011). To establish the need for funding for these industrial and agricultural objectives is an essential part of the road map's purpose and has helped shaped its basic assumptions[1095]. It has been found that an acute absence of market information is one of the major drawbacks for Bangladeshi exporters (Deb 2005). Oftentimes producers and exporters are not familiar with opportunities emerging from the growing market, they usually tend to hold on to the traditional markets. For those who intend to start new business or export a new jute item, it is often difficult to access appropriate market information. They are not always aware about the barriers to be faced and/or advantages offered by particular markets. Bangladeshi missions and commercial wings of embassies could play a supportive role in this respect (WTO 2014).

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machinery designed and perfected by a UK Company in Belfast (UK) during the years 1960 to 1970. The fact that machinery built during this time and which has been in operation for the last forty years is a testament to its durability and outstanding efficiency but now it is showing its age.

The industry would like to have available a new and more efficient generation of jute spinning and weaving equipment. The design and development of new concept jute machinery is a time consuming and expensive business and machinery builders soon find out that the risk reward ratio is not in their favour. There is a clear lack of knowledge among machine builders on how to evaluate and select the appropriate technology that is technology that will succeed in mill use and an understandable unwillingness to pile up company debt in the attempt to design, manufacture, and develop new technology.

An overall constraint is the lack of incentives to undertake any of the above developments. A declining global market, low margins and uncertainty are no incentives to undertake new investment.

[1094] Ibid;
At this point it is useful to be reminded that the average amount of labour currently needed to convert a ton of raw jute to finished product is 40 man days per ton and that the road map will indicates ways in which this can(in the longer term) be halved to 20 man days. A farmer who harvests 400 kilos of jute fibre has the benefit of about US$ 50 worth of jute stick either as extra income, if sold, or as benefit in kind if used as fuel. Stick income/benefit is thus worth about a quarter of fibre income.

[1095] Ibid

Now it is only imperative that to secure reasonable and encumbrance free access to new markets, government should organize training and workshops for exporters with a view to improving their knowledge, disseminating information and raising awareness about potential markets and specific market particulars with regard to the demand situation (Deb 2005; WTO 2014; Bhuyian & Hasnat 2016). This is also important from the perspective of letting the producers and exporters know about market barriers and standardization and certification requirements (WTO 2014). It is important to sync policy implications of a strategy with the feedback from the practitioners too (Deb 2005).

8.2.5 Encourage Research and Diversified Products

Investment needs to be made in R&D to create new and diversified applications of jute fibres (Deb 2005). When it comes to describing 'diversified' products the meaning is less clear, as many of the items so described, like rope-soled shoes or espadrilles and floor or wall coverings have been made from jute fibre for at least the last seventy years (Billah 2007; Deb 2005). Perhaps a more concise description of where the diversification efforts of the jute industry should be aimed could better be called 'value added products'[1096].

The use of mineral oil free jute bags for coffee and cocoa and edible nuts is often referred to as a diversified product (Bhuyian & Hasnat 2016). The mineral oil used to soften jute is replaced by an edible vegetable oil so that such bags are 100% food grade. It costs a little more than using mineral oil but buyers for such bags usually pay a small premium (Bhattacharya & Rahman, 2010, 2011; WTO 2014). Having looked at the products which dominate the traditional or classical jute goods scene, the current state of play in the 'diversified' or added value sector suggests that this is an area in where India has set the pace, assisted by its own large internal market for a wide range of consumer products some of which can, or could be made using jute[1097]. Of the total sales value of 4,900 million rupees the export market is worth about 3,200 million rupees or about 65%, so the rate at which sales of this value added products can grow is at present, and likely to remain, heavily dependent on exports (Baghchi, 2006).

For all practical reasons, intervention is important regarding the product design to meet international requirements (Deb 2005). Enormous potentialities for jute exist in manufacturing and exporting of technical textiles such as geo-textiles and agro-textiles. Geo-textiles are found useful for soil conservation and road construction, though this particular use is to receive recognition as a commercially viable option (Baghchi, 2006). Jute can also be used for erosion control of mountain slopes, road and railway slopes and canals and embankments. Jute plants can also be used to make pulp and paper, which could provide 'tree-free papers.' Being an insulating material, automobile

[1096] Ibid; excerpts from conference proceedings

[1097] Ibid; Output of Indian diversified/added value products Estimated sales for 2004 -2005 year are –

	Sales in millions of Rupees	Estimated jute content metric tons
Shopping & Hand Bags	1,400	14,000.
Floor Coverings	1,200	14,000.
Decorative & Household fabrics	900	7,000.
Geotextiles	450	13,000.
Composites & reinforcements	150	5,000.
All others (including canvas webbing and unspecified).	800	16,000.
TOTAL	4,900 millions	69,000 tons

As the 'official' published statistics are expressed in terms of sales in rupees rather than by weight, the amount of jute contained in the various products has had to estimate. The actual numbers could be -10% to +20% of the above estimates. In addition some of the yarn and Hessian cloth used for the value added products might be already included under the earlier Indian production numbers. In any case it appears that the volume of value added products being sold to non-traditional markets for jute products amounts to about 5% of the overall total of jute goods sold by Indian producers.

companies are also able to use jute in the automobiles as composite materials. Jute could be blended with synthetic materials, up to a certain percentage to make plastic without changing the character (Bhuyian & Hasnat, 2016). It will minimise the use of petroleum products and will reduce the cost of plastics as well. These kinds of products with large potentials need to receive special focus both in terms of product development and market promotion (Billah, 2007).

As Bangladesh's performance in FY2009-10 indicates, and this has been noted earlier, growth of jute export has once again bounced back in recent times, with export of raw jute and jute goods posting robust growth rates of 32.5 per cent and 100.6 per cent respectively (Bhattacharya & Rahman, 2011). She has a unique opportunity now to regain her past glory in jute in view of the emerging global market opportunities. The relative advantages of jute, as an environment-friendly and bio-degradable product have generated renewed interest in jute, creating avenues for product development and product diversification (Baghchi, 2006 – thematically). Bangladesh ought to take advantage of this by investing in technology upgradation, skill development and market promotion (WTO 2014).

Researchers have suggested that Bangladesh should design a medium-term (ten-years) strategy in view of this (Billah 2007). Such a strategy would need to embrace the entire range of activities starting with jute production and productivity enhancement, technology upgradation, product diversification and per unit cost reduction at manufacturing stage, and an aggressive market promotion and export expansion. Bangladesh should also pursue her interest in this connection in the various global fora, both in terms of addressing her concerns with regard to NTBs, and also with regard to promoting jute's advantages (Billah 2007). The review and analyses in the preceding sections have examined the performance of Bangladesh's jute sector in the global market and have identified opportunities and challenges in view of the emergent situation (Bhattacharya & Rahman, 2010). Both market and product diversification are important and the key to attaining both of these will be Bangladesh's ability to raise her competitive strength. In all probability the size of the global jute market is set to grow in the coming years. Bangladesh's strategy should be to enhance her market share in the growing global market. This is not going to be easy (CPD 2014). A number of competitors, most notably India, but also China, are eyeing to gain more market share and pursuing their interests through well-articulated strategies. However, as the analysis has indicated, Bangladesh has her strong points, and is well-positioned to build on this. If Bangladesh is to realise this window of opportunity, appropriate investment will need to be made, and incentives will need to be put in place, on an urgent basis (WTO 2014).

8.3 Strategic Issues

Future demand for jute fibre as a raw material stems primarily from the requirements of mills in India, Bangladesh and Pakistan and to a lesser extent in China (Baghchi, 2006; WTO 2014). Even if overall demand declined by 50,000 tons a year that amount represents less than 2% of the average Indian and Bangladesh crop volumes[1098]. The jute farmers can accommodate a slow decline in demand but the mills would find themselves increasingly competing in price especially to secure the higher grades of fibre they require[1099]. The basic dilemma remains that higher farm gate prices for jute would encourage farmers to produce more or better quality fibre, but at the same time the resultant higher prices for manufactured products would shrink the available markets for jute goods (Deb 2005). It may be possible depending on the detailed commodity chain analysis to strengthen

[1098] (ibid); In India formal industry projections have been published which propose a twenty percent reduction in sacking output. This is to be compensated by a corresponding twenty percent increase in diversified products by the year 2010.

[1099] Ibid

the prices that farmers obtain in hand as opposed to nominal ones without increasing jute mill prices[1100].

8.3.1 Area-wise intervention

8.3.1.1 Traditional Products

(a) Sacking:

There was a saying which went like this – when in a mess – find out why you were there in the first place. The use of jute as sacking to carry commodities is what led to the growth of the industry and the end-use still dwarfs all other uses (Baghchi, 2006). There is no sense in developing a strategy for jute that does not address this application. No other potential end-uses or a combination of them could adequately compensate the volumes being used for the purpose in the foreseeable future (Deb 2005). At some point in the future, the price advantage of synthetics over jute is likely to be very substantially reduced. Demand for jute sacking is in any case not entirely due to the mandatory order, jute sacks are in fact often favoured by many end-users over alternatives (Bhuyian & Rahman, 2016). At the same time the consensus reached between the Government and the industry to try to reduce the proportion being consumed within the economy while increasing exports of diversified products[1101] (also, CPD 2014).

The consumer market is a somewhat easier target as buyers of carpets or shopping bags are increasingly prepared to pay a small premium for eco-friendly and recyclable goods (Chaudhuri, 1921). Industrial users or those in the food grain or agricultural packaging business want value for money and a textile container that will protect and not damage the contents put inside it. The action of the coffee and cocoa processing industry who pressed for and obtained the specification and use of mineral oil free bags (Wallace 1928), is a clear indication that packaging standards continue to become ever more stringent (Chaudhuri 1921). If jute bags want to protect their clean safe and eco-friendly image, and the same goes for jute geo-textiles, then the sooner the industry switches entirely to mineral oil free batching lubricants the better (Bhuyian & Rahman, 2016).

We can clearly see that some commodities which offer fresh opportunity for use of jute packaging include rubber and cotton where there are many technical problems caused by slivers of plastics contaminating during its transport and processing (Deb 2005). An application based marketing approach could target such end uses, particularly for mineral oil free packaging. Some former markets for jute sacking have been badly neglected. The relatively rapid decline in consumption of jute sacking in Africa and South America is a case in point (Dutta 2008; WTO 2014; Bhuyian & Hasnat 2016).

(b) Hessian

[1100] Ibid

[1101] The floods in Mumbai in 2005 and a campaign in Bangladesh lead to consideration of bans on plastic bags out of environmental concerns and although this does not automatically favour jute, it does offer an opportunity for the fibre. The 'green' credentials of jute bags and fabrics are excellent. There is rapidly growing world-wide awareness of environmental problems and of the need for sustainable development. The use of plastics in packaging and in man-made fibre textiles, are increasingly seen as part of the problem and not as part of the solution.

Jute sacking has traditionally been simply offered for sale rather than marketed in export markets. This leads to miss opportunities. An example is provided by the recent floods in New Orleans in the USA following the hurricane Katrina in 2005 where large plastic sand bags were used to try to patch up the break in the levy while jute sacks may well have been technically more effective. Similarly, when plastic sacks are dropped by air in regions suffering acute food shortage, they burst far more easily than jute sacks, yet there is no attempt to promote jute for these applications. In an emergency, much is determined by rapid availability and this issue has to be addressed.

Hessian is a general purpose long established fabric which is used often to produce lighter sacks and for other forms of packaging (Wallace 1928). But it finds its way into many other market applications and there is a need for greater information on the latter in order to target the fabric at potential growth areas and away from declining markets (Chaudhuri 1921; Deb 2005). Market potential is often largest where a product is sold to end-users who select it for applications that are entirely defined by immediate market needs. Use of hessian for grass clippings or to place under cars to be repaired, geotextiles, landscaping, indoor plant displays, as insulation material, substrate for lamination, and for a myriad of other applications we know nothing about represent spontaneous product-market developments that could be taken advantage of (Bhuyian & Hasnat 2016).

Despite its importance in volume terms, exports of hessian have rarely been followed up by market research and sales strategy. It has been left to a largely market driven demand for a value product (WTO 2014).

(c) Carpet Backing Cloth (CBC)

For a long time many have advanced explanations or the decline and in the end virtual demise of the application that used to account for 250,000 tons at one time (Baghchi 2006). Technical explanations seek to explain why jute was no longer the best material for the application and that once carpet manufacturers had changed to synthetics it was impossible to get them back (FAO, 2013). In addition some consider that CBC production is not profitable enough to be interesting (Hoque & Hopper 1994). Some of these arguments are myths. There are seldom market developments that are not irreversible (Deb 2005; Baghchi 2006).

The former buyers offer a slightly different perspective (Deb 2005; Bhattacharya & Rahman 2010, 2011). They emphasises that in the 1970s when their demand was rising, producers defaulted on contracts, leaving them in the lurch, and that is why they approached synthetic suppliers (Billah 2007). After the process of change had started, the new suppliers were able to invest in technical improvements and economies of scale that made the decision to switch ever more justifiable (WTO 2014).

However, the synthetic suppliers are now in trouble (Bhuyian & Hasnat 2016). Their products too have become commoditised and are no longer profitable. The pressure on them too is to cut costs. Many suppliers are in financial straits and some leading ones are on offer for sale (Miah 2010). This is clearly a window of opportunity for jute suppliers but the latter appear not to be interested because production of CBC is not profitable at historic prices (WTO 2014).

Given the fact that there appears to be some leeway on prices that buyers say they are willing to consider and the possibility of cutting costs through higher yields and lower conversion costs, it may well not be wise to leave this window of opportunity unexplored (Moazzem et al 2009; WTO 2014).

(d) Diversified Products

In the world textile industry, jute fibres are one of a wide range of competing fibres (Moazzem et al 2009). Around 3 million tons a year of jute in an overall marketplace that process and sells 30 million tons of natural fibres plus another 40 million tons of man made fibres and filaments (including Polypropylene; FAO 2013). As a long staple fibre made from the stem of a plant, jute's nearest competitor in technical terms is flax/linen. Flax/linen fibre has a world output of 450,000 tons annually, but it is superior in its performance in

consumer textiles as compared with jute. In these applications jute is the poor relation so to speak (FAO 2013; Moazzem et al 2009).

Flax/linen used to hold major markets in industrial textiles as jute does now but over the last fifty years it has declined in overall volume and its use is now concentrated in the apparel and clothing sector and in the household furnishings sector (Rahman & Khaled 2011). Jute can follow flax/linen into some of the home furnishing uses but it will not easily penetrate the apparel market. This is because its much higher lignin content (than flax) makes it difficult to finish in fabric form. Lower lignin content jute fibres are a possibility, and may well become a market reality, but flax is capable of being spun to much finer counts than jute and will continue to retain an important competitive advantage for this reason (ibid; Rahman & Khaled 2011).

Finer jute yarns do open up the tantalising prospect of developing fabrics of mixed yarns and there are a large number of SMEs in India offering resulting products (Baghchi 2006). Although the cost of these finer yarns is high and this looses some of the natural competitive advantage they may have otherwise enjoyed, denim jeans in India do use jute and there are prospects of developing niche sales based on natural characteristics of the mixed fibre products (Rahman & Khaled 2011).

In Bangladesh emphasis was on producing a finer softer fabric and a NORAD Project has developed modest sales of very high value hand finished cushion covers and the like (FAO 2013). Initial market investigation indicates good prospects but this requires up scaling production to reduce costs sufficiently to take these products into the mainstream markets (Bhuyian & Hasnat 2016).

The potential for jute to be used for the manufacture of pulp and paper is likely to remain an area for academic research rather than practical application. In the opinion of the IJSG road map consultants the application and development of jute fibres for plastics reinforcement is of more immediate commercial concern. Looking ten years ahead to and forecasting world market potential for non-traditional jute products and jute fibres, one could reasonably anticipate the following market profile[1102]:

Figure 98: Speculative Projection on Jute Diversified Products

Shopping and hand bags	60 thousand tons. (250 million units a year).
Floor coverings	30 thousand tons.
Decorative and household fabrics	20 thousand tons. (Jute content).
Geotextiles	30 thousand tons.
All other textile end-uses	
both industrial and consumer	30 thousand tons.
Jute fibre used in composites and plastic reinforcement	30 to 100 thousand tons.

The use of jute fibre in composites will add little or no value to the turnover of most existing jute mills as the composites will generally be produced in the user countries, which means primarily in the USA, EU, and Japan (ibid). The benefit may be felt at mill level by an external increase in demand for some of the lower grades of fibre, which are not ideal for spinning (Roul 2009; Rupayan 2007).

Jute mill made non-traditional products by 2015 could reach some 150,000/200,000 tons a year. One can expect the bulk of these items to be made in India with Bangladesh following in its footsteps and possibly Pakistan, diversifying away from sacking for domestic use. China and other jute processing countries are likely to play a minor role in the manufacturing and marketing of these products.

[1102] Ibid; quoted

The Indian government purchases on its own account about 600,000 tons a year of jute sacking, it pays the equivalent of US$ 45 to 50 cents for each 50 kilo contents bag, depending on market circumstances. It is reported that the GOI wishes to reduce the scope of the packaging order and gradually to liberalise the market for food grains sacking. The plan for the next five years is that about 20% of the current output of Indian jute sacking be switched from sacking to value added products (WTO 2014; Bhuyian & Hasnat 2016).

This would require a switch of about 200,000 tons from the bottom end of the jute products value index to the top end of the scale (Baghchi 2006). In other words to retain the same overall volume throughput across the industry, the value added sector would have to quadruple in size. This begs the question of whether enough superior jute fibre can be quickly made available to fill the quality needs that such a sudden and dramatic change implies. It is most unlikely that world value added markets can be expanded with such rapidity; it would mean a 30% annual compound annual growth rate (Baghchi, 2006). A doubling of the volume of jute goods used in value added products to 150,000 tons would be ambitious as such a target implies an annual compound growth rate of about 8%[1103].

8.3.1.2 Agriculture

It is inarguably self-evident that no 'Road Map' can be complete without including such analysis. Farmers are traditionally price takers in commodity production. They are offered prices by buyers and have to make their own decisions on future plantings (Roul 2009; Rupayon 2007). In the case of jute, it is not so simple since India has a MSP and sellers have theoretical right to sell at the MSP to the Jute Corporation of India. In Bangladesh public sector mills offer prices and sellers have the security of these published price for which the Government can be held responsible (Sadi 2007).

Reality for smallholders is very different from how things are meant to work in theory (Sadi 2007). Everything depends on the loan structure being used by the farmer and option on channels he can sell to. Some are within structures of co-operatives or other associations, which can help, raise finance or act as sales channels (Uddin et al, 2014). Because of the paucity of farmer system information, we can only guess at what motivates farmers to grow jute or even particular varieties of jute. We know only that the allocation of land area to jute is remarkably consistent even if it is falling in Bangladesh, China and Thailand (Deb 2005).

Ever since jute has been traded in world markets there have been efforts to increase yields. The objective of doing so has always been to reduce prices by reducing costs (Uddin et al 2014). Although this can be justified as being designed to make the farmer richer in terms of output per area unit, the farmer must weigh it against additional incremental costs attendant with such policies. The balance has favoured increasing yield rates because the latter have risen in most jute producing countries as they have in the production of most agricultural commodities. The improvement has not been enough to prevent a decline in real income from jute (FAO 2013).

Availability and cost of certified seeds is an area that is normally addressed in the search for higher yields. They have obviously been available and bought and used because yields have increased (FAO 2013). Unfortunately, higher yields have been accompanied by lower quality fibre mix. The farmer is

[1103] (Quoted/ Ibid); It has been envisioned that during the next few years the Indian producers of value added jute goods could expect to encounter additional competition in export markets for value added goods made in Bangladesh. No one at present can foresee for how long or in what form the Bangladesh Jute Mills Corporation (GOB owned) or the mills of the Bangladesh Jute Mills Association (partly privatised but largely government owned mills many of which are semibankrupt), will continue. If many mills are fully privatised, some may redeploy their efforts away from traditional products and into the value added sector. Bangladesh with its higher availability of superior grades of jute is well placed to enter and compete in export markets for value added jute products.

not given sufficient monetary incentives to opt for better quality fibre and has no reason to choose any other course of action than maximising fibre production (Uddin et al 2013).

Those producing breeder seeds are now aware of the need to balance yields with fibre quality and claim to have developed lower lignin higher quality fibre seeds. It is then a matter of getting these to the farmer in sufficient quantity and providing incentives to go for these newer seeds than those that give him higher yields. Unless there is an adequate premium for producing a better mix of quality, and there has not been one so far, the farmer is unlikely to use these new seeds (Roul 2009).

Most of the seed linked factors, which limit jute fibre yields, reduce fibre quality, and which increase the cost of fibre production were identified, and they can be briefly summarised as follows[1104].

1. The widespread use of relatively old and obsolescent seed varieties, (20-30 Years since initial introduction), has reduced seed yields when the plant is grown as a seed crop and has made jute plants more susceptible to disease and pest damage, whether grown as a seed crop or a fibre crop. The newer varieties of high yield seed, which have been released for use, are not reaching the seed producing farmers or the fibre crop farmers (Rupayon 2007).

2. The seed crop in India is grown mostly as a rain fed crop and is dependent on timely monsoon rains. Any late rains or inclement weather has a major impact on the seed harvest, and this in turn impacts on seed availability in Bangladesh (Baghchi 2006)

3. The seed growers in both countries often do not conform to best growing and harvesting practices (Deb 2005)

[1104] Also, Sadi (2007).

A series of strategic actions targeted to improve the jute seed situation:

- Actively encourage the replacement of obsolete seed varieties in favour of new varieties, which are available. These are of high yielding types and include varieties capable of producing the higher fibre grades, which are in increasingly short supply.
- Make sure that the new seed varieties are suited for use in zones best suited to seed as well as to fibre production. In practice this will mean away from existing high humidity areas towards drier zones. In Bangladesh this strategy may not be applicable as there are fewer areas suited to specialist seed production
- The new seed varieties when released must be well adapted to regions of more divergent weather extremes especially in India.
- Encourage the rapid uptake and widespread dissemination in use of the selected new varieties by giving price premiums or other worthwhile incentives to encourage more farmers to take up jute seed cultivation.
- Supply subsidised and/or free starter Mini-kits to progressive seed farmers, for trial purposes. The purpose of the exercise would be to establish seed yields in practice, to discover the resistance in the field of the new varieties to disease and pests, and to establish how adaptable the new variety is to divergent weather conditions.
- Develop buffer stocks of seeds to be held in India and Bangladesh. Preferably located to assist both fibre and seed growing regions. Localised portable cold stores may be one answer to getting good certified seed out and into use in the more remote growing regions.
- National seed certification agency enforces purity norms and varietal isolation techniques before being permitted to issue certificates for top quality seed. Where such norms have or cannot be enforced seeds can only be certified with a quality reservation.
- Encourage the jute agricultural research and development institutions in India and Bangladesh to play a pro-active role in getting new varieties speedily out and into commercial use. They should be strengthened to play an important and vital part in teaching and demonstrating the advantages of new varieties to farmers.

The above would improve the often precarious seed situation and bring new varieties into full commercial use as soon as practicable. Improved seed quality and supply will not however on its own solve the fibre supply and quality issues described in the road map. A broad approach is recommended which includes financial incentives, instruction to farmers on improved growing and retting techniques; practical demonstrations and effective information packages given out along with the new seed varieties are absolutely essential.

4. The market for jute seed is notoriously volatile. The result is that either seed prices are too low to properly reward the growers or so high that they inhibit fibre growers from planting (CPD 2014)

Farmers are slow to adopt new practices unless these can be shown to work reliably in their own local environment and lead to higher incomes. The jute industry is the most directly interested body in better fibre and improved performance. In the past the industry has adopted the view that agricultural issues were not directly their problem (Roul 2009).

It was left to government departments and institutional agencies to handle the raw jute production issues. It is apparent that more direct intervention and encouragement in agricultural matters by the jute manufacturing industry would pay off with important and valuable long-term dividends (Rupayon 2007).

If jute is to become more competitive, it is necessary to increase yield rates at farmer level and this has largely been happening and is still being developed with the provisos mentioned above (Uddin et al 2014). The other side of the equation is to greatly reduce conversion costs. These start at farm level. There have to be measures to reduce labour inputs in the retting, harvesting, and extraction of jute. Good planting practice in terms of spacing and broadcast of seeds, minimising need for water for retting and in extraction, and mechanised stripping through use of mechanical ribboners (Bhuyian & Hasnat 2016).

8.3.2 Conversion

Again, it is difficult to be precise as to potential gains without a detailed commodity chain analysis, but the industry is convinced that there are substantial gains possible (Waterhouse 1983). Some have already been experimenting with changes designed to halve labour inputs but it was felt that there were gaps in availability of suitable machinery and spare parts and maintenance levels that had to be overcome as well as a need for assistance to motivate the changes (FAO 2013). At the end of the day, only potential profitability would lead to investment. Implements envisaged include[1105]:

(a) High Output Spreaders

(b) New design high output Breaker and Finisher cards

(c) High speed & high output drawing frames

(d) Large package ring spinning

(e) Automatic spool winding from ended flyer bobbins or from ring spinning rings

(f) Large package ring twisting frames

(g) Precision winders for sale yarn

(h) Shuttleless loom for Hessian to replace the current overpick shuttle model

(i) Sacking loom for narrow sacking fabrics

(j) Automatic jute bag sewing unit (WTO 2014)

8.4 Action Required

(i) Detailed commodity chain analysis

(ii) The synthetic bag market in India

[1105] Details annexed

(iii) Market for jute sacking in Africa (WTO 2014)

The market for jute sacking in Africa has all but collapsed (Rupayon 2007). Yet there is no published market survey as to requirements, distribution and costs in a Continent which used to be an active major buyer of jute packaging and has substantial production of commodities, some of which are using jute which is the case for coffee and cocoa and others such as cotton that could profit from doing so (Roul 2009).

There may well be opportunity for regaining and developing markets through better distribution, sector targeting and promotion (Uddin et al 2014).

(iv) Market for jute sacking in South America

Similarly, the market demand for jute packaging has all but collapsed in South America, which also used to be an important market for jute. A market survey is required for much the same reasons as those given for Africa above (Roul 2009).

(v) End-use applications for hessian

Hessian has always been a major export category and traders in particular do know the major end-uses (Chaudhuri 1921). Hessian was often imported for further processing into lighter sacks aimed at specific market requirements (Ali 1998). This end-use has declined in line with that for imported sacking. There are, however a large number of minority end-uses for hessian that little is known about and thus little can be done to develop (Ibid). As a general-purpose fabric, hessian is long well established and it is likely that there are end-uses for which it enjoys a strong comparative advantage but which have not been targeted for development and promotion (Uddin et al 2014).

(vi) Feasibility of use of jute in plastic composites

There have been frequent reports of major initiatives to develop use of jute fibres for glass fibre substitution and plastic composites in general (Uddin et al 2014). Few of them have been implemented and yet there is market sentiment among many that this end-use offers a good potential opportunity for a major use of lower grade fibres, which would alleviate the current dependence on sacking for their use (Bhuyian & Hasnat 2016).

One international corporate developer has undertaken a feasibility study as well as a commodity chain analysis and has allowed the Consultants access to their findings. The latter are very interesting and establish a case for further examination (Roul 2009). The findings are rather more disturbing about what farmers get paid in real terms (Rupayon 2007).

8.4.1 Market Development Initiatives

(i) Explore possibility of re-capturing some part of the secondary carpet backing market in USA

The suppliers of synthetic carpet backing for tufted carpets in USA have recently changed hands. The profitability of cheap synthetic backing and sacks has resulted in low profitability and the end-use had become less attractive for plastic manufacturers. The largest carpet producer in USA has recently acquired the carpet backing interests of Amoco, which were on sale for the above reasons. There appears to be a window of opportunity for jute to be re-considered for secondary backing (Bhattacharya & Rahman 2010, 2011). This would require various steps to assure the carpet industry of reliability of supplies, price stability and quality controls. However, the profitability of exporting jute carpet backing at historic prices does not appear attractive enough to motivate the jute sector. This may change with the strategy that has emerged from the Road Map where that if higher yields are combined with lower conversion costs, it may be possible to compete in this end-use once again. The advantage is that a substantial volume of value added fabric could be absorbed (WTO 2014; FAO 2013; Uddin et al 2014; Deb 2005).

(ii) Apparel and household applications for new finer jute fabrics

The UNDP Project in India encouraged production of finer yarns that a number of users are combining in intimate and union blends with yarns from other fibres . The weak point has been market development and marketing and further assistance would be well advised. In Bangladesh the finer yarns have been combined with further treatment to result in fabrics that appear to offer market opportunity for use in the large and for jute largely untapped apparel and household furnishings market segments. Production of these, higher quality, higher value fabrics needs to be further improved and scaled up to develop these opportunities. An investment of around $4 million is estimated as being required and market reaction has been very positive. There will also need to be a market development programme, which will probably entail a further outlay of $ 500,000 (Baghchi 2006; Deb 2005; Uddin et al 2014; Bhattacharya & Rahman 2010).

(iii) Market development of jute sacking

Following up on the greater information already recommended in the above section, there will need to be a market development and promotion programme for jute packaging in Africa and South America (Uddin et al 2014). There are specific potential end-use markets that could be developed for jute in much the same as those for food grade sacks in coffee, cocoa and groundnuts (ibid). The rubber sector is one of these opportunities that could be developed. This is a particularly interesting prospect given the fact that there is familiarity with the fibre in Indonesia, Thailand, Malaysia and Vietnam, which would be among the major consumers. There have been complaints of contamination of cotton in West Africa from synthetic slivers that can be eliminated by use of cotton packaging. Equally, this is an area where jute has been favoured in the past and could be promoted further (WTO 2014; FAO 2013; Deb 2005; Billah 2007).

(iv) Development and promotion of jute geotextiles applications

Jute early established a strong market penetration of the geotextiles and landscaping market. At one stage end-use exceeded 10,000 tons. It has since rather lost its way and coir has supplanted its leading natural fibre position (Rupayon 2007). However, there is general consensus that jute has unique characteristics, such as ability to absorb moisture that make it particularly suitable in some applications such as in landscaping and it needs to be promoted to regain some of the lost momentum (Roul 2009).

8.4.2 Agriculture

(i) Higher yield, low lignin and better fibre seeds to be developed

Emphasis has been on increasing yields in the past even at the cost of lower quality mix (Uddin et al 2014). Farmers had a clear financial incentive to pursue higher yields and have done so but the incentives to use seeds that lead to better quality fibre need to be given as well as availability of proven seeds that will increase net incomes while giving the industry the higher qualities they need to develop higher value diversified products (Bhuyian & Hasnat 2016).

(ii) Measures to ensure adequate supply of suitable seeds

There are frequent shortages of seeds and there needs to be an effort to improve the supply chain so that better seeds are developed, multiplied, certified and distributed. Most of all that the issue of farmer returns from adapting these better seeds need to be addressed (WTO 2014; FAO 2013).

(iii) Premiums for better grades of jute

The best incentive farmers could be offered to consider adapting improved seeds would be a system of premiums that reward such practice. Without that, farmers have no logical reason to meet what the industry needs (Uddin et al 2014).

(iv) Action to ensure higher farm gate prices

Much is said about the need to alleviate poverty amongst jute farmers. India seeks to accomplish this through MSP and other regulatory means, Bangladesh sets mill prices for the public sector and both rely on a stronger market to do so. However, there needs to be a detailed analysis to ensure that farmers are actually getting higher nominal prices and a programme to ensure that any obstacles to that are overcome (as in conjunction with Baghchi 2006).

(v) Trial of warehouse receipts system

The concept of warehouse receipts is in vogue in development circles but evidence for success so far limited. The Jute Corporation of India Ltd. intervenes at the time of the harvest and performs some of the function that warehouse receipts aim to accomplish (Pal & Chakrabarti 2011). The problem is that small farmers have financial pressure to sell quickly and this pressure can be alleviated where there are co-operatives who can increase the time before farmers have to sell as well as by the market intervention of JCI. The warehouse receipt system would probably benefit co-operatives and traders rather than small farmers unless and until the access to finance is improved (FAO 2013; WTO 2014; Bhuyian & Hasnat 2016).

(vi) Introduction and promotion of stem ribboner

This would reduce conversion costs at farm level and would thus be likely to benefit small farmers in a direct way as well as increasing the efficiency of the supply chain (Pal & Chakrabarti 2011).

(vii) Efficiency in use of water

Water is a scarce resource and any steps that improve efficiency of use of water or reliable supply of water over a longer period would also increase the efficiency of the value chain as well as farmer incomes (WTO 2014).

8.4.3 Furnishings and Apparel

There have been two programmes with important long term implications directed towards developing high value added diversified projects. The earlier one was the UNDP US$23 million project that has led to finer yarns that mostly small and medium enterprises have been developing into products. However, they individually lack the capacity to develop export markets and technical assistance is required to help them develop product-markets (WTO 2014).

The second was the NORAD Bangladesh Jute Development Project that built on developments of finer yarns into higher quality softer fabrics. An evaluation of the NORAD Project proposed additional investment to upscale the pilot project and a recently completed review by SEDF has recommended further investment of US$4 million (FAO 2013).

8.4.4 Machinery

There are long standing problems of availability of suitable machinery, spares and technical management that need to be resolved to allow the conversion process to be made substantially more efficient and jute to be made more competitive (Sharma 1993). They have been covered adequately under the machinery section earlier in the previous section of the Report. The recommendations are summarised below (World Bank 1978[1106]):

- Technical Assistance
- Design and adaptation of machinery
- Assistance to capital investment in machinery design
- Selection of capable and interested companies for machinery development
- Tender process to allocate development funding to interested companies (World Bank 1978)

[1106] Thanks to the failures of the World Bank BMRE projects – the list still remains active

The total value of the machinery development programme outlined in the Road Map is about US$ 11,000,000. (Allowing for inaccuracy in these estimates, the range of financing involved could range from US$ 10 million to US$ 14 million; World Bank 1978 plus discussions; WTO 2014; FAO 2013).

8.5 Transitions

Jute manufacturing sector of Bangladesh is passing through a critical juncture in the course of its long track record of development (Roul 2009). The sector faced both opportunities and challenges. The sector has inherent weaknesses, but it has also demonstrated strengths (Rupayon 2007). These weaknesses and strengths of the jute sector need to be identified in order to provide appropriate directions of reform and restructuring for the growth and development of the sector. The CPD study[1107] has strived to fill in a long gap in this respect. The study has attempted to provide an analysis on the basis of real time data generated through a broad based survey (Uddin et al 2014). The study comes out with specific findings in terms of performance of jute mills, particularly in economic, technological, operational and managerial terms, which has led to identification of major weaknesses and strengths of the sector and also helped to identify opportunities in order to take advantage of the emerging market conditions. It is hoped that these findings will help to provide necessary policy suggestions for the development of the sector (FAO 2013; WTO 2014).

First, prospect of jute sector at the global level is promising, though as of now, the signals are not as promising as one would have preferred. It is found that substitutability between jute and polypropylene has gradually declined possibly because of increasing demand of other alternate fibres and environmentally friendly products. However, a low substitutability of polypropylene for jute also indicates that global jute market is likely to continue at its current level of demand in the upcoming years. Besides, price of polypropylene increased in recent years mainly because of rise of petroleum price, which is the principle raw material for manufacturing polypropylene. This is likely to have a positive impact on demand and use of jute goods. A growing trend is observed in terms of use of natural fibre-based products. Jute goods would be the possible option because of their environment-friendly nature, by the virtue of the fact that these products are biodegradable. And hence, anti-polypropylene sentiment is getting stronger in the developed world, which is likely to create an opportunity and scope for growth of jute and jute goods (Uddin et al 2014).

Second, there is a good prospect of jute industry in Bangladesh in view of the discernible market signals. Global market is not shrinking, as some analysts tend to suggest. Bangladesh should rather attempt to expand its share in the global market by supplying more quality goods. Government rules on restriction of manufacturing and marketing of polythene products should be strictly maintained (Bhaskar & Khan 1995). There is space for enhancing use of jute goods at domestic level, in the construction sector for example. The possibility of duty-free export of jute goods to the Indian market, under the SAFTA agreement, needs to be utilised to the maximum level. Jute mills manufacturing, particularly yarn/twine, achieved considerable growth in the last two decades; besides, scopes of producing and using diversified products are also quite promising (Baghchi 2006).

Third, there is a wide gap in the performance of public and private sector jute mills. Performance of BJMC mills was found to lag behind in terms of economic, technological, operational and managerial aspects compared to performances of the BJMA and BJSA mills, which were found to be relatively better, especially with regard to operational and managerial aspects (Bhaskar & Khan 1995). However, in terms of profitability, their performance was also found to be weak. BJSA mills performed well in most aspects such as capacity utilisation, growth, employment creation, technical efficiency, productivity, profitability, etc. In the case of reform in the jute sector, manufacturing of yarn needs to be considered as a "model" case. However, value addition was at a much lower level compared to those of traditional mills (Ibid).

Fourth, poor capacity utilisation was a major concern for both the BJMC and BJMA mills (Billah 2007). A high level of capacity utilisation could have enhanced employment of workers, who are currently underemployed or unemployed, particularly in the BJMC mills. It is important to examine whether use of more raw jute at domestic level (by using the unutilised capacity of machines of private and public sector jute mills) was a right proposition. Instead of exporting raw jute with minimum value addition, increasing use of jute in traditional

[1107] Extensively referred to in the First Area coverage of the Paper

jute (conventional) mills which are currently being run at lower capacity, and manufacturing of diversified products could have ensured more foreign exchange earnings for the country (Bhuiyan & Hasnat 2016).

Fifth, although technological base of public and private sector jute mills varies widely, in some sections public sector jute mills were found to perform better. However, performance of public sector jute mills declined over time. It appears that higher usage of the formidable technological base of the public sector jute mills, though weak in many cases compared to private ones, still remains an option (Uddin et al 2014).

Sixth, BJMC mills are over burdened by excess workers. Total number of workers in public sector jute mills is more than double the amount when compared to that in private sector jute mills. Besides, BJMC mills are burdened by paying about 100 per cent higher wage for workers, than the private sector jute mills. Thus, rationlisation of workers in terms of size in the BJMC mills needs immediate attention (Ibid).

Seventh, no significant difference was observed between public and private sector jute mills in terms of procurement period of raw jute, although often it is claimed that public sector jute mills are unable to procure raw jute in due time because of lack of capital. This is also often cited as a reason for poor production in public sector jute mills. Both public and private sector jute mills were found to ensure timely raw jute procurement by borrowing from various sources including government, financial institutions, relatives and friends, and suppliers' credit. However, a huge amount of suppliers' credit was unpaid, both in the case of public and private sector jute mills (WTO 2014).

Eighth, efficiency of management in public sector jute mills was found to be lacking (WTO 2014). Most of the management personnel in public sector jute mills worked for a short period of time in a particular mill. They did not have the time to familiarise themselves with the nitty-gritty of a specific mill. Private sector jute mills are operated by management personnel who work in the same mill for a longer period of time. Performance level of management personnel (as judged by their superiors) was found to be lacking in the case of public sector jute mills compared to the private ones. It was found in the course of the survey that poor management is one of the major weaknesses in the jute sector which subsequently aggravated performances in other areas such as technical, operational, productivity and efficiency (Uddin et al, 2014).

Ninth, it is a major concern that most of the mills operate without having any financial viability. Although some mills were found to operate profitably (when only operating costs are taken into account), the number of profitable mills declined sharply when total costs, including all previous debt repayment and workers' gratuity, etc., were taken into consideration (Hoque & Hopper 1994). Without having financial viability, it is difficult for firms to operate for a longer period of time, which is true for both public and private sectors. It was found that the huge loss incurred in BJMC mills was related to the substantial expenses on account of workers' wages. Expenditures on interest, repair and maintenance were also high. Though performance of BJMA and BJSA mills in aggregate is relatively better, there are a number of jute mills in the private sector whose performance does not meet satisfactory level (Hoque & Hopper, 1994).

Tenth, a substantial size of debt is a major problem for all jute mills. The burden is higher in BJMC mills compared to that in BJMA mills. It is becoming clear that BJMC mills cannot operate effectively if they are to continue bearing this huge debt burden. An appropriate mechanism needs to be designed to provide relief to these mills from their cumulated debt, in order for them to run with a clean sheet (Moazzem et al 2009; WTO 2014)).

Finally, marketing of jute goods by BJMC mills is targeted to low-priced markets (Wallace 1928; Billah 2007). BJMC management should review their marketing strategies. Currently BJMC mills sell most of their products through BJGA members or other agents. BJMC mills need to explore other markets, especially high-priced markets in Europe and the USA. BJMA and BJSA mills sell more of their products in those markets. Besides, timely delivery of jute goods and better quality of products are important factors to reckon with in order to acquire a higher price from buyers; BJMC mills were found to be lacking in this context (Billah 2007). It is also important to examine how BJMC fixed the price of its products against the huge amount of losses. Without a sound rationale behind the fixing of the price, this could directly distort the market since these mills supplied the bulk share in both the domestic and international markets (Uddin et al 2014).

8.6 Policy Implications

Highest level policy interventions are required to revive the jute sector. Left alone to the bureaucrat or the development partners – the industry is set to disappear without a fault of its own (Sadi 2007). Several factors contribute to the reasoning for a robust and highest level intervention.

First, jute mills in themselves are not the reason for the apparent failure of the sector in this country (Sadi 2007; Moazzem et al 2009). There is no reason to close any jute mill based on the argument that Bangladesh's jute sector had no prospect. However, global demand is not rising at a fast pace. A slow, steady and guided growth mechanism needs to be designed. This would require a sound medium term strategy (Billah 2007; Rahman & Khaled 2011). It is important that the mills operate under strict capital and market watch.

Second, it is important to understand that the huge past debt burden, for both public and private sector jute mills, has created a dead-weight burden on their current operation and overall sustainability. In order to make operation of jute mills financially viable, the debt burden needs to be restructured and written off where necessary. An appropriate mechanism has to be found in this regard (Moazzem et al 2009). Alternative financing and investment channels could also be explored.

Third, a thorough review and revision of the financial account of BJMC jute mills is required before any kind of reform and restructuring is undertaken (Sadi 2007). It is important to take stock of what actually went in with the BMRE projects of the World Bank and put a public enquiry into the efforts – so that transparency could be ensured (World Bank 1978). The financial account maintained at the mill level needs to be examined by taking into cognisance current stock of all assets including both operating and non-operating machineries, land, buildings, liabilities to all parties including financial institutions for current loans, cumulated loans and overdue credit borrowed from suppliers, workers' arrears, and other liabilities (Muhammad 2002). This will help policymakers to understand where the public sector jute mill stands and how these mills could be operated in a vibrant manner. It is also important to take necessary actions against allegations of corruption in public sector jute mills (Moazzem et al 2009; Rahman & Khaled 2011; WTO 2014).

Fourth, a rationalisation of the size of jute mills, especially for those in the public sector, is urgently required (Sadi 2007). In view of the relatively slow pace of growth in the demand of jute goods, operation of jute mills on a large scale would be risky in terms of mobilising the necessary working capital, selling products in time with minimum inventory, amount of fixed costs required, etc. The survey found that when firms were operating on a small scale, they were likely to make more profits. An optimum size appeared to be small and medium size, and not a large one (Muhammad, 2002). Mobilising funds with appropriate underwriting mechanisms and funding arbitrage with adequate distributive mechanisms is an avenue which could be explored.

Fifth, marketing system of BJMC jute mills needs to be changed. An aggressive marketing strategy is required on the part of public sector jute mills involving areas such as market search, price offering, timely delivery of goods, etc. Adequate human resources for these specialised functions need to be taken under consideration (Rahman & Khaled 2011). Professionals who have experience in managing world class organization ought to be appointed. Jute is not a dying industry. Rather, it is a rising industry (Sadi 2007). Appointments ought to be made keeping this perspective into focus.

Sixth, rationalisation of size of the workforce in BJMC mills is urgently required (Rupayon 2007). In the case of retrenchment, BJMC must ensure required level of funds for paying workers' overdue amount were available (Muhammad 2002). It was found in the course of the survey that not all the 14,000 retrenched workers received their arrears, and those that had, did not receive it to the fullest amount. This is unacceptable, and the government should find the resources to pay all arrears of workers on an urgent basis (Moazzem et al 2009). Retrenching the experienced workhand is not good for the overall economy of the country as well. Jute is heavy industry and workmen and repairs specialists associated with the sector contribute significantly to the spawning of an industrial awareness of the communities concerned. Hence, measures ought to be taken to recalibrate the retrenched workers into mechanisms which could harness their learning capitals.

Seventh, the mills are suffering because of flawed policy decisions given by the management at a strategic level (Sadi 2007). Hence, all outstanding bills of traders and dealers need to be immediately paid by public and

private sector jute mills. An ensured flow of capital is essential to encourage the dealers/traders to improve quality, quantity and punctual delivery of jute goods (Uddin et al 2014; Rahman & Khaled 2011). This would ensure that the mills are given a fair chance of fighting back on their own even under a strong market watch.

Eighth, the world market in jute and advanced goods in jute (derivatives) is expanding (FAO 2013; WTO 2014). There is an opportunity for establishment of new jute mills. But in such cases, under-utilised machines in public and private sector jute mills can be put into operation (Rahman & Khaled 2011; Roul 2009). With minimum repair and cost of maintenance of the unused machines, new mills could be set up. Entrepreneurs should be encouraged to set up mills of products which have potential of high growth in the coming years (Rupayon 2007).

Ninth, the jute policy of the country needs to take into account the prospects of global demand for jute and jute goods in the coming years (Fao 2013), which is absent in the draft policy and come up with a realistic growth target (Sadii 2007). A vertically integrated production chain needs to be considered for jute and the jute manufacturing sector of Bangladesh (Moazzem et all 2009). Hence, the "Jute Policy" needs to be reviewed and revised, and in this context the government's initiative to design a new jute policy is a well-timed initiative. However, the draft policy will need to be substantively improved to provide strategic directions to the jute sector and come up with an effective and realistic plan of action for short, medium and long term outlook (Bhuyian & Hasnat 2016; Pal & Chakraborti 2011). The idea of an independent "Jute Board" may be considered in this regard, where there will be representation of major stakeholders (taking cue from Baghchi 2006). The Board will take all policy related decisions pertaining to the jute sector. The Board will set plan of action, offer guidance, monitor performance and provide support on an ongoing basis. One of the major tasks of the Board will be to establish "rules of the game" so that all mills, private and public, are operated on a market-based approach (Rahman & Khaled 2011).

A thoriugh reading suggests that the reform measures in the jute manufacturing sector, as mentioned in the draft policy (Bhuyian & Hasnat 2016), envisage gradual privatisation of the public sector jute mills, and also mention that the public sector mill will need to enhance their operational efficiency (FAO 2013). The operative word should be 'efficiency' and not whether it should be a blanket of privatisation or not (WTO 2014). The proposed Board could take the policy decision in this context. In this connection, public-private partnership could be explored as a possible strategy (Hoque & Hopper, 1994). Indeed, a number of sample jute mills, operated under public-private partnership, were found to operate profitably. The Jute Board is also expected to take measures to ensure high value addition of jute fibre in the country (Moazzem et al 2009; Miah 2010). Designing an appropriate strategy for higher domestic use of raw jute, for more domestic value addition, ought to be seen as a major task of the proposed Jute Board (Rahman & Khaled 2011; Bhaskar & Khan 1995; Hoque & Hopper, 1994).

Taking our cues from Addis Ababa 2015 and the concerns documented in the Paris Agreement 2016, it can be concluded that four elements are critically important for reviving the Jute sector

These are:

a. A clear, sector-specific strategic intent which justifies the need for exploitation of the existing resources and exploration of the emerging ones; including the explicit identification of the organizational assets and capabilities, and more importantly, technologies, which can be used for balancing the needs of the economies, as in growth, and ecology, as in sustainability and adaptation to adverse changes (Sadi 2007);

b. Specific commitments and oversight from the Government to nurture and fund the new initiatives in the major/broad areas under the Jute sector and spatio-temporal planning for the sector, and protect it from the predatory nature of the markets and other forces to allow them time for gaining a critical mass to sustain and a sustainable momentum to take off;

c. Sufficient allocation of resources for a sustainable development of the Jute sector as a common heritage for mankind and a careful design of the organizational interfaces needed to leverage the critical assets and capabilities from other countries, including clear criteria to decide on unhindered access to time-bound investment schedules (Sadi 2007);

d. A vision, values and a culture that provide for a common identity across the industrial regime which helps all involved clearly see where the planet is headed towards.

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