

# **Effectiveness of Public Private Partnership (PPP) Business Model as Fast-Track Growth Driver in National Development**



By

**MIR SHARIFUL BASHAR**

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**DOCTOR OF BUSINESS ADMINISTRATION**

Under the supervision of

**Professor Dr. Md. Abdul Hanna Mia**  
Department of Management Information Systems (MIS)  
Faculty of Business Studies  
University of Dhaka, Bangladesh

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***Dedication***

To

Zubaida, Zayan, Zunairah, Zarwareen & Zuhair

You are my essence of Inspiration;

&

Every Parents & Childs who make this world cheerful

&

All the Friends who keep me sound and

My Teachers who stood beside me with a great commitment

**AUTHOR'S DECLARATION OF ORIGINALITY:**

I hereby declare that the thesis entitled “Effectiveness of Public Private Partnership (PPP) business model as fast-track growth driver in national development” submitted by me for the Award of ‘Doctor of Business Administration’ Degree under the supervision of Professor Dr. Abdul Hanna Mia, Department of Management Information Systems, University of Dhaka - is my original work and has not been submitted earlier wholly or partly to any Institution or University for the award of any degree or diploma. Quotations and paraphrases are suitably indicated and credited to the authors. Research ethics have been considered and handled appropriately within the guidelines and procedures of University of Dhaka.

***Mir Shariful Bashar***

DBA Researcher

Registration No. 10/2020-21(Re)

Department of Management Information Systems (MIS)

University of Dhaka, Dhaka

**CERTIFICATE OF APPROVAL:**

This is to certify that the thesis entitled “Effectiveness of Public Private Partnership (PPP) business model as fast-track growth driver in national development” submitted by Mir Shariful Bashar (Registration No. Re-10/2020-21) for the Degree of Doctor of Business Administration is a record of research work carried out by him entirely under my supervision and guidance in the Department of Management Information Systems, Faculty of Business Studies, University of Dhaka.

To the best of my knowledge and confidence, the research paper:

- i.** Embodies the work of the candidate;
- ii.** Has duly been completed according to the requirement of the DBA degree of the University of Dhaka;
- iii.** Is up to the desired level both in respect of contents and substances.

Based on the declaration of the author the thesis represents his original work and has not been previously submitted for any other degree elsewhere. I wish him all the success.

**(Professor Dr. Md. Abdul Hanna Mia)**  
Thesis Supervisor  
Department of Management Information Systems (MIS)  
University of Dhaka  
Dhaka - 1000.

### **Acknowledgement:**

In the name of Allah, Most Gracious, Most Merciful. First & foremost – all praises & thanks be to the Almighty creator, the Lord of the Universe. Without his mercy nothing can be done. Then I would like to express my gratitude from the bottom of my heart to my Advisor Dr. Md. Abdul Hannan Mia, to the department of Department of Management Information Systems (MIS) and the University. Here the main motivation of this study is knowledge creation about PPP approach for the generation next who will lead the development of the country in the coming days. Thanks go to all my faculty members & staffs in the University who gave their best to make me learn something on this topic. I am always thankful to the respondents who share me sector knowledge as the key informant and to those who produces priceless knowledge in their earlier studies.

## ABSTRACT

This study investigated the effectiveness of Public-Private Partnership approach in the development itinerary of Bangladesh. Aligning with the purpose the major objective of this dissertation is to assess the effectiveness of PPP business model as a fast-track growth driver in national development and to explore the major issues & challenges associated with it based on the data available in the country context. Determining an appropriate PPP model by analyzing the identified Critical Success Factors (CSFs) is also a minor objective of this study. In this assignment the movement of Public Infrastructure Development has been considered as the fast-track development trend of the current age, besides environment & society are considered as important components to be care for development.

The approach of this study includes: Systematic Literature Review (of Case Studies, Project Report, Post-project Evaluation Reports, and other related reports Analysis), In-depth Interview (Key Informant Interview) & observations. The research method here in this study is to check the effectiveness of PPP Business approach for the development Projects already been done & those are currently on going in Bangladesh and contributes as a Fast Track Growth driver for the National development. The contents gathered & observation captured was analyzed based on 'Content Analysis' approach. 'QDA Miner' software & associated Text mining tool was used to analyze the qualitative data.

Public Private Partnership business model has been gaining popularity recently as a means of supporting the developing nations with their overall economic growth, infrastructure advancements, and Sustainable Development Goals achievements. Since economic growth portrays the performance of an economy, PPP can be viewed as a versatile instrument for development, including accelerated economic growth. It can be supplementary as well as alternative edge for the overall development of the country Bangladesh. Actually there are various factors and Success Indicators plays significant role in the success of the PPP approach in Bangladesh. It is found that effective implementations of PPP projects are bound by some associated issues & challenges - which need proper attention for smooth development management of the country. The findings revealed that PPP is effective for faster growth & development of the country when implemented with a suitable model. Selection of the right Model is just one vital factor for the success of the PPP projects but other factors identified cannot be ignored - which are also substantial for achieving success in the context of Bangladesh, These factors include: Planning, Funding, Technology Management, Team building etc. This study identified a few Success Factors those are usually overlooked in PPPs but crucial for Bangladesh; namely: (i) Effective Team work (ii) Practice of Co-management approach (iii) Mutual trust among parties (iv) Business Motivation of the parties (v) Acceptable

Technology Readiness Level (vi) Dispute & Conflict resolution Mechanism etc. From the discussion of the respondents this study discovers various points of misconceptions around PPP Projects - which are recommended to be rectified with proper care. Analyzing the findings of this study there is a crisis situation seen in the PPP ecology in Bangladesh - which is actually a low level equilibrium trap that can be explained by the vicious cycle principle. A Virtuous Cycle has been proposed along with some break through interventions to beat the Vicious Cycle of the low level equilibrium trap in PPP sector.

Need based Innovation is another important element to be taken into account to figure out an effective PPP model. This study identified sixteen challenges for PPP approach based development projects, and thirteen major issues in PPP model – which can be solved by substantial process improvement. It concluded that PPP is effective for faster development, attracting FDI, improving governance, and solving SDG Challenges. PPP's success must be accepted on a case-by-case basis; it is not really a ‘magic bullet’ or ‘panacea’ for the questions of development. While considering a PPP engagement, the public authority must evaluate the economic worth of such a partnership with private parties, anticipating the potential benefits, efficiency gains, and also the possible risks - returns and challenges involved.

Considering all the existing constrains found in this study a broadly acceptable and sector specific PPP model has been proposed to effectively deal with the upcoming Projects in Bangladesh. The proposed PPP model is built on three main pillars: World's Best Practices, Business Process Improvement, and Harmonization of Factors – which will help to balance the suitability, effectiveness, implementation challenges, and Performance Maturity. Continued revision, frequent adaptation, and fine-tuning are the key function requires identifying the best alternative PPP business models embedded with open and disruptive innovations. To conclude the study a set of recommendations for selecting the appropriate model for PPP approach has been proposed for effective implantation of PPP Projects in Bangladesh and also highlighted its limitations.

This is a unique study in respect of its Scopes, Subject matters & Context. The findings of this research will contribute remarkably to the academics who are interested in PPP Project movement to have a well understanding regarding the interaction between PPP and development in the context of Bangladesh. This research work contributes to the knowledge bank of PPP practice and development, which will help the researchers and practitioners including the policy makers, the government officials and the other non-government organizations as well as private sector beneficiaries to have a clear insight about the present-day status along with existing gaps and paths for future endeavors regarding an accelerated development & growth oriented PPP engagements approach in Bangladesh.

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## **LIST OF ABBREVIATIONS**

CCEA	Cabinet Committee on Economic Affairs
CSF	Critical Success Factors
DSCR	Debt Servicing Coverage Ration
EIA	Envoronmental Impact Assesment (EIA)
FDI	Foreign Direct Investment
IPR	Intellectual Property Rights
IRR	Internal Rate of Return
LDC	Least Developed countries
PPP /P3	Public Private Partnership
PPPA	Public-Private Partnership Authority
PPPIRC	Public Private Partnerships Infrastructure Resource Center
SDG	Sustainable Development Goals
SEA	Straetegic Impact Assesment
NPM	New Public Management
NPV	Net Present Value
UN DESA	United Nations Department of Social Affairs
VGF	Viability Gap Fund



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#### 1.0 Background

Public Private Partnership (PPP) is a development buzzword now a day, which can be explained as an agreement based Partnership that unites the public and private sectors to carry out a project or deliver services that is by tradition handled by the public sector. At its very core PPP agreement implicates the transferring and sharing of risks and returns among the public and the private partners in a performance linked remuneration arrangement. With regards to the approach for PPPs study, in particular once it is particularly the disciplines of Economics and Management Science, it can be defined as a micro-level partnership. On the other hand PPP has emerged as a concept of management, thoughts related to the New Public Management (NPM) and also as an effective tool for development. “Public Private Partnership (PPP) as a subject has appealed much attention by many of the scholars and in a wider academic arena, as a multidisciplinary topic it comprises disciplines Economics, Management Science and Public Administration etc.” (Spielman, Hartwich, and Grebmer 2010). It has been incepted in developed countries, and later gained popularity by policy transfer among developing countries. In Bangladesh PPP concept was firstly introduced in Power Sector back in October 1996, as a Private Sector Power Generation Dogma. Since then PPP concept is going through evolution and fine-tuning regarding policy making, establishing of government institution and tailoring for diverse sectors etc.

One of the crucial needs for the fulfillment of the Government of Bangladesh's Vision 2021 Policy was an escalation in infrastructure investments from roughly 2% to 6% of its GDP. It would enable Bangladesh to advance towards the status of a middle-income country (*Perspective Plan of Bangladesh 2010-2021*). At present time Bangladesh is topping in the list of graduating LDCs with a good and consistent economic growth. It is scheduled to be graduated on 24 November 2026 (United Nations, 2021). It is currently experiencing nearly 8% GDP growth being among the fast- emerging economies in the world. Bangladesh secured 34<sup>th</sup> position in the World Economic Forum's Inclusive Development Index ranking, and by 2030, she is expecting to be the 24<sup>th</sup> largest economy in the world. Now, with this economic position - Bangladesh need to devise an ‘Expedited LDC graduation strategy’ - coherent with the thought of rebuilding strength and grow from the recent pandemic impacted situations. That strategy needs to be



compatible with the spirit & vision of the development agenda including: Sustainable Development Goals (SDGs) by 2030, 8th Five Year Plan (2021-25) and the Perspective Plan (2021-41). It will integrate all the expected development objectives of the country: goals of 2024/25, 2030 and 2041 and beyond. Public-Private Partnerships (PPPs) have therefore been identified and given priority by the government of Bangladesh as one of the primary measures to satisfy this investment priority and fill the infrastructure gap. To inspire private investors in funding the megaprojects, notable adjustments have been made to the PPP framework, regulations and financing schemes by this time.

Bangladesh is already in the final round of its race for development to touch the finishing line of LDC graduation. Bangladesh is ready to challenge the downsides of this shift proficiently and benefit out of these openings to ensure the smooth LDC graduation towards development as planned. This strategic move requires huge internal capacity building with regards to the institutional set-up & governance for implementing the development projects to attain the targets. Bangladesh needs to design & implement a good number of mega Projects to reach its development goals - with regards to minimize the infrastructure and service delivery gaps. So, she needs a proven Fast Track growth instrument for the nation, in search of that PPP Model can be considered as a way of realizing the planned projects. It is widely believed that if tailored well in light of the demand situation - PPP model could bring sure success in Public Infrastructure, Transportation, Electrification, Health Sector, ICT/Hi-Tech sector and Industrialization Projects of Bangladesh.

The mega-projects planned by Bangladesh are occasionally suffered by fund crisis and efficiency crisis issues. And it is hard to have a good match with the technical / business partners. PPP Model can be a way out to those problems (World Bank, 2015). In order to support the development of sector-specific public-infrastructure and services essential for the citizens of the country, the government of Bangladesh formulated the appropriate policies and set strategies for PPPs back in August 2010. Now the PPP program became an important factor of the Vision 2041 of the Government - a set of goals to ensure a rapid as well as inclusive growth route, to satisfy the needs for better public services with a financially sustainable way.

This is a research initiative to assess suitability & effectiveness of PPP models for faster development of the country. Bangladeshi need to increase its investment to keep up the development tend, which is a huge potential for PPP Projects. The average growth in last ten year were 6.56% (Figure: 01), which need to be maintained for pursuing the development vision of 2041. In order to realize the development vision set for 2041- it need to maintain the 6.56% average growth of last ten years (shown in Figure: 01).

Projections for Bangladesh Vision 2041:			
Sector	2021	2041	Remarks:
GDP	\$409 B	\$2,580 B	Maintain 9% GDP growth until 2031.
Investment-to-GDP	30.76%	46.9%	Increase investment/GDP ratio to 16.14%
FDI	\$2.4 B	\$153 B	Need to Increase by: <b>6275%</b>
Infra Investment	\$100 B	\$1,150 B	Need to Increase by: <b>1050%</b>

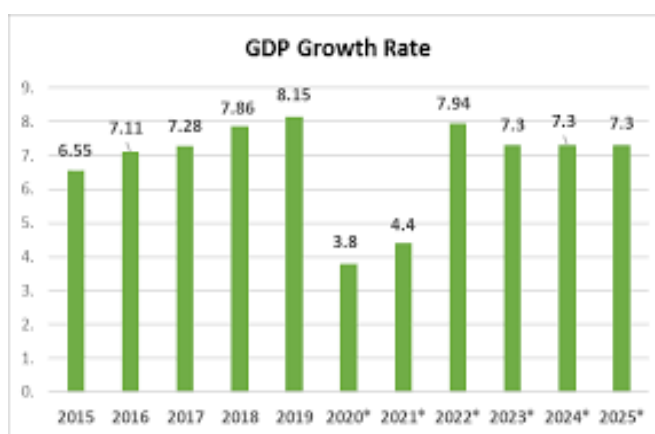


Figure 1: GDP Growth trends of Bangladesh

Source: Bangladesh Bureau of Statistics

[Ref: Perspective Plan of Bangladesh, 2021-2041]

## 1.1 Problem Statement

PPP is an emerging and widely accepted tool for a country's development especially regarding sustainable development of a developing country like Bangladesh. Bangladesh is trying on PPP Projects for last few years. For example: Mayor Hanif Flyover, Construction of Dhaka Chittagong National Highway, PPP based Economic Zone – Mongla etc. Since the actual number of successful cases is relatively low, there are still legitimate concerns about effectiveness of PPP approach (Archives of PPP Authority, 2022).

In recent times, almost all national level projects enlisted by Public Private Partnership Authority (PPPA) of Bangladesh are being implemented in a standard PPP fashion. It is therefore, vital to figure out the issues & challenges of success in the cases of implementing PPP based Projects to be marked as a fast track growth instrument for Bangladesh. This study basically aims to check the efficiency of PPP projects, find its befitting

implementation model and to recommend some strategic directions to overcome all the challenges came across while pursuing for a smooth development & growth for Bangladesh.

There are a number of models used in PPP projects for implementing projects of various sectors all over the world. Many studies can be referred on factor analysis of the successful projects. There is a lot of learning from those papers including the practiced models, the regulations used in the projects, reasons concluded for success or failure. To check effectiveness based on the identified success factors is very significant for program based strategic planning. Discussed models of PPP in different literatures are not suitable for all the countries and the selection of models depends on various factors. The models those are successful in the advanced countries may not be effective in the underdeveloped or the developing countries. The factors contributing in the success may also vary from country to countries based on their perspectives. Since both the public and private entities are involved in PPP based ventures the key factors for success of previously implemented projects are very important hints to catch the right findings. Besides finding the success factors, studying the models used in the projects are also required to be reviewed for devising innovation based effective models befitting for the upcoming PPP based projects.

It will not be that easy task to find a one-fit-for-all model for PPP Practice. Here, analyzing the critical factors for success will help us to identify the causes of success and specially the failure for all the partners. As the under developed part of the world is developing gradually over time, governments are taking interest towards PPP project increasingly because of its risk sharing and funding options from the private parties end. The underdeveloped countries are being interested for these kinds of projects because of their lower income status. Bangladesh - as one of the developing countries just recently trying to explore these vast openings with PPP sector with huge challenges. Being establishment of the legal framework in favor of PPP in 2010, numbers of PPP projects are increasing significantly. Some projects have been awarded and there are a good number of prospective projects which are in pipe lines or in implementation. Among those, some projects stays in the book of failure and some can be marked as successful projects. For this reason the analysis of the projects and finding out the Critical Factors and picking the compatible model for Bangladeshi PPP scenario is crucial. Findings of the appropriate model will help the authority to make good decisions while selecting the models for PPP projects in the future endeavors. And on the other hand, Critical Success Factors will help both the public and

private partners to correct and right tune the approach by understanding the weakness & lacking in their initiatives. Studying the major issues & challenges with PPP model is also important to understand the deep sense of PPP based development.

Study approach here is to explore the facts discussed beneath:

- Assess suitability & effectiveness of PPP models for faster development of the country.
- Investigate the major issues & challenges of PPP model.
- Explore the Critical Success Factors (CSFs) of the PPP concerns in Bangladesh.
- Determine categories of the PPP models available at this time (based on some specific criteria).
- Find a PPP based model that would be suitable for a developing country like Bangladesh

## **1.2 Research Questions:**

Focusing on the discussion above, the questions given below looks quiet appropriate to put forward to check the effectiveness of PPP business model as a faster growth driver for Bangladesh. So, the major focus of this study is to deal with the research questions given hereunder:

1. **How effective is the PPP business model for implementing development Projects in Bangladesh?**
2. **Are the issues & challenges significant for implementing the PPP business model?**

The first question mentioned above is derived from the idea that the effectiveness of PPP business model for implementing development Project will also give us a sense of faster development track for Bangladesh. This question will address the in growth path through implementing of the development Projects in PPP approach. Eventually it will also reveal the factors behind growth along with the factors inhibiting growth, create barriers and the fail factors.

The second question will deal the practicing issues & challenges and their significance of implementing development Projects in PPP approach. This question is basically in search of

finding out the weights of the issues & challenges with PPP model need to address to achieve the faster development of Bangladesh.

### **1.3 Objectives of the Study**

A lot of models are being practicing in the PPP projects all over the world nowadays. Governments and private parties are trying to implement various models to achieve the utmost success out of the projects. But there are very few studies done on the models are being used commonly and which models should be used in the future projects based upon the success case analysis. However, studies of this kind are actually rare in the context of underdeveloped countries. As for Bangladesh, though lots of projects are done under PPP initiatives, the guidelines for PPP are still lacking the success components. The study on critical success factors based effectiveness will help to raise the success rate of PPP projects and will inspire both the public and private party's for taking up these kinds of projects.

#### **Broad Objective:**

According to the research questions mentioned and the gaps identified in the literature reviewed about the problem areas, the study has been intended to assess the Effectiveness of PPP business model. Core objective of the study is to check & explore the major issues & challenges related to PPP Business model and its effectiveness as a fast-track growth driver in the national development of Bangladesh with appropriate models for sector specific PPP projects in the arena.

#### **Specific objectives:**

The particular objectives of this study are to:

- a. Examine the effectiveness and get a deep understanding about the applicability of PPP project Approach in the context of Bangladesh.
- b. Investigate the major issues & challenges of PPP model.

Therefore, in a nut-shell the goal of this study is to assess the effectiveness of PPP business model as a fast-track growth driver in national development and to explore the major issues & challenges associated with it.

#### **1.4 Rationale of the Study**

- PPP Projects are very critical to the development (especially for the economic growth) of a country like Bangladesh. A recent research on PPP success in infrastructure project in different countries indicates the importance of PPP practice for Development Projects.
- As the development is not that satisfactory about measuring PPP success; researchers are trying their best to get rid of the prolonged problem of measuring PPP success.
- In Bangladesh very little research has been undertaken in these topics. This study was conducted to investigate & identify the major issues related to PPP Business model and its effectiveness with regards to accelerate the national growth as well as boosting up development mood of the country. Therefore, ‘effectiveness of PPP business Model’ is a very potential area for academic research to look into the growth opportunities and check it along with the befitting management framework.
- This study is a unique one with regards to its scopes, subject matter & context. The outcomes of this research will contribute remarkably to the academics who are interested in PPP project movement to deeply apprehend the connections between PPP practice and development in the context of Bangladesh. This study makes a substantial contribution to the body of knowledge of PPP practice and development, and will serve to improve as well as modify the conceptual structure of PPP project management practices in the developing countries. This study is very likely to help the researchers and professionals in comprehending the current position, existing gaps and paths for forthcoming determinations about accelerated development & growth oriented PPP Projects. This particular study is expected to be a milestone for the researchers interested to study further on PPP models.

#### **1.5 Scope of the Study:**

- This particular study enables the audience to understand the major contribution of PPP approach to the development of Bangladesh. It has examined how effective the PPP model for implementing development Projects in Bangladesh, while delivers an overview of the faster growth path for Bangladesh.
- This study has carried out on the implemented projects in PPP approach particularly in Bangladesh.

- The study covers the management approach of PPP concerns in Bangladesh - looking in to the effectiveness, existing issues & challenges; and presents findings, analyses and discussion on the results with regards to the study theme. This discussion will largely help to understand the real PPP Projects situation in Bangladesh that can support to develop the country at a greater pace.
- This study is delimited to the public infrastructure Projects using the local public as well as private funds.
- This study considers ‘fast track growth’ while assessing the effectiveness of PPP business model. To define the ‘fast track growth’ it can be claimed in the context of this study that, any growth rate that is above average in relation to Bangladesh's national development qualifies as fast track growth. We can see that in last 12 years average GDP growth of Bangladesh was 6.56% and ranging up to 8.15 % - was the highest growth rate among (in the year 2019). Therefore, for the purposes of this study, a growth rate that is higher than the average can be deemed a fast growth rate.
- With regards to the research title this study considers the national development of Bangladesh as a developing country.
- The study attempts to comes up with some policy recommendations those are likely to be useful for solving the issues & handling the challenges with PPP projects to ensure the faster growth based balanced development of the country.

## **1.6 Organization of the study**

A brief description on the present dissertation has been structured in the chapters as follows:

- Chapter 1 of this report offers an introductory overview of the circumstances in PPP Project implementation in Bangladesh Projects, especially for the mega – Projects of which economic impact is very high. This chapter also discussed the objectives and scope of the current study and provides a synopsis of the approach followed to achieve the study purposes.
- Literature review given in Chapter 2 presents findings and experience of previous researchers in the similar areas research activities including: PPP performance, effectiveness, Critical Success Factors, challenges root causes for PPP Project failure, & their way out in global as well as Bangladesh perspective.
- Chapter 3 discusses the conceptualization of various aspects PPP to build a conceptual model & framework for the research.

- Chapter 4 presents and discusses the methodologies followed, and tools, techniques, software used to analyze data.
- Chapter 5 of this study represents data collection and description of those & discusses analysis of collected data and findings.
- Chapter 6 discusses the overview of contemporary PPP practice in Bangladesh and provided a perspective of the PPP trends with regards to its funding, implementation modalities and innovation for the implementation of the PPP based development projects.
- Chapter 7 gives a concluding note on the PPP Project's effectiveness in Bangladesh, using descriptive figures. It also closes with a summary of the findings, the challenges faced during the study, implementation issues, and areas for further enquiry, rooms for development and especially few recommendations made for minimizing project failure.

### **1.7 Limitations of the study**

This study put all efforts to encompass all the aspects related to the area of research interest – which is quiet vast. It has covered a critical review of literature, and explained the methodological issues in detail while proposing a framework. It has discussed the analyses and results with findings to make some recommendations. There are some boundaries to acknowledge within which the study was conducted.

- As the fund & resources are limited, the researcher has to limit the scope in terms of data analysis and due to lack of availability we used secondary information from PPP Based development projects in Bangladesh. Time series data is required to analyze the trend of PPP project based development. Due to unavailability of project data this was not fully practicable within the scope of this study.
- Though this research work focuses on the different features & possibilities of PPP business models, the modus operandi by which Projects authority can modify their business models and right tune the other factors interconnected with the associated changes remains unexplored.
- As there are very few studies found on this topic done in developing countries specially Bangladesh, and most of the official websites are not up to date - the required project information basically need to collect from authentic secondary



sources, project closure reports, Post-project evaluation Reports and web contents as available. Only the completed and awarded PPP based projects are preferred for analysis to determine the primary selection of appropriate models.

- The Critical Success Factors (CSFs) of PPP are analyzed generally for every sector. The PPP is not a just new concept in Bangladesh, but the number of projects completed was not that significant. So it seems much early to conclude list of CSFs and issues for individual sectors.
- Another crucial limitation is that, research data sets are collected from the projects implemented in Bangladesh. The outcomes will be completely based on the scenario of developing countries which may vary from the PPP scenarios in the other developed & developing countries with advanced technologies, improved policies, guidelines and management approaches.
- There are very little success cases in Bangladesh to study so the sample size is practically small. And projects are being financed by local investment options rather than FDI in PPP projects. So, the full impacts of the PPP potential are difficult to detect with the existing data.
- There prevails a lack of business mentality induced negative beliefs in the public sector and inadequate exposure of practice in commercial atmosphere; and inadequate private players are active in PPP fields. So, it makes this study challenging to get the right scenario from the private sector's data.
- There is weak knowledge base & learning curve of the PPP community to support a study like this. The respondent faced difficulties in most of the question asked about private sectors engagement in PPP process.
- There are complexity and inadequate study on the business model & commercial framework of PPP projects, which can lead to unplanned, undesirable and somewhat unrealistic consequences.

The above points are limiting this study, which can be cover up in further research project. There are few minor shortcomings to acknowledge in this study, which are mostly kind of assumptions with regards to some existing issues around the stings , not actually the waekness of the study itself.

### **1.8 Outcome of the study**

With proper data and analysis, the study is expected to deliver the following:

- Document the perception and understanding about the effectiveness and suitability

of PPP project Approach for the current growth perspective of Bangladesh.

- Generate a list of the major issues & challenges to implement PPP Projects in Bangladesh.
- Produce guidelines to follow for selecting a PPP based suitable model for development Projects in Bangladesh.

## **CHAPTER: TWO**

### **LITERATURE REVIEW**

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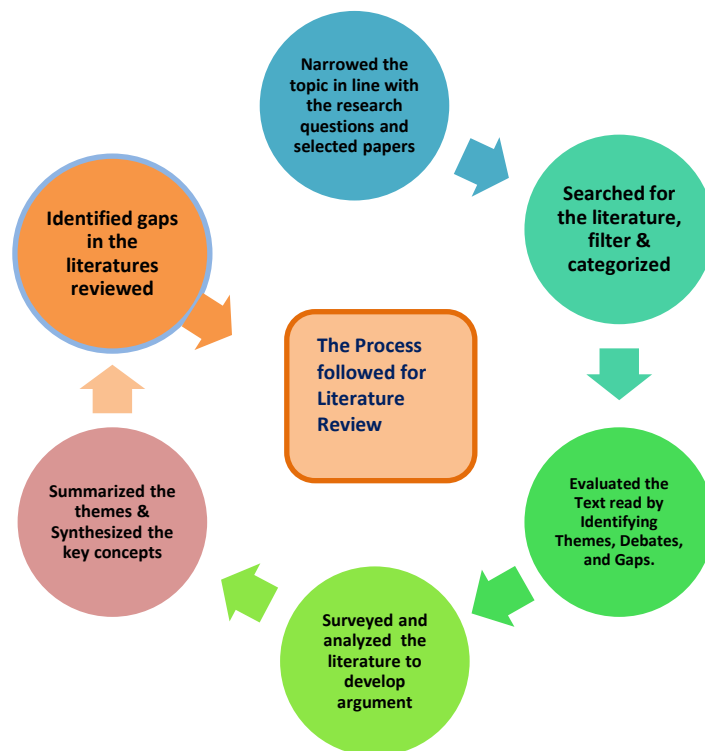
This chapter mainly discusses and summarizes the most recent academic literature on Public-Private Partnership and its empirical impact on national development with regards to economic growth, jobs creation, income distribution and poverty situation and overall efficiency gains in developing countries. In this segment, a brief discourse on the relevant sectors, project types and models of PPP have been presented to depict the state of the art position of the PPP approach as a topic of academic interest.

Then discussion of measuring the success & effectiveness of PPP projects and the Critical Success Factors (CSFs) impacting the success of the projects are mentioned. Subsequently, the sectors most-suitable for PPP approach in Bangladesh, types of projects done under these approach in Bangladesh and the models usually in practice are discussed. Some prior examples of Critical Success Factors (CSFs) of the PPP based project cases in underdeveloped and developing countries to learn & listing down effective CSFs in the Projects done in Bangladesh have been presented. Finally, the issues & challenges of practicing PPP approach in Bangladesh have been discussed and the research gaps were identified in which space this study will find its way further.

Though as a topic PPP has received wide academic discourses (Van Huijstee et al. 2007), the PPP literature remains largely scattered and fragmented (Kivleniece & Quelin 2012). However, many a researchers presented a concise review of sector specific PPP topics. Namely: Pantouvakis & Vandoros (2006) have contributed in construction sector, Amobi (2013) in infrastructure development issues and Roehrich et al. (2014) paid attention in the health sector activities. A good number of these studies actually follow a regional outlook of analysis. Bozeman (2013: 312) wrote that, "the study scholarship on PPP topic remains relatively a theoretical or, more precisely, that it is "pre-theoretical" in the sense that much knowledge is accumulated but it has not been integrated into a matrix of empirical explanations". So, less focus is seen in the literature about real life application PPP thoughts in the fields.

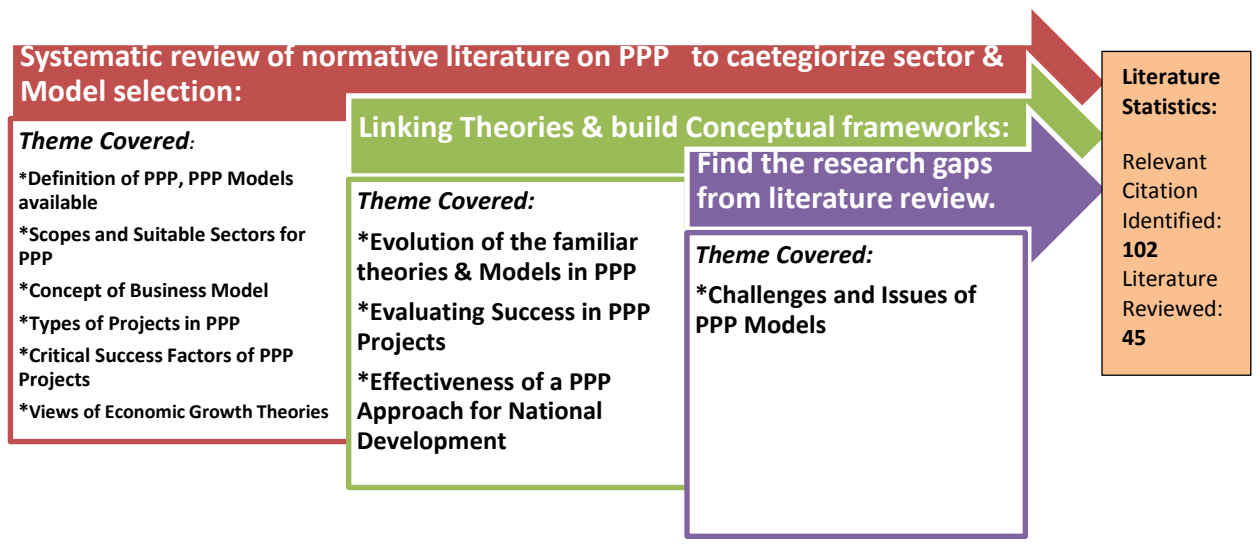
Before initiating the literature review, spectrum of PPP thoughts, and a particular period for conducting the literature review were determined through a desk based small-scaled scoping study & web search. The search range for articles regarding the ‘PPP Practice Success & effectiveness’ is Year 2000 to 2021. The year 2000 was significant as the start point of the review because of the ‘Millennium Development Declaration of the United Nations General Assembly 2000’. All the member countries of UN were sensitized in this declaration to encourage partnership and taking part of the private sector for sustainable development. To further explore the search area with a wider view, a few more search words were added to filter & narrowed down the search result corresponding to the research scope & objectives of this study.

The finding of the literature reviews leads this study to conclude with different viewpoints to offer a wider view of Public-Private Partnership approach in befitting sectors along with its associated issues & challenges towards discovering a faster development track for Bangladesh. The process of literature review followed in this study is depicted in the Figure: 2.



**Figure 2: Literature Review Process**

In the literature review endeavors the following topics & themes are covered:



**Figure 3: Method used for Literature Review**

## **2.1 Scopes and Suitable Sectors for Public-Private Partnership Approach:**

Looking back in the history, public-private partnership projects approach became familiar in practice throughout the world in 1970s by British Government as the necessity of irregular help from the private funding in infrastructure projects. But the corner stone of PPP was placed in 1997 by former prime minister of United Kingdom Sir John Major under the new labor law. Broadbent & Laughlin (2003) discussed that, though in United Kingdom the PPP was contained but eventually the concept of PPP has been well accepted by the countries all over the world & became popular in a short amount of time in numerous forms. Yescombe (2007) defined that the structure of PPP can be complex as the partnership should be between government and single or more than one private sector entities, and a large number of parties are concerned in the process. However, the Governments around the world showed interest about PPP projects due to its wide range of sectors. The sectors varied from country to country depending on the geographical location, financial and political set up or sometimes the policy framework. But according to The World Bank et al. (2014) there are two major characteristics to be fulfilled before it can be counted as a considerable sector for PPP projects. Firstly, the project needs to have significant contribution in delivering public services and secondly, the project should have a contract which will clearly define the long term assets involvement. In many modern literature PPP Projects are also known as P3 projects.

"PPP is a partnership to deliver the duties that the government originally delivers" (Neely et al.,2011). "PPP is the relationship established legally among the government or its representatives and companies that are considered as private, whereby they come together to provide goods for consumption or services to avail in order to gain something spread against a perceived time or for a time frame that is not known and its almost forever" (Oceans, 2011). "They must not be mistaken it for privatization, where infrastructure management and ownership are transferred to a private company. They are also defined as public-private collaborations to provide significant construction for everyone or other facilities or services" (Anderson, 2015).

Joha & Janssen (2010) demonstrated the differences between the PPP, outsourcing and shared service centers which showed PPP may have highest risk but the risk is offset when get shared between the private and public parties. They even indicated that PPP can be a step towards outsourcing and shared service centers.

To discuss about the sectors of PPP, Yescombe (2007) talked about the infrastructures of public sectors mainly in Transportation, Social infrastructure, Public utilities, Government Offices, Public accommodation, and some specialized service like communication networks etc. In a broad study on PPP, The World Bank et al. (2014) showed some major sectors where the PPP are widely considered. Reviewing the global success records - the sectors identified to be practicable in PPP approach are: Transport (for example: Sea Port, Airport, Highway, Railway, Bridge); Power & Energy (for example: Power Plants, Power Transmission Lines, Sub-stations); Civil Accommodation (for example: Economic Zones, Public Buildings, Convention Centers, Sports Facilities, Commercial Development, Residential Housing, Education facility Buildings); Health (for example: Hospitals, Health Care, Dialysis and Diagnostics); Tourism and Hospitality; Water , Sewerage and Waste Management, Social infrastructure (Prisons, Courthouses , Old home, Community Centers, child day care centers etc), Education ( for example: Schools, Colleges and Universities), Government infrastructure, Telecommunication Infrastructures, IT infrastructure (for example: Data centers, Communication Backbone Networks) and Agriculture Infrastructures etc.

For maintaining a standard and to handle unique challenges of each sector, the PPPIRC (2017) has categorized the projects into seven major sector categories considering the PPP projects globally. They have set regulations for each sector - namely: Power and Energy, Solid Waste, Clean Technology, Water and Sanitation, Transport, Information and Communication Technology, sub-national and municipal PPP etc.

## **2.2 Types of projects in Public-Private Partnership Approach**

The World Bank et al. (2014) discussed on different types of projects those are done in different sectors. The types of projects done under each sector are immensely diverse and distinct based on the necessities of the country. According to their study they have categorized the sectors and summarized with few types of projects. The findings are as below:

- Transport sector has projects types like: Roads, Tunnels, and Bridges; and Railway, different types of Ports, Mass Transit Systems and Airports construction etc.
- Water and Waste Management, Water Treatment Plant, Water Distribution and Sewerage System and Solid Waste Management Systems.
- Power sector consists of Projects like Power Generation and distribution systems
- Under social and government infrastructure sectors there are Education facilities, Healthcare facilities, Prison facilities, and urban regeneration and social housing projects etc.

While discussing about types of projects done in PPP approach all around the world, Siemiatycki (2012) showed, in about 25 years history, the number of highways, bridges, hospitals, bridges, water-waste management and prison facilities have been made under PPP procurement process have successful beyond expectations. The study concluded that, only in United States there are different types of projects done under transportation sector's head.

The transport sector is a seriously considered sector for Public-Private Partnership because of the fiscal challenge faced by the governments all over the world. AECOM Consult Team

(2007) searched for findings in institutional context within transport sector and showed 11 (eleven) different project done in United States. The projects covered in this study are from Alaska, California, Florida, Georgia, Illinois, New Jersey, Texas, Massachusetts, and Virginia. All the states are considered as developed states and the type of projects done are mainly tunnels, bridges and ramps, sky ways, highways expansion, highways rehabilitation, ports, expressways and expressway-connector, and toll ways. From the study we can find a list of projects selections done only in United States under the transport sector. In a study on East Asia region's transport sector, Halcrow Group Limited (2004) pointed out the Skytrain and Mass Rapid Transit (MRT) projects in Thailand; Monorail, MRT and automated transit projects in Malaysia; MRT projects in Philippines and railway systems in Indonesia. While discussing these projects with developed countries, the study also pointed out the bus, metro rail and light rail projects in United Kingdom; MRT projects in China and metro rail project in Singapore. Bruchez (2014) pointed out some of the South African projects in the transport sector. The projects mentioned in the study are airports, rail corridor development, roads and toll ways.

The telecom sector has been following PPP Approach for many a years, afterwards the internet reached the far and wide all around the world, the most recent addition in the PPP is the Information and Communication sector combining the telecommunication and information Technology Now Countries around the world are interested in this sector because of the scale of the sector's reach to citizens. Talking about ICT sector, Bruchez (2014) showed the information system and broadband initiative projects. The study pointed out the projects is the South African national level program with a massive budget. In a review on ICT projects in Vietnam, Owen (2006) showed the VOIP and WiMax projects all over country. To improve the quality and productivity, the governments are considering PPP Approach for ICT sector to implement government projects. Sharma (2007) has discussed about the e-government projects in Asian countries and showed some successful projects. The study showed the e-Procurement project from Singapore; and from India, 3 projects were discussed in this paper - online delivery of land related services, online access to company affairs and regional e-procurement system. The impact of PPP in ICT sector was emphasized in this study.

Marin (2009) analyzed 65 developing countries in Sub-saharan region, East-Asia Pacific, South Asia, Africa, Europe and Latin America and found the vast PPP projects in water



utility sector. Varma et al. (2013) showed the irrigation, canal water distribution system and drainage systems projects in water sectors which improved the life of villagers. The study also discussed about the possibility of having water embankment speedway, tube well expansion programs, sewerage treatment plants linked through riverfront development and also the micro irrigation projects in future. Pusok (2016) identified portable water projects done in the 56 (fifty-six) countries. In those countries sanitation projects are another type of water sector projects done under the PPP contracts.

Energy sector is broad and the demanding sector all around the country as the gas sector, or power sector or petroleum sector projects are expensive. Because of this reason governments are leaning more on private investors to come into PPP projects. In a study of World Bank, Vagliasindi (2013) discussed about the recent states of the PPP projects investments in energy sector all over the world and summarized several renewable energy projects in China, Peru, Mexico and Brazil. Middle-East has a vast power sector which runs on the PPP infrastructure delivery. Biygautane (2017) discussed the water and power projects in Saudi Arabia, Kuwait and Qatar. In a brief overview on PPP in Indian infrastructure projects, KPMG India (2006) showed the energy distribution and transmission projects under the energy sector of India.

The social and government infrastructure have so many types of projects from hospital to prison facilities. These types of projects are gaining its popularity in developed countries as well as in the developing ones. Barrows et al. (2011) analyzed the PPP in a Canadian Health-Care and concluded some guidelines for the future of health-care projects in Canada and other countries. According to the study, these guidelines will help the success of PPP infrastructures in health projects. ADBI (2000) showed the case study of a school in People's Republic of China which is a success example of collaboration between government policy and private investment. The study additionally discussed the education projects in Philippines, schools in rural areas in Samoa, health and education projects in Bangladesh.

Discussion from the previous studies pointed out different types of projects in different countries depending on the need of the government for the development of the country. In a

nutshell, despite of the different necessities, the main types are still similar and fall under the main categories of the PPP sectors. Nature of Public-Private partnerships (PPPs) varies in respect of involvement & amount of risk shared by the private partners. The types of partnership arrangement & responsibilities of the parties involved are basically governed by the agreed terms & conditions of PPP agreements.

### **2.3 Business Model as a Concept**

A business model is a conceptual structure for a company's core plans to make revenue to support the viability of the business which includes basically its purpose, its goals and its ongoing actions for achieving them. The term 'Business Model' refers to an organization's plan for making a earning or profit. It defines the products or services the business plans is to deal, its target market, and projected expenses if any. Timmers (1998: p.4) coined the term 'Business Model' at first, according to him "an architecture for the product, service, and information, a description of the benefits for the business actors involved, and a description of the sources of revenues".

According to Casadesus- Masanell et al, (2010, p.198) "business models are composed of two different arrays of components; a) the concrete choices made by management about how the organization operates, and b) the consequences of these choices". Business model work as an outline for the customers and markets, products and services and channels to deliver values, on the other hand informs and guides the requirements of the organization."

One of the most important requirements for a successful company is that - it is innovative and adaptable. According to Oliveira & Torkomian (2019: p.12) "innovation is the result of interactive processes between actors who retain different sorts of skills and knowledge, gather as well as exchange information for the purpose of solving technical, organizational, commercial or intellectual problems". Williams and Woodson (2012: p.221) describes innovation "as changes in organizational process (as well as quality, safety and management sciences) that facilitate the production of technology, science and services".

Companies frequently have different business models. Due to the company's operation in several portfolios, its strategic goals, aspirations, and actions are always dissimilar.. Osterwalder et al. (2005) consider the business model as the outline of the doing business of a company.

It is seen from the trends in the literature that, with time the concept of Business Model is evolving, nowadays Business Models involves the core values of the business based on its mission & vision drawn on a bigger canvas accommodating financial activities, process control and technical capabilities etc. Jet Airways is a pioneer to follows a unique business model based on this modern concept & innovation for their business success. When it comes to PPP concerns, a business model is supposed to protect the interests of all parties and stakeholders. Sometimes, the driving force behind a business model is profit, and other times, it will take into account the greater public benefit. Innovation should be considered as a key component of the PPP business model to be in line with the current trend.

#### **2.4 Evolution of the familiar Models in Public-Private Partnership**

PPP practices include a wide range of sectors and project types, which led to a need for establishing different types of models. The types of projects and the models chosen for the projects all over the world are similar. There are many types of models introduced based on the needs of the public or private parties in PPP. Siemiatycki (2012) pointed out that, “the success or failure of the projects is determined by the planning procedures and the risk sharing arrangements among the private and public parties”. The study also described three primary characteristics of PPP excluding the traditional government contracts as these contracts are biased towards public companies in risk sharing. Depending on mutual benefits of partners, contractual concession, transfer and sharing of risks between partners, the study showed the concession based approach of PPP where the responsibility of private party increases with the expansion of tasks in the projects. The level of risk shouldered by the private party also increases as the volume of tasks are greater. The mixed types of models are seen mostly in the European Countries since PPP Projects are popular in Europe. To talk about the mega projects delivered under PPP contracts, Irimia & Oliver (2012) performed a detailed research and summarized with six classification criteria of PPP models from various studies and projects. The models reported in the study are discussed here to highlight their classification.

In the first round of classification, the models are based on weigh of responsibility presumed by the public party in terms of financing the projects. Garcia (2005) showed seven different models:

- **Public model:** In this model public partner is totally in charge of presuming all the functions.
- **Public model with private payment:** Functions of the sectors are also in charge of the public partner except the payment, which is done by the private partner.
- **Public model with private management:** This model leaves the management responsibilities with the private partner. The other functions are controlled by the public partner.
- **Private model:** This model is rare in practice but according to it the private partners are fully accountable for all the functions.
- **Private model with public payment:** Here the private partner is in charge of all the functions but the payment, which is done by the Public partner.
- **Privatized public model:** This kind of model is built and funded by the public entity, user provides the payment and private partner is responsible for the management.
- **Private socialized model:** The project construction and finance are done by private partner, then management and remittance is done by public partner by leasing it from the private enterprise.

Another classification of PPP models is done by considering source of finance and risk assumption. Irimia & Oliver (2010) sorted out three types of outcome from this classification - Public party pursues the private funding and also accepts the risk of implementing the project; and the Private party is also sharing risk and funding; moreover the Private party bears all risks following the guidelines of public sector.

## 2.5 Models based on Payment method:

The literature study provides insights about the wide variety of PPP arrangements and the sometimes rather diffused contractual framework under which PPPs are taking place. This classification is done based on methods of payments. The financial management in public sectors and private sectors categorized the projects in three main models:

- **Traditional System:** In a closed budget, the constructor is given payment on the account which is approved by the project administration and the revision of the budget can be done later if necessary.
- **German Method:** The governments deal a contract with the tender winning private

enterprise - where the payment is given subsequently the successful accomplishment of the projects. When the public project is running its ends, the payment can be given in full or in annual installments. The intention of this kind of project is to minimize project debt at the investment stage.

- **Shadow Toll Method:** The government pays the rates according to agreement to get the services in this method. The concessionaire performs building and operation of the project and the payment is done in a periodic manner based on the usage of the infrastructure by the citizen. Private party's risk is less in these types of project - because government ensures the level of income not the users. After the agreement term is over, the project is delivered to the public party without any additional cost. This method is also known as "*Operating lease*".

Irimia & Oliver (2010) also discussed that the project models can be categorized based in the budgetary impact of the private party. The study summarized four types of models under this category:

- **Private Models:** The government is only capable of granting permission for construction and operation in these models. After the permission has been granted, the private sector is exclusively liable for fund collection, building and management. Though the public party may control and supervise the functions, the proportion of risk shouldered by the private sector is much high.
- **Models with budgetary implications:** In these projects, the public party is ready to bear all the risks and budget completely comes from the public budget.
- **Models of no budget impact:** It is a mixed model of public party controlled administration that funded by private parties.
- **Mixed Models:** This model includes the funding and resources both from public and private party. The percentage of responsibilities is set by the agreements.

In this category, the models are categorized based on the contribution of public sector in different phases of the project. Irimia & Oliver (2012) divided the models into two categories - direct involvement of the government and the indirect intervention by establishing public bodies and companies

And in the last category, the study presented the most widely used model types in PPP sector which is categorized depending on the involvement of private sector in designing, implementing, managing and financing of the project. According to the study, the involvement and payment infrastructure can be discussed under one single model -

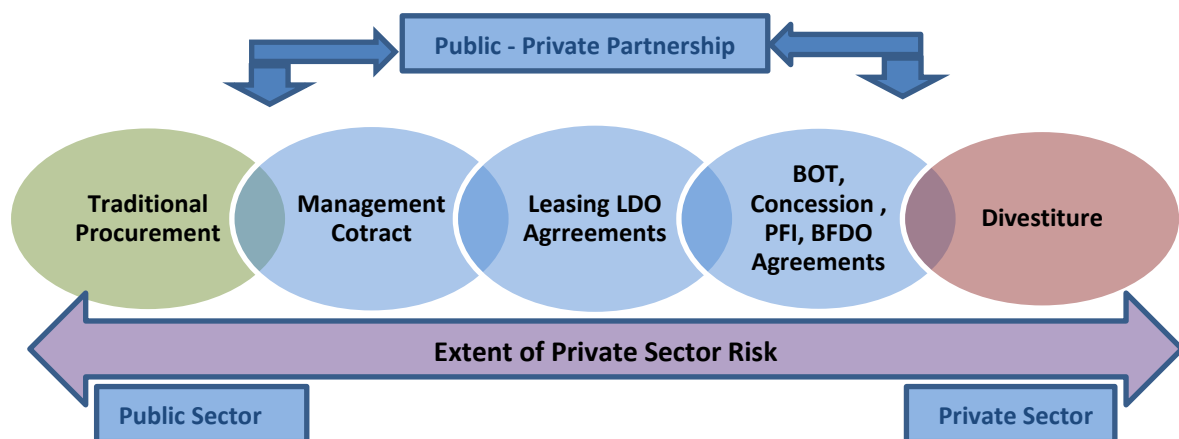
concession. There are varieties of models under the formula of concession with different types:

- **Build and Operate (BO) Model:** There is no time limit given to private party who will be liable for finance, construction and management. The controlling of the project is done by the public section.
- **Build, Operate and Transfer (BOT) Model:** In this kind of concession, the private party usually constructs and manages the project within a time limit. The private party manages the project till the expected return is secured and after that the ownership goes to the public entity.
- **Build, Transfer and Operate (BTO) Model:** Before the operation the public party gets the ownership of the project when the construction phase is over. Once the project is ready for operation, the private party leases the project from the public partner.
- **Build, Own, Lease and Transfer (BOLT):** The Public entity offers this concession to a private entity to design & build the facility in this approach, then owns and leases the facility to the public sector; and finally transfers the ownership of it to the public entity when the lease period is over.
- **Buy, Build and Operate (BBO) Model:** The private enterprise purchases the public property for management purpose after the renovation or extension is done. This kind of model is useful for the development of damaged or old infrastructures.
- **Design, Build, Finance, Operate and Transfer (DBFOT) Model:** This model is similar to the pure concession model - where private enterprises finance, design, constructs and manages the infrastructure but the difference is payment is given by the administration. The payment is given by public party in terms from the services of the projects.
- **Lease, Develop and Operate (LDO) Model:** In this concession model, private party leases government infrastructures, then repairs and develops it in the concession period and operates it under the lease agreement.

**Wrap Around Addition (WAA) Model:** The private party owns an extended part of publicly owned and managed infrastructure. After the completion, the public and private partners will share the ownership. Turina & Car-Pusic (2006) analyzed the European

Commission (EC) research on PPP projects and the models used on infrastructure delivery. The study also talked about the models emphasized on the risk sharing and contribution of private sector. In a brief overview, the study showed the models from Skendrovic´ & Vukmir (1999) which are categorized into five types – (i) Service Contracts, (ii) Operation and Management Contracts, (iii) Leases, (iv) Concessions, and (v) Build Operate Transfer contracts. For maintaining the standard the World Bank Group (2016) has categorized the models according to the agreements to clarify risk sharing and extent of the private sector participation. The study categorized the models which are mostly used all over the world. The models are similar to the models shown by Degood (2014) which are also based on the risk sharing and private sector involvement like: Service contract, Management contract, Lease, Concession, Greenfield project and Divestiture etc.

To discuss in brief, the most commonly used models are chosen for PPP projects. The models discussed are dependent on the risk sharing and the level of private sector involvement. There are so many models which are hybrid of these main models and can be found in many projects all over the world. In **Figure - 4** models are depicted focusing on the variety of private sector’s participation and their risk sharing patterns.



**Figure 4: PPP models based on risk sharing and private sector participation.**

Reproduced from Degood (2014).

**Service Contracts:** These types of special contracts are legal agreements between the

government and the private enterprise for a time period which is usually for a short periods of few months to a year or two. The private enterprise is chosen by competitive bidding process to procure non-core tasks of the public infrastructure system. Capital investments and maintenance of the overall services are in charge of the public party. The nature of work can be purchasing goods to customer service.

**Management and Operational Contracts (O&M contracts):** Management and Operational Contracts are agreements between public and private parties where the operational and management responsibilities of government owned assets are being transferred to the private enterprise. The ownership of the assets, capitals and financial risks, and overall responsibility still remains to the government authority. These contracts involve the private operators being paid in a fixed fee to maintain and operate public facilities more effectively. The duration of contracts is usually two to five years long and payment can be performance based. Management contracts are used to be task specific and focused on input rather than output. These types of agreements are good for increasing the management and operational efficiency of already running projects.

**Concessions:** The concessionaire or the private party is wholly liable for planning, financing, maintenance, operation, capital investment for renewal or rehabilitation and expansion of the services. The ownership only remains to the government and the concession term is usually ranges from twenty to thirty years based on the rate of the return as calculated. Throughout this period, the private party sets a tariff or fee which can be adjusted over the course of agreement and is paid by the consumers directly. A Concession contract provides the concessionaire a long term right to hold the assets given to the concessionaire, including obligation for management & operations with some scope of investment if requires. The authority mainly owns the asset, and they are typically in charge of replacing large assets. At the closing of the concession period, all assets including those acquired by the concessionaire are returned to the authority. By retaining a direct relationship with the customer, the concessionaire often receives the majority of its revenues due to the concession agreements.

For larger projects there are many forms of concession models in practice subject to the responsibilities of the private and public party. Build-Transfer (BT), Build-Operate-Transfer (BOT), Build- Own-Operate (BOO), Build-Own-Operate-Transfer (BOOT), Design-Build-



Finance-Operate (DBFO), Design-Build-Finance-Operate-Transfer (DBFOT) and Build-Lease- Transfer (BLT) are some of the used models on large infrastructure projects. In these types of models, after the construction and maintenance according to the contracts phase is expired, the facility is returned to the government for future usage

**Full divestiture:** Full divestiture occurs when the government transfers infrastructure to private enterprises either in part or full including certain conditions of improvements in services or the infrastructure. The government only retains some indirect control of regulations of the projects - where private partner is responsible for everything else. These types of models are also called privatization.

There are few PPP Project Delivery Models listed below as they are growing with demand of time:

**Table 1: Emerging of PPP Project Delivery Models from the Conventional model**

<b>Conventional model:</b>	<b>Emerging Models: Modified version of the Traditional models:</b>	<b>Other Business Models:</b>	<b>Remarks:</b>
<p>These are the traditional model seen in PPP Practices.</p> <ul style="list-style-type: none"> <li>• Design, Build Model [DB]</li> <li>• Design - Bid-Build model</li> </ul> <p>Private Contract, fee service</p>	<p>These are the need based evolution induced modified version of the Traditional models.</p> <ul style="list-style-type: none"> <li>• Build, Operate, Transfer [BOT]</li> <li>• Design, Build, Finance, Operate [DBFO]</li> </ul> <p>Build, Own, Operate [BOO]</p>	<p>These are the case based models followed in a standalone instance.</p> <ul style="list-style-type: none"> <li>• Turnkey</li> <li>• Buy-Build-Operate (BBO)</li> <li>• Build, Own, Operate, Transfer [BOOT]</li> <li>• Build, Own, Operate , Maintain [BOOM]</li> <li>• Build-Lease-Operate-Transfer (BLOT)</li> <li>• Operation &amp; Maintenance Contract [OMC]</li> <li>• Equipment Supply</li> <li>• Finance only.</li> </ul> <p>Operation license (often used in IT projects)</p>	<p>There is an apparent trend of transformation in PPP model found from the literature review.</p>

### Revenue based Business Models:

A number of equity based revenue model are in practice to consider in an e-governance centred procurement settings. In revenue based Business Models the government and the private party can either invest jointly or individually in a project. Larger the equity share, higher the risk sharing, along with higher revenue sharing is the equation of this model. Partners can negotiate on the proportions of equity, fixed pay off or variable pay off method to a reach a consensus of gains in the project [et. el. *Pradeep Valsangkar*]. A revenue based business in PPP Project can be used as a strategic tool for the developing countries to manage the revenue streams & resources pool to ensure the Return on Investment (ROI) of the Project partners.

### 2.6 Evaluating Success in PPP Projects:

Success measuring & evaluation of the PPP projects is diverse from study to study. The success measurement is also different for each stages of the project. Ashley et al. (1987) described the success of the project as the better result than expectation with regard to cost, quality, safety, time and satisfaction of the participants. Atkinson (1999) showed the ‘Iron triangle’ of measurement to success the measure. According to his study, a project is considered successful when it fulfills cost, time and quality requirements according to the specifications. For measuring the success of PPP, *Akintoye et al. (2003)* discussed about the ‘Best Value’ to define the primary objectives of the PPP. Greater Value for Money (VfM), cost, time, effective solution and level of relationship between the partners are some of the areas to measure the success of the projects.

### Success Dimensions in PPP Projects:

**Table 2: PPP Projects’ Success Dimension in Traditional approach**

PPP Projects’ Success Dimension:	Literature Reference:	Remarks:
1. <b>Project Efficiency:</b> The performance measures under this dimension are – attaining schedule goal and budget goal.	Shenhar et al. (2001) argued – the traditional method of measuring the success of the project and stated that, “One size does not fit all as projects differ in terms of scopes, objectives, technology, size, risk, complexity, industry and others”. The study showed four success dimensions and thirteen performance methods	Individual Projects should be measured with befitting success scale.
2. <b>Impact on the customer:</b> Improving the functional performance, maintaining technical specification, caring for customer needs & customers’ problem, product usage and customer satisfaction are the measures in this dimension.		

<p>3. <b>Business Success:</b> Commercial success and building a large market share are the measures under this dimension.</p>	<p>to measure the success of the projects.</p>	
<p>4. <b>Preparing for the future:</b> The measures in this dimension are creating new market, generating new product line and developing a new technology.</p>		
<p>5. <b>Assured Quality:</b> This Performance indicator means meeting the QA (Quality Assurance) requirement of the output.</p>		
<p>6. <b>Impact on the customer:</b> Attaining functional performance target, maintaining technical specification, satisfying customer needs, resolving customers' problem, product usage and finally overall customer satisfaction are the measures in this dimension.</p>		

**Table 3: Perspective based success measurement of PPP Projects**

<b>Projects Perspectives for Success Measurement:</b>	<b>Literature Reference:</b>	<b>Remarks:</b>	
<p><b>Project management perspective:</b> Time, cost and quality are the elements in this perspective.</p>	<p><i>Liyanage &amp; Villalba-Romero (2015)</i> discussed that, the success of the PPP projects are viewed with three perspectives and the project is considered successful if they have been met the requirements successfully.</p>	<p>Context is an important issue to consider while measuring success of PPP Projects.</p>	
<p><b>Stakeholder perspective:</b> Public, private parties and users are the elements in this perspective.</p>			
<p><b>Contract management perspective:</b> The three elements are: contract, process and results in this point of views.</p>			

This study also presented eleven Key Performance Indexes (KPIs) to measure the success of the transport projects for toll roads. The KPIs are: objectives, risks, contract project specifications, tendering process, construction phase, operations, maintenance, monitoring and evaluation, finance, actual traffic and revenue, and downtime impact. For a PPP based transport Project KPI can be a good method to evaluate performance.

Might & Fischer (1985) explained that measurement of overall project success, measurement of the cost, measurement of schedule and measurement of technical success are the areas to measure the project’s success. Morris et al. (1986) discussed that the project success measurement is reliant on three measures as discussed in **table 04**:

**Table 4: Measures of project success**

<b>Success measures:</b>	<b>Relevant Features:</b>
Functionality of Project:	Financially, technically or otherwise
Management of Project:	Budget, schedule and technical specifications.
Commercial performances of the Contractor’:	Short term or long term performance.

According to Hughes et al. (2004), the success measurement factors can be categorized into six categories. The categories are - cost, schedule, quality, performance, safety and operating environment.

The previous studies identified many success measures - however the measures are not solely based on PPP projects. To measure the success of PPP projects, this study proposes measures based on PPP context. **Table 5** presents five proposed measures of success in the context of PPP projects.

**Table 5: Proposed PPP Project success Measures.**

No	Measure	Description	References
1	Project efficiency	Measurement of meeting the scheduled and budget goal	Shenhar et al. (2001) discussed that the schedule and budget target should met according to contracts should be measured; Akintoye et al. (2003), Hughes et al. (2004), Morris (1986) and Might & Fischer (1985) discussed that whether the projects met the expected budget and schedule goal should be measured; Ashley et al. (1987) described the project should give better result than expected in terms of cost and time; Atkinson (1999) showed that projects should be finished within budget and schedule.
2	Risk Transfer	Measurement of the level of Risk-transfer and risk-allocation.	Liyanage & Villalba-Romero (2015) found out that risk transfer and monitoring is necessary for measuring success.
3	Tendering process	Measurement based on bidding Methods and level of clarity in tender process	Liyanage & Villalba-Romero (2015) showed that creating competition is tendering process and transparency of the contracts are necessary and should be measured.
4	Impact on future PPP initiatives	Measurement based on level of quality increased and level of innovation showed	Shenhar et al. (2001) discussed that the creation of new market and product line are dimension for measuring success which can be a model for future initiatives; Ashley et al. (1987) and Atkinson (1999) discussed that measuring quality of the project in terms of specifications.
5	Impact on the citizens	Measurement of fulfilling the needs of the citizens, solving citizens' problems and level of the citizen satisfaction.	Shenhar et al. (2001) discussed about measuring the level of fulfillment of customer needs, solving customers' problems and level of satisfaction of the customer.

The use of the terms efficacy, effectiveness, and efficiency in project management literature is explored by Zidane, Y.J.T. & Olsson N.O.E (2017). The thoughts are mainly about rate of project success or failure and the scales at which result are obtained. It has examined how the terms efficiency, efficacy, and effectiveness are used in texts about project management and in the observations of the experts.

## **2.7 Performance Measurement Approaches of PPP Projects:**

Z. Ahmad , S.Mubin, R. Masood , F. Ullah and M. Khalfan (2022) discussed PPP as a potential alternative procurement method for delivering critical construction projects. They look in to the context of Pakistan and found that PPPs has not yet been explored widely in development fields. This study proposed a performance assessment framework for evaluating pertinence of PPP approach based on 10 Key Performance Indicators (KPIS) accompanying by 41 Performance Measures (PMS). They have conducted 2 case studies in road construction sector in Pakistan to get those reviewed by specialists to validate for applicability. The authors claimed that, the proposed Performance Evaluation Framework (PEF) is suitable for the countries those are in transition towards development.

*J. Liu, P. Love, J. Smith, M. Regan and M. Sutrisna (2014)* reviewed literatures on the performance measurement within the context of Public-Private Partnerships (PPPs) to assess the effectiveness of ex-post evaluations already in use and to identify a practicable strategy to measure the performance of PPP based infrastructure projects thoroughly and effectively. They have argued that ex-post evaluation done conventionally is insufficient to gauge how well PPP initiatives have performed. The authors emphasized that life-cycle (process-based) evaluation under performance measurement system is a comprehensive and successful approach to PPP performance measurement based on PPP characteristics. They have identified that the current PPP evaluation approach, which basically focuses on "cost" and "time" performance, is inadequate to assess PPPs performance. Moreover, the traditional ex-post evaluation method having focused on products makes it difficult to fully cover the PPP projects' in-built complexity. The life-cycle (process-based) evaluation supported by the proposed PMS (i.e. Performance Prism) that addresses the complexity of various stakeholders needs to be used in place of conventional evaluation method in order to measure PPPs widely and effectively. So to create motivation for "real-time" performance control and service quality improvement while projects are in the pipeline, they have mentioned a dynamic process-based performance measurement framework.

## 2.8 Identified Critical Success Factors for PPP Projects in Developing Countries:

R. Sehgal, A. M. Dubey , and N. Tiwari (2015) has explored the prospect of implementing PPPs. In their paper authors tried to cover the existing literature to identify the Critical Success Factors (CSFs) effecting PPP ventures in the development context of India. They have successfully established a conceptual model of determinants for the PPP based projects by means of the literature analysis. And identified 20 variables grouped into 5 basic factors, namely:

- a) Favorable condition of the economy;
- b) Project implement-ability;
- c) Effective procurement;
- d) Stable political and social environment; and
- e) Government Control.

In the PPP handing scenario of Bangladesh in accordance with other developing countries - a number of success factors are found in various studies.

### **Critical Success Factors Index:**

- Good Governance Practices
- Proper risk allocation and risk sharing among parties
- Adherence to budget & time
- Reliable & quality Service Operations
- Satisfying the need of public facility/ Services
- Long term Association & Partnership
- Profitability & Economic benefits
- Reduced Litigation & Dispute
- Reduced Administrative Cost
- Effective Technology Transfer & Innovation
- Local Economic Development
- Environmental Impact & Performance
- Reduced Project Life Cycle cost
- Reduced Public & political Protests
- Favorable legal framework.
- Sound Economic policy.
- Stable macro-economic condition.
- Sound financial market.
- Multi-benefit objectives.
- Meeting Up specification
- Commitment and responsibility of public and private sectors.
- Strong private consortium.
- Project Technical Feasibility Analysis
- Shared Authority Between Public & Private Sectors
- Government Control
- Well organized & Committed Public Agencies

**A List of other minor factors for success:**

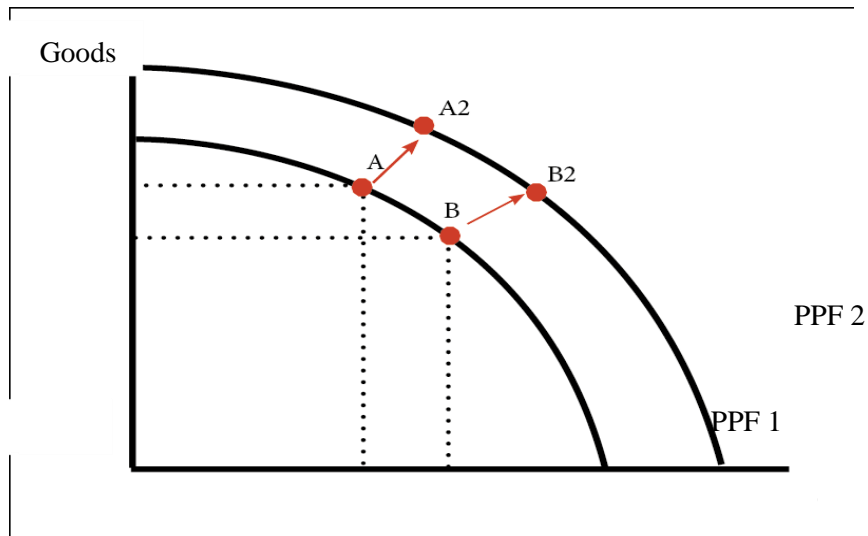
- Project efficiency,
- Political & social support
- Transparent tendering process,
- Competitive Procurement Process
- Bureaucratic Procedures.
- Positive impact on the citizens/ users
- Government's involvement by Providing Guarantee
- Thorough & realistic assessment of the cost & benefits

*(Suhaiza Ismail, 2013), (Osei-Kyei, Chan, Javed & Ameyaw , 2016)*

**ECONOMIC GROWTH:**

Economic growth is the percentage change of an economy's total production of final tangible and intangible products in a given time interval. The growth is usually measured by growth of real GDP, nominal GDP, real per capita GDP and nominal per capita GDP. An outward shift of Production Possibility Frontier (PPF) portrays economic growth of the country (Parkin, 2012). PPF displays the maximum production of an economy which can be obtained by using the available resources and technology at a particular point of time. Figure - 5.1 shows PPF1 is the initial situation of an economy. Once the economic growth takes place, the economy enters to PPF2. Outward shift of the PPF makes the country better in economic status.

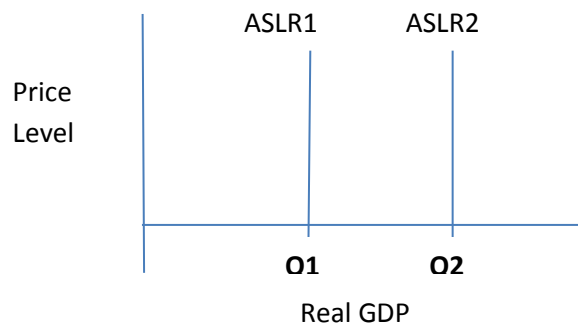




**Figure-5.1:** PPF of the Economy Having Positive Economic Growth

Source: *McConnell and Brue, 2005.*  
Services

McConnell and Brue (2005) observe economic growth using aggregate demand (AD) and aggregate supply (AS) model, *i.e.*, AD-AS model. The long-run aggregate supply (ASLR) curve determines the potential output. The Fig.-2.2 draws the scenario. Economic growth shifts the long-run aggregate supply curve (from ASLR1 to ASLR2).



**Figure-5.2:** Increase in Long Run Aggregate Supply

Source: *McConnell and Brue, 2005.*

Economic growth necessitates the uses of natural resources, human resources and technological advancement. Different economists emphasize the components of growth in following ways:

- “Three factors or components of economic growth are of major importance in any society: capital accumulation, growth in population and hence eventual growth in the labor force and technological progress” (Todaro & Smith, 2005, p. 79).
- “Economic growth originates from technological change and capital accumulation. Technological change is the development of new goods and of better ways of producing goods and services. Capital accumulation is the growth of capital resources including human capital” (Parkin, 2012, p. 36)
- “The engine of economic progress must ride on the same four wheels, no matter how rich or poor the country” (Samuelson & Nordhaus, 1998, p. 519).

Economic growth necessitates the usage of 4 factors of production namely: Land, Labour, Capital and Entrepreneurship. Capital accumulation and Technological Development (Blanchard 2000; McCornell & Brue, 2005; Lovewell, 2005), Labour quality, Natural Resources and efficiency (McCornell & Brue 2005; Lovewell, 2005) and Social, Political and Legal factors (Lovewell, 2005) promote economic growth.

Blanchard (2000) analyzes the factors which play notable role in economic growth process. Author raises the question of sources of growth. Why growth occurs? Analysis of the factors behind the growth generates the following results:

- Economic growth needs capital accumulation and technological development;
- Rate of saving cannot ensure to boost up the growth rate. But higher saving rate can support a higher production level; and
- Sustained development in technology sustains economic growth. To sustain technological progress, spending on research activities, designing patent laws, education and training are obligatory.

McCornell and Brue (2005) explored the means a society can achieve economic growth. Authors’ studies find out the following components of growth:

- **Supply Factors**

- Increase in natural and human resources;
- Skilled human resources;
- More supply of capital good and
- Technological progress.

- **Demand Factors:**

- Increase in Aggregate Demand.

- **Efficiency Factors:**

- Productive efficiency in utilizing limited resources and
- Allocative efficiency for maximizing society's welfare

Lovewell (2005) highlights some costs of growth. Growth brings direct opportunity cost of sacrificing present consumption and indirect costs to environment and society. The costs are as follows:

- Using more limited resources to capital accumulation reduces current consumption;
- Excessive use of natural resources may damage environment due to pollution; and
- Technological development may create social insecurity and risks. All suppliers cannot be adaptive to new technology.

Rahman and Hossain (2014) analyze the association between agriculture sector and economic growth in Bangladesh. The study shows that the agricultural sector holds a huge influence on economic growth. The study uses value of agricultural GDP to denote agriculture sector and GDP to represent economic growth for the period 1973-74 to 2010-11. A unidirectional relationship exists from agricultural GDP to GDP, and the test of co-integration confirms the long term association between the variables. The VAR models releases the fact that GDP response is critical to change in agriculture sector. So, promotion of agriculture sector definitely ensures economic growth.

Upreti (2015) tries to find out the factors having impact on economic growth for the year 2010, 2005, 2000 and 1995 to 76 countries. Using a multiple regression model, the study

shows that export, government, natural resource, foreign assistance, life expectancy and FDI inflow factors are positively linked to emerging economies' economic growth.

## 2.9 Views of Economic Growth Theories

AS discussed earlier Economic growth depends on 4 factors of production, (*i.e.*, Land, Labour, Capital and Entrepreneurship). These factors have been considered in various ways by economic growth theorist. Different theories on economic growth in different phases are discussed below.

### (i) Classical View:

Father of modern economics, **Adam Smith** contributes to economic growth theories by finding out the important factors of production and the process of economic growth. In his monumental book entitled '*An Inquiry into the Nature and Causes of the Wealth of Nations*' (1776), Smith proposes both land and accumulation of capital give birth to production expansion. Expansion of domestic production and standard of living are primarily determined by investment and capital gathering. Increasing returns to scale and specialized labor force contribute to growth. Where increasing returns to scale comes from specialization of labor force which is also termed as division of labor. The extent of division of labor and savings out of profit retained by industry and agriculture sector determine investment. Labor productivity is centered on the division of labor. Smith suggests that the scale of the economy limits the division of labor. Smith gives arguments in favor of free trade, and zero control of government over the domestic market mechanism for growth. Smith views economic progress a self-generating mechanism. His vision to progress is optimistic combined with increasing returns to scale based on division of labour (Thirlwall, 2003).

**Malthus** views production expansion in a different way in 1798. His vision is quiet pessimistic. He claims that as population increase gradually, land will be scarce. People use land both for shelter and food. So, lower arable land is left for food production. On the other

hand, the labour force is rising and placing pressure on the prospect of jobs. As land is fixed and more workers are working with the same piece of land, output grows at diminishing returns to scale. Real wage rate is going to be reduced due to declining marginal product resulting from the hike of labour land ratio (Samuelson & Nordhaus, 1998).

**David Ricardo** in his book named '*Principles of Political Economy and Taxation*' published in 1817, reveals that capitalism creates stationary state with no growth and diminishing returns in agriculture sector. But Ricardo emphasizes the need of capital formation in growth process where reinvested profits generate capital. Ricardo advocates withdrawing all types of taxes and duties on factors of production because duties reduce capital accumulation indicating slow economic growth (Thirlwall, 2003).

**Karl Marx** contributes to growth theory while finding the causes of expiration of capitalism in his famous book '*Das Capital*' in 1867. Marx focuses capital as prime productive input and determinant of growth. The capital is created by the capitalist surplus. He predicts that capitalism will expire due to crises originating from excess production and social upheaval (Thirlwall, 2003).

## **(ii) Modern Growth Theory:**

**Roy Harrod and Evesy Domar** express their valuable opinions on economic growth in their well-known papers published in 1939 and 1946 respectively. According to their opinion, households spend a portion of current income for consumption at present. The part of households which is not spent is the saving. This saving can be marked as a leakage in the circular flow of macroeconomic movements. On the contrary, firms do production for the economy. For production, firms need funds. Households' saving reaches to firms through financial institutions of the economy. When households' saving is at the hand of firms then it becomes the injections to macroeconomic activity. The Harrod-Domer model specifies the importance of saving and investment for growth process. The model necessitates the relation of saving and investment by the following equation:

## **Saving = Investment**

Firms use the fund to offset the depreciation and to purchase new capital equipment for further production. If there is an increment to existing capital stock after meeting depreciation, economic growth takes place. Growth also relies on capital's capacity to generate production or the ratio of capital output. Growth rate is positively related with saving and negatively with capital output ratio (Ray, 2003).

### **(iii) Neo Classical Growth Theory:**

Neo Classical Growth Theory was first introduced by **Robert Solow** in 1956. Neo classical theory of growth emphasizes labour and capital as the two important factors of production. Technology is an independent factor influencing the production. The rate of technological development is determined exogenously. So, this model sometimes is termed as exogenous model of economic growth. Solow developed an aggregate production function as given below:

$$Y = k^\alpha A L^{1-\alpha}$$

Where,

**Y** denotes gross domestic products

**K**: the capital stock;

**L**: the labor force; and

**A** denotes labor productivity

(labor productivity growth rate is exogenous)

Capital and labor jointly determines the production. The prime ingredients are capital and technological advancement. These two are the major forces in the production process. Solow's model postulates diminishing returns to scale of labor and capital. In the long run growth is explained by technological development (Todaro & Smith, 2005).

### **(iv) Endogenous Growth Theory:**

This theory describes technological advancement as an endogenous factor. For growth, saving and investment in physical capital are integral. But economy needs to invest in human capital. Human capital is formed by education, work experience and training. Human capital in everyday language is the skilled and efficient labor force. Skilled and efficient labor force can operate the physical capital such as machineries, tools and equipment properly. Labor, if skilled, can generate new ideas, do more research, and find out new techniques to production. So, investment in human capital paves the way for technological development. Then growth occurs due to human capital formation embedded with new technology (Todaro & Smith, 2005).

### **2.10 Effectiveness of PPP Approach for National Development:**

It is difficult to evaluate the inclusive impact of PPP on the economic growth & overall development of an economy. However, it is expected that a private-public partnership Program can support to increase net investment in a particular industry and can lead toward better growth in a desired sector, yet the end result depends on other factors - specially the accounted opportunity costs. Public-private partnership permits large-scale government projects, such as: Roads, Bridges, or Hospitals, to be done with private finance & expertise. Some researchers found that PPP partnerships bring better result if private sector's technology based innovation combined with public sector incentives to perform Projects on schedule & budget. Yet, risks for private enterprise in partnership projects include frequent cost overruns, technical errors, and all challenges to meet required quality standards.

PPP has been recommended by the United Nations as an instrument for achieving Sustainable Development Goals (UN Report, 2021). Nannan Wang & Minxun Ma (2020) discussed on a perceived gap, and attempted to make up those gaps to better apprehend the connection between PPP and sustainable development by appraising sustainability-oriented PPP studies. The concept and phases of sustainability-oriented PPP are analyzed in their study. They have demonstrated the association of increasing popularity of sustainability oriented PPP studies with the strategies of the important global players in PPP, along with suggestions for Research gaps and upcoming research trends.

Z. Ali, S. Irfan, & Y. Salman (2020) discussed effectiveness of PPP in their study and Basically Examined three areas to build consensus on PPP effectiveness theories:

- a) Definition of the effectiveness of PPP.
- b) Methods for measuring the effectiveness of PPPs, and
- c) Theories to explain PPP effectiveness.

The study demonstrated that the efficiency of PPPs is not adequately explained in the literature or in textbook descriptions. Besides there is no unanimity on what should be counted as an effective PPP. The majority of academics merely concentrated on identifying characteristics that contradict with actual practices in the PPP sector. On the academic grounds - theories of governance are referred to explain in most of the cases. The authors have suggested 6 wide ranging categories of factors to measure and understand PPP effectiveness:

**i. Institutional Factors:**

Example: Good Governance, Accountability, Mutual Trust etc.

**ii. Economic, Financial, and Technical factors:**

Example: Transaction Cost Economics (TCE), Value for Money, Risk Management, and Affordability of the end-users etc.

**iii. Social and Relational Factors:**

Example: Networks and Alliances, Multi-actor complexity, managing partnership, effective communication, alignment of stakeholders, Conflict & dispute Management in partnership, Cooperation and Competitive role of non-state actors, Collaboration and Co-productive Activities, Political Complexity etc.

**iv. Legal and Regulatory Factors :**

Example: PPP legal framework

**v. Region-Specific Factors:**

Example: Geographic and regional specificities, For an example:

PPPs in Europe need to maintain European Union's standards of effectiveness etc.



**vi. Leadership Factors:**

Example: Strong leadership style, Manager's role in re-negotiation etc.

Economic growth is in fact driven by investment and escalations in productive output, making it possible for individual workers to claim a higher value for their labor and to manage a higher standard of living. Partnerships between private entities and the government provide benefits to both parties. Private-sector induced technology and innovation, for example, can help deliver better public services through improved operational efficiency. Some analysts argued that by diverting resources (money, labor, land) from market-forces to politically driven ends, sometimes PPPs somewhat damages growth. Proponents say that the effective provision for public goods as well as services, for example: roads, health and education sector, encourage economic growth.

In that connection, critics of public-private partnership alliances said that public goods could be delivered much more effectively by merely the private sector. Important points to note is that, crowding-out effect of public distortions in the economy especially in the capital markets can be a valid reason behind inefficiency in delivery. Although PPP is a well performing method comparative to other government programs, is still diverts resources from private market-based decisions that are directed toward its most efficiently productive consequences. The private sectors incentivize the market to produce things that benefit the overall society, even if there may be some economic cost involved at the beginning.

*L. Jasiukevicius , A. Vasiliauskaite* (2013) analyzing the growth in quantity & volume of PPP concern in the European Union comments that , In terms of financing PPP initiatives will arise Due to lack of public sector funds for implementing projects in standard of excellence and scale. Still during the economic downturn, PPP markets in Europe have dropped significantly and affect the GDP growth beyond the predictions they have considered. Flourishing of PPP actually played a substantial role in the EU economy. The authors showed a connection between GDP growth and PPP's market development with regards to the European Union. The PPP market development showed a trend to move with the fluctuations of GDP growth in the course of the last 20 years; though - country condition were dissimilar for each country in EU. Still - Belgium, Ireland, France and the United Kingdom (UK) have described with a strong or medium correlations between growth of GDP

and PPP market development. They have also found a statistically significant & stronger correlation of GDP growth corresponding to the number of PPP ventures than with the expenses on PPPs for the top-10 countries. Owing to having conditionally insignificant correlations in most of the countries the authors have recommended to handle these differences with thoughtfulness.

Among practitioners the benefits of PPPs is well recognized nowadays. The major justification for PPPs is that they can improve service delivery efficiency. (World Bank 2014). Most of the economists and practitioners thought that, the central benefits of PPPs are maximizing efficiency improvements. PPPs' effects on employment and poverty eradication have dominated debates of the post-2015 development agenda discussion. Still, the discussions in the literature are not that strong in favor of traditional procurement method - as it is supposed to be more related with the infrastructure services delivery instead of the procurement procedures (again the debate is on : traditional procurement Vs. PPPs).

The academic and empirical literature on the economic effects of PPPs is actually quite a few. Most of the indication is based on weak and untrustworthy proof and case studies, most of those are discussing on the contrast of before and after without a clear structure & proper data support. Actually, there is no analysis effort seen that methodically investigated the effect of PPP on the economy.

In those early days of PPP few rigorous analysis were done empirically on the topics of private sector participation (PPI) in Infrastructure mostly known as privatizations (Galal et al. 1994; Newbery and Pollitt, 1997; Jones, Jammal & Gokgur, 1998; Pollitt and Domah, 2000) where the authors constructed hypothetical counterfactuals to place ownership changes on those post-privatization performance shifts that are undeniably caused by the ownership change (Birdsall and Nellis). In most of the cases the study results cannot be generalized since PPP are considered as single options there and not considered the differentiation among the types of participation of private parties and their impacts on the service delivery.

The argument regarding the effectiveness of PPP as a growth tool to attain desired development objectives was recharged by the development discourses on the post-2015

development agenda. The sustainable development goals were set to stimulate PPP and civil society partnerships to share knowledge, expertise & resources in the development projects.

It was widely believed that, the PPP investments need to boost up considerably to serve the development agenda effectively. And lately PPP is considered as effective instrument on infrastructure development projects in developing countries. Anyway, in the contemporary literature the idea of infrastructure was defined with a wide-ranging description from substructure to mega-structures.

*Agenieszka Jachowicz (2016)* discussed that, PPP are tools for implementing public projects - that in comparison with traditional methods could appear to be more effective. In order to become a successful PPP many conditions and requirements need to be fulfilled, which should be reflecting the local/regional government strategy for development in line with the needs of the local people. They have summarized the situation regarding public projects in efficiency aspects to describe the development of PPP and its particular characteristics in the context of an European country namely: Poland. Factors influencing the completion of PPP projects are identified in this study, which includes: Management skills, access to technology and capital capacity. Effectiveness is judged on how public and private projects maintain the ratio of minimizing the use of resources in achieving a specific result and maximizing the effective use of these resources based on economic calculations.

### **2.11 Effectiveness of PPP as a tool for green growth in Bangladesh:**

*Nasiruddin & Hamidizzaman (2013)* recommended that in the cases of green management PPP need to be designed with co-management approach encompassing the natural protection & conservation issues, co-management agreement based administration with due flexibility of adjustment & modification. A study regarding 'PPP & Natural Resources Management Procedure' validated a guideline to develop the socio-economic position and ensure encouraging results without damaging the environment. This study indicated effectiveness of the PPP as a flourishing approach in Natural Resources Management, as based on evidence public sector has failed in terms of its incompetence as well ineffectiveness owing to lack of

abilities, expertise, workforces, substantial resources and widespread corruption that in conclusion invigorated the government to announce the PPP approach in their strategy. It has also manifested in this study that these challenges are not likely to overcome without the active involvement of all the stakeholders is ensured.

## **2.12 Prospects of PPPs in attaining the Agenda 2030 for Sustainable Development (SDG):**

Many a recent studies have focused on the issues of growth & development through PPP, One of the United Nations Department of Social Affairs (UN DESA) working papers titled “PPPs and the 2030 Agenda for Sustainable Development: Fit for Purpose?”, has made efforts to focus on these issues to widely discuss the current and forthcoming prospect of PPPs in support of achieving the ‘Agenda 2030 for Sustainable Development’, particularly in the areas of infrastructure ventures. An UN DESA study stresses that, a developing country need to have adequate institutional capacity to design, implement, and evaluate PPP projects to use them as a tool for development financing with special regards to key economic infrastructure projects. This paper revealed the fact that - since private finance is providing just a minor part of the comprehensive investment for infrastructure needs in the developing countries , PPPs became unsuccessful to deliver desired value for money in many a case - in spite of the recent growth in the private sector’s contribution in infrastructure Projects. A good number of the recent research results suggested that, PPPs is generally suitable for economic infrastructure for example: transport and electricity, due to having a consistent and measurable demand along with service quality impacting the operational cost positively.

*H. Yurdakul & R. Kamasak* (2021), presented that PPP model has got ever more popular in recent years as an effective instrument for public infrastructure financing. PPP brings a bunch of benefits for developing countries, for example: reducing financial load of costly infrastructure investments, ensuring good quality of public services with increased operational efficiency by transferring knowhow from the private sector etc. They claim that

since effective implementations depend on a few other other conditions, these benefits are not guaranteed for every PPP project. They have reviewed the different features of PPPs exhaustively and scrutinize the factors plays vital roles in favor of the success of PPP projects.

### **2.13 Consequences of corruption in Public- Private Partnership & prevention:**

Michele R et al. (2018) discussed on the Effects of corruption on Public- Private Partnership Contracts and justify the Consequences to establish a ‘Zero-tolerance Approach’ for PPP engagements. The major legal consequences of a corruption incident on PPP agreements are examined in this paper by the authors. As they studied the traditional research on the topics of corruption in PPP - it revealed that, these investigations mainly concentrated on the investigation of prevention against corruption. In recent reports the writers found that corruption charges have detrimental effects on infrastructure development, particularly on the market for public-private partnerships. The article makes the case that annulling these contracts as a legal remedy has considerable financial implications for society and economic progress in the majority of Latin American and the Caribbean (LAC) nations due to the economic and legal discriminations of the contracts. In that connection, some of the nations in the region have encouraged legislative reforms of their legal and regulatory structures. From these understandings, this article outlines its key aspects, the difficulties encountered, as well as substitute of the reform options and the guiding principles. This study specifically emphasizes the need to create instruments that discipline the corruption while ensuring the project's continuation, the business openings of stakeholders unaffiliated with the unlawful activity, and the general public interest of the overall society.

### **Literature based over view of PPP practice in Bangladesh:**

#### **2.14 An overview of the PPP Projects in Bangladesh:**

While accelerating with investments in the infrastructure Projects, Government was trying to set a good policy framework, which is consistent and can bring confidence for the players in

the private sector with motivation to get interested in infrastructure projects investments; at the same time it ensure proper regulatory controls through transparency, accountability and fair competition. Accordingly infrastructure projects in Bangladesh can widely be implemented in PPP approach - which is a recent trend in the developing world.

Many LDCs and developing countries are incapable to finance the multifaceted and manifold infrastructural development undertakings, like: rail, highway, port, healthcare and industry because of massive amount of investment need. Government of Countries like Bangladesh often cannot organize and provision high interest based loans from foreign sources, neither Foreign Direct Investment (FDI) nor official Development Assistance (ODA). PPP is an alternative method for implementing mega project for development of the country.

#### **2.14.1 Broad Objectives of PPPs in Bangladesh:**

For Bangladesh PPP is not a new thing. Bangladesh Government had involved in a number of PPP deals earlier in mid-90s on an experimental basis. A policy framework was introduced in the year 1996 for PPPs with the intention to allow private sector partnerships in power sector which was fully in government's hand earlier. Through this policy Bangladesh got its first success case in PPPs. With assistance from the Asian Development Bank (ADB) and the World Bank – two mentionable power projects (the 450MW Meghnaghat and 360MW Haripur power plants) were inaugurated in 2001. These trends of success are still going on in the power sector; currently two large projects of 2000MW – 2500MW capacity are in implementation phase.

Government of Bangladesh announced the Private Sector Infrastructure Guidelines in 2004 to bring more success cases in new sectors of infrastructure other than power generation. It was the starting point of the PPP programs in Bangladesh. Though, the overall outcome in this tenure was somewhat uncertain, only few of the projects are coming to an end. Then reviewing these PPP programs were felt essential to align the Government's vision and agenda of development.

Government of Bangladesh declared its 6th Five-Year in 2010, with a vision to progress on the growth trajectory to excel the country towards Middle-Income Country status by 2021 with all its prosperities. This Plan emphasizes on the boosting of investment in infrastructure for around 2% - 6% of GDP by utilizing PPP as a key tool to bridge the funding gap in infrastructure projects. PPPs can be an effective & alternative procurement approach for Bangladesh to address the service delivery issues with regards to social and economic infrastructure to enable private sector engagement in public projects and unlock all the growth potential and prosperity of the country. (The World Bank, 2022)

The PPP Policy 2010 presented a major reform along with the tax incentives applicable for PPP Projects, which were intended to build a sustainable PPP program for various sectors of the country. All these reorganizations were reinforced by provisioning of more than US\$ 300 million for PPPs in the Budget of the fiscal year 2009/10 as a symbol of the government's commitment in favor of the development of PPP practices in the country. A viability gap fund was also created by the ministry of finance to cover up to 30% of the capital expenses for PPP projects.

These recent reforms have been greatly supported by the PPP Office, which the Prime Minister's Office established and launched in 2012. With backing from the World Bank's IPFF project and the ADB's Technical Assistance Program – from the small beginning in the year 2012 the PPP Office is now in a position to take the lead in developing PPP Projects in Bangladesh. By now the PPP Authority has been supporting design and implementation of more than 70 PPP projects of capital amounting over US\$13 billion. It has speed up the pipeline of more than 20 projects in the electricity sector. Then a new era has begun in Bangladesh for the booming of PPP approach with regards to managing development projects

#### **.2.14.2 An Orientation to the PPP Authority of Bangladesh:**

In September 2010, the Office for Public-Private Partnership was founded to serve as a facilitator for handling PPP ventures proactively. The PPP Office works with the line ministries to find projects, arrange tender, create market and fund PPP initiatives. PPP Office

offers a gateway for professional management of PPP projects for the prospective partners, lenders and investors.

### **Financing schemes for PPP Projects in Bangladesh:**

A variety of programs have been set up by the Public Private Partnership Authority of Bangladesh to address the financial requirements of PPP projects:

A dedicated PPP Unit has been established and assigned by the Ministry of Finance's Finance Division to monitor the PPP projects' financial feasibility and approve fund provisions for its development and financing. The PPP Technical Assistance Fund, Viability Gap Fund, and Bangladesh Infrastructure Finance Fund are three important funds those are active as catalytic fund under the control of the MOF PPP Unit. For the government, the PPP Unit manages any potential exposure to contingent liabilities that the government may feel appropriate to support in PPP project funding as well as the budgetary consequences of prospective PPP initiatives. A PPP Technical Assistance Fund has been designed as a support account to provide approved PPP projects early stage project development related finance assistance. Projects that the PPP Unit finds to be economically significant to the public interest but may not be entirely financially viable on a commercial basis may be eligible for additional government support through the Viability Gap Fund, or VGF. The Bangladesh Infrastructure Finance Fund Limited (BIFFL) was founded by the Ministry of Finance to offer long-term financing services for infrastructure projects in local currency.

According to the PPP Office there are 79 PPP based CCEA approved ongoing projects under the Public Private Partnership Program which are of different scaled for various sectors namely: IT, Health, Transport, Shipping, Civil Accommodation, Social infrastructure, Industry Urbanization, Tourism , Education and Power Sector.

*(Ref: Public Private Partnership Authority, <http://www.pppo.gov.bd>; Cited on 12 January 2021)*

### **2.14.3 Bangladesh Perspectives of PPP Project Management**

Public-Private-Partnership is comparatively a new thought for Bangladesh. In the course of its early forty years, the country has gone through all-out drive of nationalization ending with



rigorous privatization. After the power shift the new government with believes in “Changes” or “*Din Bodol*”, endeavored for further move with a mixed model called Public-Private-Partnership. Reviewing the near history we find that, policy framework for PPPs was announced in Bangladesh in the mid of 1990’s along with the Private Sector Power Generation Policy (PSPGP)’1996.

It has been manifested as the beginning on the avenue of success in PPP based projects for power sector, namely:450MW Meghnaghat and 360MW Haripur Power Projects.Then the PSIG 2004 (Private Sector Infrastructure Guidelines’ 2004) came in the scene. PPP Policy 2010 was introduced & replaced PSIG 2004 while updating the policy framework with the references from international best practice for improving the application of PPP approach in a broader aspect to build a transparent regulatory framework and policy space for the country.

Back in 2009, the Government of Bangladesh manifested a reviewed PPP program in the 2009/10 Budget Session, and announced PPP Policy 2010 as a fresh rule. PPP is not a new thing for Bangladesh. In fact earlier in mid-1990s, the Government of Bangladesh tried a number of standalone PPP engagements. Nevertheless, in the year 1996 a policy framework was presented for the first time to facilitate PPP corporations in power sector projects. By dint of this policy, Bangladesh got inertial accomplishment in PPPs. In the year 2001 – agreement were signed for two mentionable PPP projects in power generation sector, namely: the 450MW Meghnaghat and 360MW Haripur power plants. These stories of success were sustained in implementing Power Projects up to 3000 MW.

Being motivated by the attainment earlier the Government of Bangladesh comes up with a Private Sector Infrastructure Guidelines in 2004. It can be marked as the beginning of the program-based PPP ventures in Bangladesh. Though, the overall results were not that effective, since only a few of the projects were completed. So, there was a pressure for revising the PPP scheme - so that it could align the Government’s long term vision for growth and prosperity.

In the year 2010, the 6th Five-Year Plan was devised, delineating the Government’s vision to impact the country’s movement with regards to economic growth to ensure enhanced prosperity through attaining Middle-Income Country status by 2021. This Plan stressed on

the boost up of investment for infrastructure from approximately two to six % of GDP, considering PPP as a key tool to address the prevailing infrastructure gap. To support the private sector business by unlocking the massive growth prospective - PPP can be utilized to supplement the traditional procurement procedure to deliver better public services.

An scanning of the PPP related legal framework found that - to implement PPP Projects in Bangladesh there are a number of Policy and Rules need to be coordinated, which are really diversified in terms of subject matter and is much tough to align. These eight policies there are:

- Public Sector Power Generation Policy, 1996 (PSPGP 1996)
- Public Sector Infrastructure Guidelines, 2014 (PSIG 2004)
- PPP Policy 2010 (regarding Policy & Strategy for PPP)
- Bangladesh High-Tech Park Authority Act, 2010
- Bangladesh Public-Private Partnership Act, 2015
- Bangladesh Private Economic Zones Policy, 2015
- Private sector LNG Terminal Construction, Import & Supply Policy,2019
- Private Sector Power Transmission Policy

#### **2.14.4 Recent PPP Trends in Bangladesh (2006-2022) in the context of globalization:**

According to the contemporary literature, the recent socioeconomic success story of Bangladesh has been well recognized in home & abroad. About the social part, Bangladesh has made remarkable movements to achieve a number of the Millennium Development Goals (MDG), including: eradication of poverty, income distribution, gender, education, and health. More importantly, despite the global recession and the crisis with the COVID pandemic, it is among the few nations to have shown constant GDP growth rate, averaging above 7% for the last five years. In order to accomplish its urgent investment objective of bridging critical infrastructure gaps, the government has quite logically chosen the Public Private Partnership (PPP) model as one of the major strategic tools.

Actually, a thriving and active private sector is what has allowed Bangladesh to achieve its acclaimed economic success. For almost 20 years, the public and private sectors have

collaborated to execute infrastructure related projects through a variety of avenues and modalities. Consequently, it is necessary to leverage this strength in order to create a long-lasting and mutually beneficial cooperation between the public and private sectors that expedite the growth of the nation. The government looked for opportunities that help the private sector through creating a positive revenue stream through the PPP program in order to provide its citizens with greatly needed public infrastructure services and to fulfill its commitment to meet its social obligations and development requirements.

Although there were ad-hoc situations, insufficient rules, and regulations, weak institutional arrangements for implement, manage and monitoring PPP projects, Bangladesh has taken up PPP projects in the energy sectors, Industrialization, airports, bridges, and road sectors since the last decade. Considering the major limitations with PPP projects all projects are not feasible using the PPP model in Bangladesh because of a variety of factors, including: political- legal and commercial viability. In order to fit the projects into the proper PPP models, the project types should be analyzed. According to latest data of Bangladesh for the year 2022-23, the PPP Authority now has 77 projects in the pipeline with an estimated investment value of US\$37.88 billion - that are in various phases of development and delivery. 17 Projects Contract has already been signed with an anticipated Investment of USD 4.5 B. In the previous two years (2020–21), the portfolio of PPP investments in Bangladesh is expected to expand by 40% - totaling US\$ 35.42 billion. A significant number of PPP-based megaprojects that are strategically significant for the growth of the country are being implemented at the national level by the PPP Authority (PPPA). A few of the noteworthy most recent PPP initiatives are listed in the *Appendix II*.

### **Contemporary Innovation in PPP Practice of Bangladesh:**

The lease contract practiced by BEPZA was discussed in earlier ‘Chapter Five’ - which can be marked as a successful innovation in the PPP context of Bangladesh. This project was aimed at providing a specialized area to the potential investors with world class business environment, which has added immense values to the export industry of the country, and also created huge employment opportunities to bring growth for the economy.

## **2.15 Research Gaps discovered by the Literature Review Study:**

This study has identified a substantial gap by reviewing the theoretical & empirical literature on the problem areas of the current research about effectiveness of PPP. Despite a lot on research on PPP, no particular effort has been seen to make the PPP approach more effective to achieve higher / faster growth for attaining the desired national development. It is found that, some PPP Success Factors and fail factors are important but somehow overlooked in the regular literature discussion - which should be studied and reported properly. There are some key issues & challenges of PPP approach in the context of the developing countries - which need to be well addressed in the practices of now-a-days.

The advantages & effectiveness of PPP projects are discussed there but the questions of the PPP business model's effectiveness for implementing development Projects in Bangladesh remained unanswered, so an investigation of major issues & challenges with regards to PPP practices need to be in place to get a deep understanding of the appropriateness of PPP Approach in the context of Bangladesh with regards to its expected development pace. So that, a befitting PPP based model for developing country like Bangladesh can be developed.

By now considerable knowledge has been gathered on effectiveness of PPP projects, but it is yet to integrate in a comprehensive matrix of empirical justifications. So, this literature review study identifies a remaining gap in the investigation of PPP approach's effectiveness for the fast track growth instrument of the country. As Bangladesh want to be graduated from under developed countries by 2026, & would like to cross another development milestone by 2030 towards agenda 2041 – it needs a timely way out to gain efficiency & effectiveness with regards to PPP model based development Projects. Since there is no strategic direction in the contemporary literatures - Bangladesh need to device a research backed PPP strategy. In the existing literature there is very few research and analysis found about the impact of corruption in PPP on the expected development. So based on the above discussion it can be concluded that there is a gap identified in PPP related literature & research, which is giving a clear indication to lead the study to explore the strategic route of effective PPP practices in favor of the faster growth of Bangladesh.



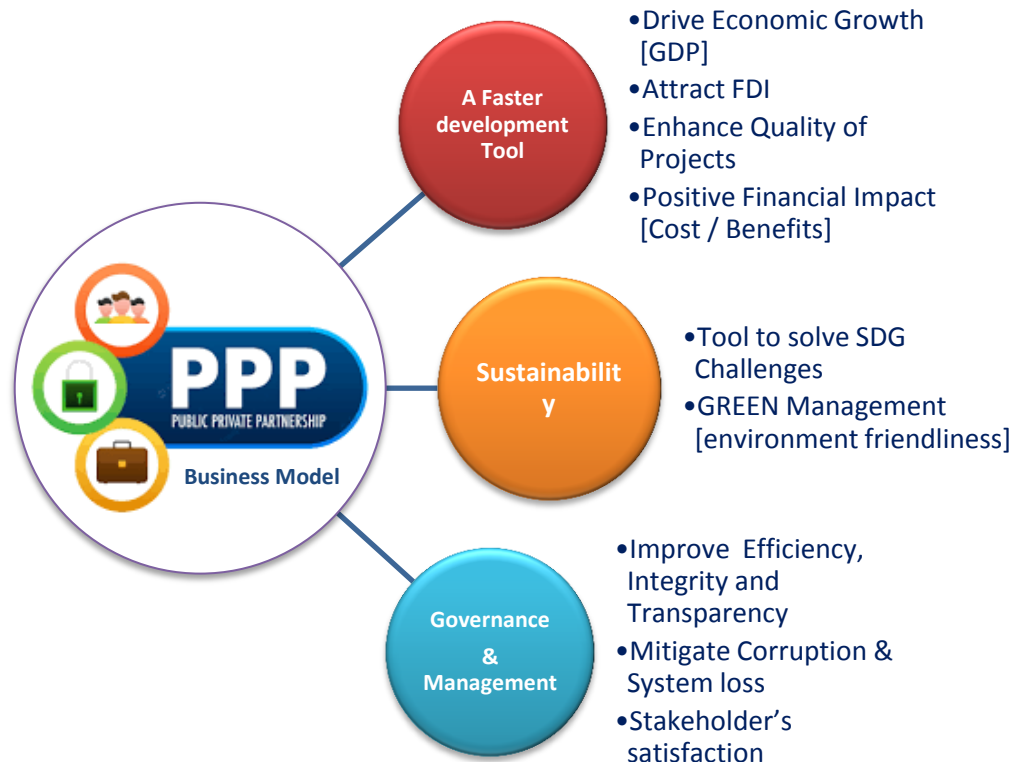
## CHAPTER: THREE

### CONCEPT BUILDING

Based on the Literatures reviewed earlier, this chapter discussed about the theoretical framework and conception issues to build a useful concept on PPP business model.

#### 3.1 Conceptualization of PPP Business Model:

To build concept for an effective PPP Business model the author aligned few basic concepts from the literature review. PPP can be perceived as an effective development tool for a developing country like Bangladesh, which will also help achieve the Governance & Management objectives along with solving the SDG challenges which has been depicted in **figure 5**.



**Figure5:** Conceptual thoughts for PPP Business Model

As discussed in the literature review part in Chapter 2, the conceptual structure for an organization's core plans to derive revenue / economic benefit to support the business viability

- which is consist of its purpose, goals and actions plan. Since, there are various sectors and many types of projects arising in PPP practices over time, continuous transformation & evaluation process are influencing the PPP Businesses Models. While a business model is considered for deploying in a particular business partnership arrangement - its purpose, goals and actions plan should be concerted & reflected in the model for that specific partnership approach. The PPP business model can be analyzed with three core components. Namely: the revenue related components represented by the economic growth, rise in FDI, Quality enhancement of Projects and positive financial movements etc. is expected to act as faster development tool. Sustainability components will be acting as a tool to solve SDG Challenges. Governance & Management component will deal Efficiency, Integrity and Transparency improvement; Corruption & System loss mitigation, and gaining of stakeholder's satisfaction etc.

### **3.2 Discussion on Existing Models used to explain PPP Approach:**

#### **3.2.1 Public–Private Partnership (PPP) Value Chain Framework Models:**

*Ruiters and Matji* (2016) presented Public-Private Partnership (PPP) framework models for financing infrastructure for water services at local government (municipalities) vicinity of South Africa. They have discussed a framework for three identified models of PPP, namely: State Owned, Hybrid model and Private sector models & also distinguished the features of these three models with regards to developing required infrastructure for water services in a number of selected towns in South Africa.

For the 'State model' they have shown value chain of the water services as 100% government funded and fully owned infrastructure. According to their study findings: "Government is a key player in infrastructure investment, and inefficiencies within the public expenditure management systems are found mostly detrimental, for example: there are noteworthy complications prevails in smooth disbursements of public infrastructure budget."

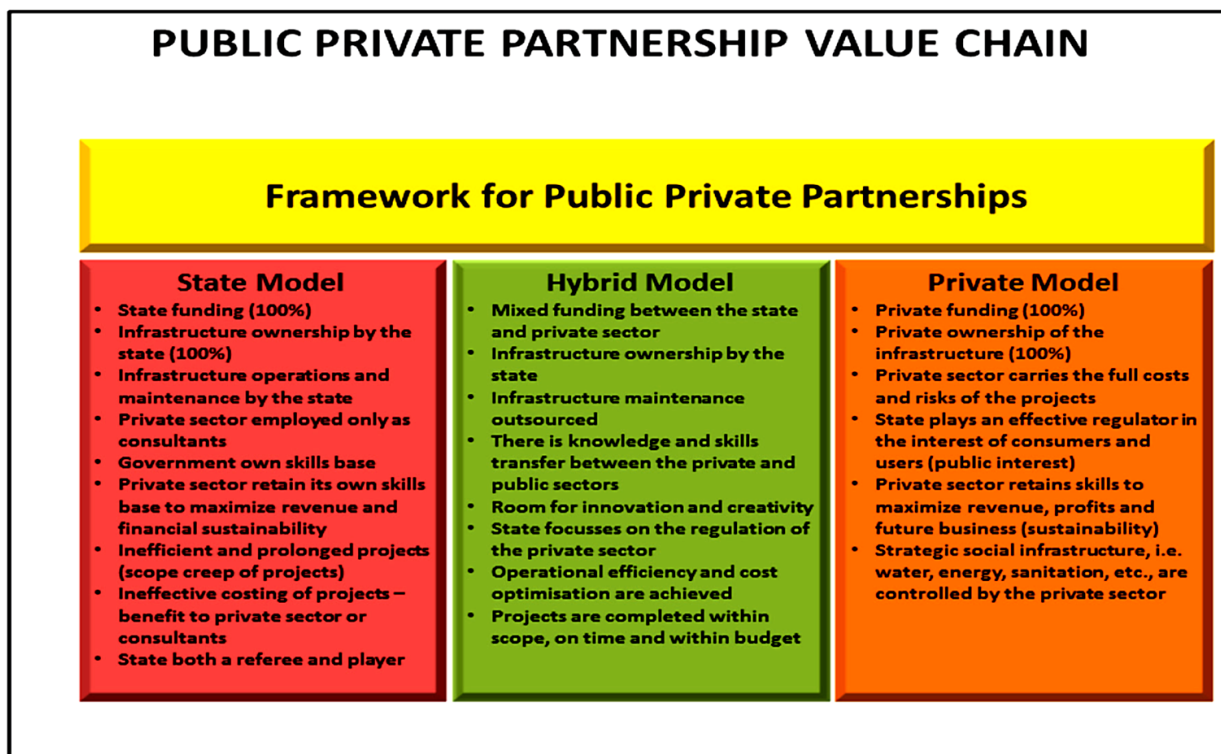
For the 'Private model' the authors have presented it keeping in the mid-tire of the value chain for water services, for example - cooperation between government and the private sector.

For explaining the engagements of the private sector in the water infrastructure development projects implementation activities – this model is denoted especially. According to them capital markets particularly the local bond markets are considered for funding water infrastructures. Prominent institutional investors (namely: Pension Funds, Insurance Companies, etc.) are considered as regular sources for Projects finance - since liabilities can be well-matched with the extended terms with regards to water infrastructure projects.

For the 'Hybrid model' the writers placed 'water services value chain' in the middle of two other models – which is in-between government and the private sector. An effective framework was established to govern this sort programs to include private sector in water project management.

Engagement of the private sector is not unintended here but well planned precondition for project financing in terms of Political Commitment, Regulation, Appraisal, Estimation, Capability, Prioritizing, Risk Handling, and Standardization etc. The models are discussed in Figure: 6.

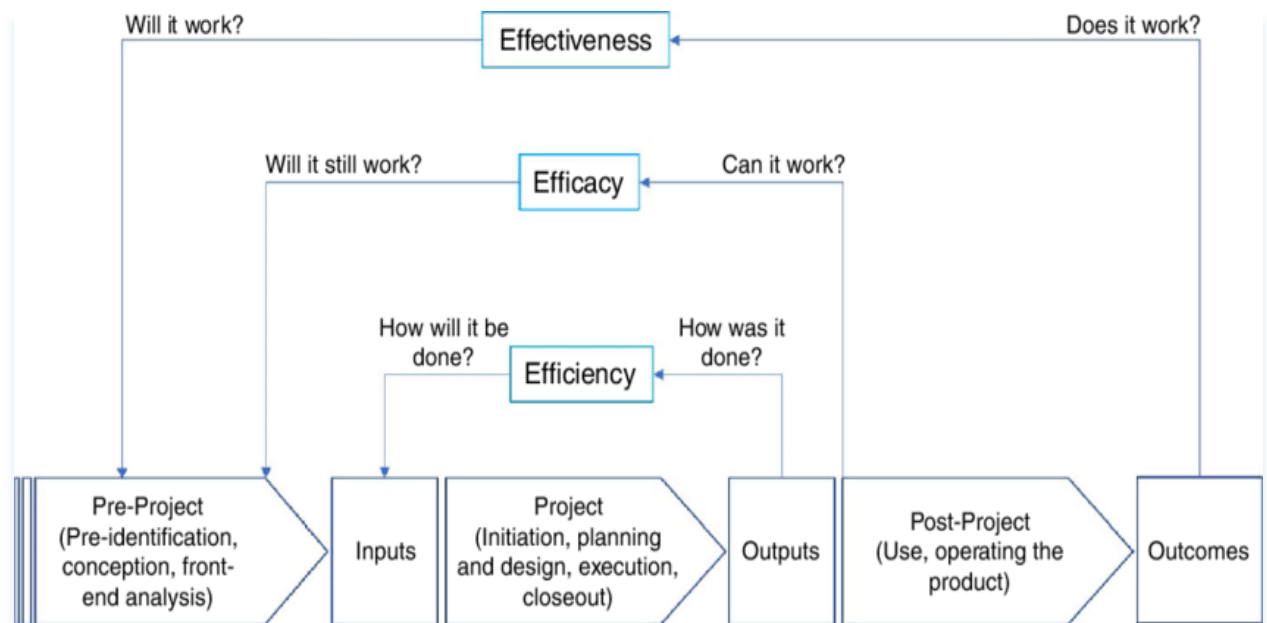




*Figure 6: Public-private partnership value chain framework and models for Service delivery*

### 3.2.2. Model reflecting Efficiency, Efficacy and Effectiveness:

Zidane, Y.J.T. & Olsson N.O.E (2017) focused on the way it explained the thoughts of efficiency, effectiveness and efficacy in the literature regarding Project Management. As per this model project efficiency is the function derived in an acceptable method done with regards to contracted scope, cost, time and quality, where ‘quality’ is not an obligation but frequently is a by-product of the other three factors (scope, time and cost). Efficiency is more of matching around the outputs of the project with its inputs (*Figure 7*). The questions important here to be answered prior to the initiation of the project is: ‘How’ it will be done versus and, ‘How’ it was done finally, which is discussed as follows:



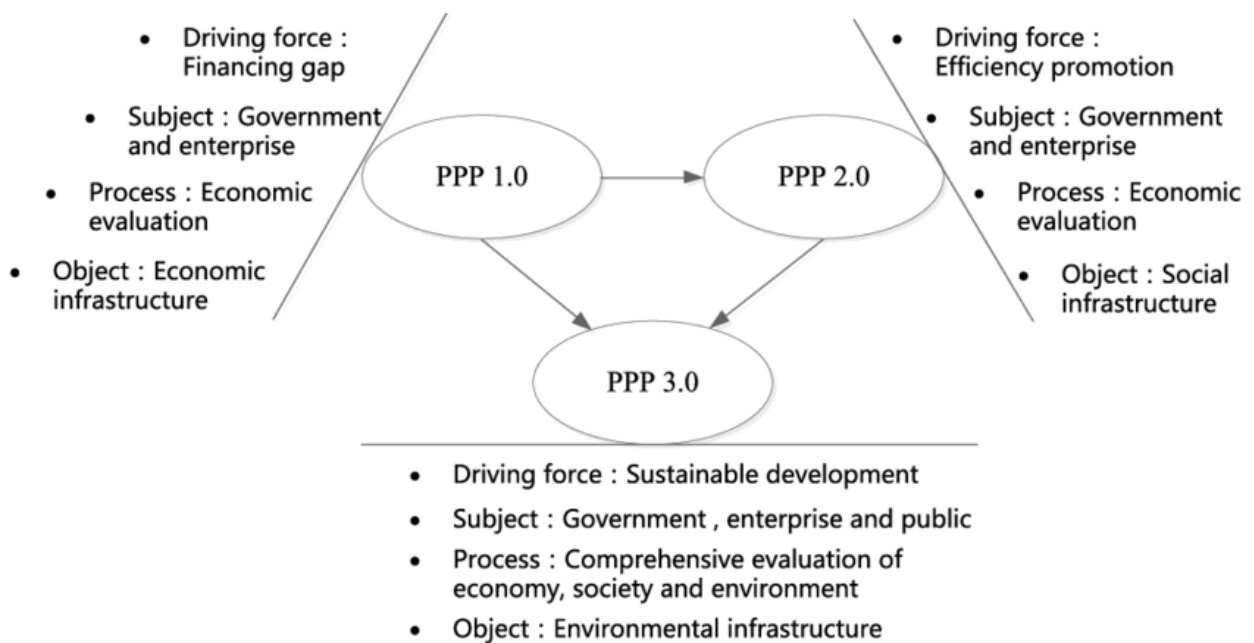
**Figure 7: Model reflecting efficiency, efficacy and effectiveness**

[Zidane, Y.J.T. & Olsson N.O.E (2017)]

### 3.2.3. Sustainability-oriented PPP framework to explain the development:

Xiong and Zhu (2017) offered the theory called PPP 3.0 by alienating PPP in three stages - namely: PPP1.0, PPP2.0, and PPP3.0. Main objective of PPP1.0 is about financing to bridge the gaps in the funding issues of public infrastructure projects by inviting private investment. PPP2.0 purposes to gain efficiency of the public infrastructure and delivery of services with regards to enhance the overall quality by engaging professional expertise from the private sector. The target of PPP3.0 is to enable sustainability related thoughts and encourage performance appraisal and practices of value orientation over a holistic system that accommodates the Economic - Social - Environmental issues while assessing the performance. These three stages of PPP are not linear or unidirectional - rather, they are coexisting and evolving in both the orders. According to them, in a conducive circumstance - PPP1.0 could straight progress into the PPP3.0 .This study is based on PPP3.0 theory and blends the four perspectives important for PPP - namely: Driving force, Subject, Process, and Object to build a conceptual framework for sustainability oriented PPP (**Figure- 8**).

Earlier studies explained PPP as a method of Project Funding and Management (Xiong et al. 2015). The said sustainability-oriented PPP framework stresses on PPP issues as a device for urban governance to achieve the sustainable development goals with regards to globalization and international financing scenarios. Although current PPP practices in China is yet to align the idea of sustainable development to be implanted in PPP projects. Nevertheless, PPP's global trend and PPP practices in China - showed that 'Sustainable Development' is an essential component as discussed in this PPP 3.0 framework.



**Figure 8: Sustainability-oriented PPP framework to explain the development**

*Source: Cheng, Wang, Xiong, Zhu, & Chen (2021)*

### 3.3. Comparison of the theories reviewed above:

Theories / Models:	Review Remarks:
PPP value chain framework and models for Service delivery	<ul style="list-style-type: none"> <li>• Not considering that Value chain partnerships are not power-neutral rather biased.</li> <li>• Firms placed at different segments of the value chain are diverse by commercial incentives &amp; motivations,</li> </ul>

	<ul style="list-style-type: none"> <li>Industry level platforms &amp; scales are essential to explain growth, but it is missing in this model.</li> </ul>
Model reflecting efficiency, efficacy and effectiveness	There is no performance evaluation framework (PEF) proposed based on efficiency, efficacy and effectiveness for PPP projects suitable for developing countries.
Sustainability-oriented PPP framework to explain the development	Ignored all other aspects of PPP management thoughts, for example: Political, Economic & Managerial Aspects. Represents merely typical Chinese Development Approach & trends.

After reviewing the aforementioned theories, it can be concluded that a befitting theory to explain the PPP's Effectiveness Framework for Development & Growth is now necessary.

### 3.3. PPP's Effectiveness Framework for Development & Growth:

Based on the literature and the perceived conceptual structure this study proposes a model to explore the effectiveness of PPP business model as a fast-track growth driver in national development. It will capitalize on all the active driving forces grounded on the assumptions & project reality – which will pass through the lances of Effectiveness. This process will recognize the rooms for improvement in PPP Practices and the major Issues & Challenges in PPP Implementation. Logic here is that, if PPP is not effective, for sure there is room for development with the model and if it is effective at a moderate scale will contribute for a better growth of the country. This model tried to cover all aspects of PPP Project Management in terms of evaluation, scale & being free from biasness of the tradition. There are a number of driving forces considered in this framework for four basic aspects: Promotion of Sustainable Development, Financial Impact, Achieve of Result and Gains of Management Skills; which are detailed in further thirty driving forces as listed below:

#### **Driving Forces Considered:**

##### **a) Promotion of Sustainable Development:**

- Economy (Economic Impact)
- Society (Social Development)
- Environment / Ecology ( Environmental Impact)

**b) Financial Impact:**

- Economic Growth, FDI
- Cost Saving
- Job Creation
- Poverty Elevation
- Addressing Financial Gap
- Public Benefit, Social Welfare
- Add values , VFM , Positive Financial Vitals
- Releasing Financial Burden
- Earning Revenue
- Build synergy
- Improve Infrastructure

**c) Achieving Result:**

- Success Factors /
- Fail factors
- Constraints Overcame
- Growth % Vs. asking rate
- Result Monitoring & Evaluation [Goals, Scope, Cost, Time and Quality]
- Improved Governance

**d) Management Skills Gains:**

- Build a Learning Curve & Efficiency Gain
- Experience based learning
- Improved Performance / operational efficiency
- KPI achieved
- Quality gained
- Maturity Gained
- Innovation brought
- Process Development
- Expansion & replication
- Building Trust & effective Partnership

**A few assumptions are considered for this Framework:**

It is assumed that all pertinent Driving forces in the PPP sector are active for Development. There are obtainable Motivations & Incentives available for both the public & private parties.

Inclusive & generalized approach of PPP management is supposed to be practice It is anticipated that policy preparedness is in place to support the PPP's Effectiveness Framework for Development & Growth.



Figure9: PPP's Effectiveness Framework for Development & Growth (Proposed by Author)

Driving forces related to Sustainable Development are covering the Economic, Social and Environmental Impacts. The Driving forces connected to Financial Impact will cover Economic Growth, FDI, Cost Saving, Poverty Elevation, minimizing Financial Gaps, Creation of Jobs, Public Benefit, Social Welfare, Add values in terms of VFM, Positive Financial movements, Releasing Financial Burden for the government, Earning of Revenue, Building of synergy and Improving the Infrastructure,

Driving forces associated with achieving result will deal with Success Factors and Fail factors, Constraints, Growth percentage against the asking rate, Result Monitoring & Evaluation in the light of the Goals – Scope - and Budget-Time and Quality and improvement of Governance.

The Driving forces linked with Management Skills will be active for building a Learning Curve & Gaining of Efficiency, Experience based knowledge, Improving of Performance and operational efficiency, achieving KPI, gaining Quality & Maturity, bringing Innovations, developing process, expansion & replication, building Trust & effective Partnership.

### **3.4 Case Studies on Selected Cases from Bangladesh:**

The interviewees were questioned to discuss about five selected case studies (*Mayor Hanif flyover project, Mongla -PowerPac EZ Limited, The Meghnaghat Power Project, Mongla (PowerPac EZ Limited) Economic Zone Project and BEPZA lease contracts Projects*) and shared their opinion related to the case studies. In the interviews along with the selected models, interviewees were asked about the models which can be used in particular sectors (Transportation sector, power and energy sector, Economic Infrastructure sector and the social and government infrastructure sector). The experts also asked regarding the effectiveness of various PPP models and about the sector's perspectives for the development of the country.

### **3.5 Case study on Mayor Hanif Flyover project (MMHF)**

The Mayor Mohammed Hanif Flyover (MMHF) is the largest road flyover in Bangladesh build in PPP Model. It was built for easy transportation and communication purposes for the 30 districts of the southern and south-western regions of Bangladesh. This flyover project was at first prescribed by the World Bank's based on a study finding of Dhaka City's traffic condition. Experts gave mixed opinions on this project but mostly described it to be unsuccessful in terms of time over run, scope deviations & management efficiencies; and also talked about failure of the project.

The Build-Own-Operate-Transfer (BOOT) model for this project was chosen under a concession contract. This Project suffered from a huge time overrun. The project agreement was signed on 21 June, 2005 and initially awarded for a period of 24 years. After project completion the flyover services & operations was finally inaugurated on 31 July, 2014. Due to land acquisition and fund arrangement difficulties, the construction was deferred for 5 years to start the construction and in 2010 the construction work started after the plan was redesigned and project scopes were redefined. In the changed design the length of the flyover extended from 8.4 kilometers to 11.8 kilometers and the private company responsible for project was reformed from M/s. Belhasa Ac-com and Associate limited to a local company called Orion Infrastructure Limited. According to some respondents the Feasibility study was defective; still the financial models positively played a vital role in favor of its success.

With reference to the leading projects records of the developed countries the Build-Operate-Transfer (BOT) model is the best option for projects ranging medium to large scale in transportation sector. In the case of Mayor Hanif Flyover project, the model selection was appropriate and apparently model selection process is a crucial point which should get substantial amount of importance.



**Figure 10: Mayor Hanif Flyover project at present (Photo)**

From the case study it can be concluded that, The Mayor Hanif flyover was an unsuccessful project owing to its faulty feasibility study which downsized the project return to be slower than expected. Their opinions also indicated that the BOT model is comparatively suit better than the BOOT model in the transportation sector of Bangladesh. And finally, the management contracts (O&M Contract) can be implemented to the existing facilities which need to be repaired and maintained for keeping up better services for the citizens.

#### **Challenges faced in implementation of MMHF Project:**

- Need to handle huge traffic on the existing Road during construction period.
- Implementation of ‘access control’ in an urban environment was much challenging.
- Due to Regulated right of way of the project road, management and repositioning of Underground and Overhead facilities were quiet cumbersome
- Devising and implementing of an operative toll policy in an urban environment for the first time is really tough.
- Maintenance and passageway regulation of the highway during the construction period was really difficult.



### **3.6 Case study on Mongla (PowerPac EZ Limited) PPP based Economic Zone Project:**

Mongla EZ is the very first PPP EZ in Bangladesh - located at Bagerhat District of the southern part of the country. The model follows in this Project is: Design, Build, Finance, Operate and Transfer (DBFOT), which is mainly based on a concession agreement between Bangladesh Economic Zones Authority (BEZA) & M/s. PowerPac Economic Zone Ltd. PowerPac Economic Zone Ltd. is a Joint Venture Company registered under the Companies Act, 1994 formed by PowerPac Holdings Ltd. and PowerPac Mutiara Keranigonj Power Plant Limited. Officially the developer of first PPP based Economic Zone is PowerPac and PPMKPPL JV. In this DBFOT model private enterprise usually finance, design, constructs and manages the infrastructure; then the difference is payment is paid by the administration. The PPP EZ developer agreement was signed on 25/02/2016 and the land handover formalities were completed on 20/03/2017.

In this PPP implementation model, EZs on government land was developed and operated by private developers being selected through a competitive bidding process. Bangladesh government aimed to develop and diversify exports and simultaneously tried to encourage domestic manufacturing for import substitute products, to create new jobs, and to pilot new policies and approaches (such as: in the aspects of customs, legal affairs , labor issues , and public-private partnership etc.) through this well-incentivized EZs scheme. This EZ was also being allowed for an efficient governance & regulation of enterprises, facilitation of better offsite infrastructure, and good environmental controls. This EZ was expected to bring enormous business opportunities, generate employment & growth in the potential sectors of the country. BEZA initiated PPP zones with this Mongla EZ Project for the first of its kind in Bangladesh, with the technical support from the World Bank Group under a project called Bangladesh Private Sector Development Support Project (PSDSP).

Based on the PPP agreement BEZA is working on a land of 205 Acres to build offsite infrastructure like: access roads, utility supplies (Power, Water, Gas & others). On the hand, in the meantime Five Companies have started their Projects to establish factories in the PowerPac EZ Limited, some of the companies are doing at their advance stage. Namely:

- PowerPac Mutiara Khulna Power Plant Limited (a HFO Based 100 MW Power Plant).
- PowerPac Petroleum Limited (a 100,000 M/T HFO Storage Facilities)
- PowerPac ASteel Mills Ltd ( Steel Fabrication Plant)
- Bashundhara Industrail Complex Ltd. (A Bag Manufacturing Plant)
- Uniliver Bangladesh Limited ( A FMCG Product Manufacturing Plant)

The model selection for this project (DBFOT) was certainly a good decision at that moment when we need to make a PPP EZ operationalize shortly, and till now it's a good model for the economic Infrastructure sector. According to the developer agreement the tenure of the agreement is for 50 years, PPEZ will pay 40 M \$ in favor of BEZA, will share 3% of the gross revenue and 5% of the net profit with BEZA. As per the terms PPEZ is bound to invest required amount of fund to start the development of earth filling, onsite Infrastructure & business activities within three years of the contract signing.

But, Due to some critical dependency on external agencies this Project is suffering from serious time overrun. Because of a civil writ petition at High Court Division regarding environment related issues the implementation of this PPP EZ got sucked at Environmental clearance stage. As the location of this Project is situated at a very sensitive point of the Sundarban - which is in the part of a UNESCO World Heritage; this project needed to complete a Strategic Impact Assessment (SEA) to clear its Environmental Impact Assessment (EIA) Report and other Initial Environmental Examination formalities. Actually these dependencies poses serious drawback on the success of this project.

According to the opinions of the experts, it can be said that the PowerPac EZ Project was unsuccessful project because of the faulty feasibility study which led the project ROI to be sluggish than expected, and sensitive concerns like environmental issues made the project vulnerable to be blocked. This project also couldn't meet the goals with regards to schedule, budget and revenue expectations. Besides - Design, Build, Finance, Operate and Transfer (DBFOT) was the appropriate selection for the project. The expert's opinions also pointed out that, appropriate model selection is much important for a project, still other factors including the quality feasibility study are also imperative for success of the project.

For Economic Infrastructure Sector DBFOT model is quiet new to be practiced in Bangladesh, as there is no earlier instance of implementation of this model it is not an easy task to compare with other models. There are good examples in the neighboring countries. It was discussed for an example that, "the Indian Ministry of Railways ("MoR") issued a model concession agreement for the development of railway projects on a DBFOT" model (World Bank Group, 2021). This model agreement was between the President of India represented by the MoR and a private company. In this case, the Private partner designs, builds, finances, owns and constructs the particular facility and also operates it for business during the concession period, afterwards the discount period the facility will usually be transferred to the authority. Design-build-finance-operate (DBFO) is another project delivery method much similar to BOOT but no mode for transfer of ownership is there. Besides, the contractor bears the financing risk for the whole the period of contract. But for a key public Infrastructure like Special economic Zone ownership transfer to the public party is very important.

**Challenges faced in implementation of PowerPac EZ Project:**

- Make the project commercially sustainable through a just fresh incubated model is highly challenging.
- Handling dependency with other government agencies is much difficult.

- Fault in feasibility study is very difficult & complex to correct during implementation stage.
- Marketing & demand creation of a PPP EZ on the front of a private partner is really challenging through promotional programs.

### **3.7 Case study on the Meghnaghat Power Project:**

Bases on a Power Purchase Contract - Bangladesh Power Development Board (PDB) buys the electricity from the private operators and pays the bills subject to the supply of electricity. Following this concept, this project was designed to construct and operation of a 450 MW, combined-cycle, gas-fired power station. As a Private partner Meghnaghat Power Limited (MPL) build, own, and operated the power plant in compliance of an Agreement between the Government and MPL, followed by a Power Purchase Agreement (PPA) with Bangladesh Power Development Board (BPDB). This power plant project is situated in southeast part of Dhaka, on the northern bank of the Meghna River at Meghnaghat, Bangladesh. The commercial Operations at the plant began on 01 November 2002.

The experts marked this project as a successful one and all other projects in power and energy sector under the PPP context are manifested as comparatively more successful than other government projects. An expert from the government commented that, “This IPP (Independent Power Producer) step is a good initiative of Bangladesh government that increased the quality of smooth electricity supply to the people living in remote corners of the country. Though the coverer age is not full and the load-shedding (power cut-off) is still a problem, the power supply situation improved a lot by this initiatives. The ROI was also better than before whereas government controlled projects were usually facing financial losses. Based on the discussion above Meghnaghat PPP based Power Plant Project can be called as a successful initiative in power and energy sector.”



**Figure 11: Meghnaghat Power Project at present (Photo)**

#### **4.2.4.1 Challenges faced in implementation of Meghnaghat Power Project:**

- Making success of a project for the first of its kind with expectations of quick result in a tight situation is really challenging.
- Trial of a model in a new sector is highly prone to errors.
- Managing quality of power (in terms of load shedding & power cuts) is not really easy.

### **3.8 Case study on BEPZA lease out contracts in Export Processing Zones:**

Bangladesh Export Processing Zone Authority (BEPZA) usually arranges lease contracts for designated areas in its territory with local and foreign investors to boost up exports of the country. It has eight dedicated operating area all over the country following this model. The leasing concept of BEPZA was an innovative one in the developing countries and successfully attracting investors since the beginning of the first EPZ in Chittagong in the year 1983. The primary objective of BEPZA was to provide a specialized area with world class business environment for the potential investors.

According to one of the responsible Officials speech from the PPP Authority - Bangladesh, “When financial return or profit from the government controlled project is uncertain, it is better option to use a lease model in that project. There will be a good revenue stream and the project will also click successful as the private partners will be motivated to effort their best to improve the associated facilities for generating best service out of it.”

### **Challenges faced in implementation of BEPZA lease out contracts:**

- Implementing innovation in a new segment or Project practice was challenging.
- Throwing a new concept to the investors is not that easy in practical.
- Building private party's trust on a new model is much challenging.

### **5.10 Case study findings**

- The experts clearly opined that model selection needs to be appropriate to make a project successful, but it is only one of the many factor for success. There are lot other factors those also play vital roles in the success of the projects.
- One of the good example came out of these Case studies is: the Mayor Hanif Flyover project from the transportation sector. Theoretically, the project presented a good evaluation score for model selection. The evaluation score: is 0.9 out of 1.0 scale for the selected Build-Own-Operate-Transfer (BOOT) model. The expert's opinions also supported that the model selection for this project was appropriate. But actually the project is overall a failed case. The reasons behind this are the: defective feasibility study of cost-benefit analysis; failed to meet the goals of schedule and budget, and also unsuccessful to attract users.
- The other two case studies on the Power and Energy sector, and Social and Government infrastructure sector also indicated the appropriateness of model selection theoretically. The evaluation score for the Meghnaghat power project's Build-Own-Operate (BOO) model presented a value of 0.9. The experts also supported that the model selection is proper for this project and also for this sector. The BOO model is the best choice for the time being and for the near future regarding the power and energy sector in Bangladesh. The Lease contract model of BEPZA indicated an evaluation score of 0.8 which also suggested this as a theoretically appropriate model. The opinions of the experts also approved that the model selection is appropriate.
- In the cases study there is no correlation found in the overall 'Project Result' &

‘Model Selection Appropriateness’; rather it was seen that a good modes failed to make the project a success due to other fail factors like : Project Management Failure, poor planning, faulty feasibility studies or wrong financial modeling etc. In this mixed scenario, the maximum (90%) of the responding experts thought that PPP can be considered as an effective approach for Bangladesh to pursue its desired development. According to the opinion of the maximum number of experts it can be concluded that PPP model is moderately effective for the development of the country; and therefore PPP approach can expedite the development process of Bangladesh.

## CHAPTER: FOUR

### METHODOLOGY

#### 4.1 Research Design & Strategy:

This research is designed based on the problem statement discussed in chapter one. The problem has been broken down in to five tasks to Assess, Investigate, Explore, and Determine & Find. Then relevant solving strategy has been crafted to align the working theme with the main research questions. The research strategy is discussed in the following Table: 6:

**Table 6: Research Strategy**

#	Breakdown of the Problem Statement :	Solving Strategy:	Linking the Main Research Questions & align theme:	Remarks & expected result:
1.	Assess suitability & effectiveness of PPP models for faster development of the country.	Review the contemporary PPP context & study cases.	<u>How effective are the PPP Business model for implementing development Projects in Bangladesh?</u>	<u>Expected Results:</u> Effectiveness of PPP models for faster development of the country.
2.	Investigate the major issues & challenges of PPP model.	Review the PPP Success / fail factors.	<u>Are the issues &amp; challenges</u>	Will generate specific recommendation for the PPP Practice In Bangladesh.
3.	Explore the Critical Success Factors (CSFs) of the PPP projects in Bangladesh.	Review the PPP Success / fail factors.	<u>significant</u> for- implementation of the PPP Business Model?	
4.	Determine the categories of the PPP models available at this time (based on some specific criteria).	Review the literature on categories of PPP Models	Find a PPP based model suitable for developing country like Bangladesh.	Will suggest a PPP model for the fast track development of Bangladesh.



5.	Find a PPP based model that would be suitable for developing country like Bangladesh	Studied Relevant Models of Effectiveness, existing issues & challenges of PPP success		
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#### 4.2 Methodology and Procedure:

The methods and the approaches followed in this study to assess the effectiveness of PPP Public Private Partnership (PPP) business model [as fast-track growth driver in national development] and to explore the major issues & challenges associated with PPP projects in Bangladesh is shown in **Figure 12**.

**Table 7: Research Approach.**

Objectives:	Research Approach & Methods:	Remarks:
To examine the effectiveness and get a deep understanding about the suitability of PPP Approach in the context of Bangladesh.	<p>Review literature on Effectiveness. Check the following parameters in the given heads:</p> <ul style="list-style-type: none"> <li>▪ Active as a faster development Tool <ul style="list-style-type: none"> <li>• Increased GDP Growth</li> <li>• Attract FDI</li> <li>• Enhanced Quality of Projects.</li> <li>• Positive Financial Impacts [Cost / Benefits Ration]</li> </ul> </li> <li>▪ Ensure Sustainability: <ul style="list-style-type: none"> <li>• Active as a tool to solve SDG Challenges</li> <li>• Environment friendliness parameters (green growth)</li> </ul> </li> <li>▪ Governance &amp; Management <ul style="list-style-type: none"> <li>• Improve Efficiency, Integrity and Transparency</li> <li>• Mitigate Corruption &amp; System loss</li> </ul> </li> </ul> <p>Information gathered from Key Informant</p>	<ul style="list-style-type: none"> <li>• Study Cases</li> <li>• Used Content Analysis methods</li> </ul> <p>Tracked the parameters for effectiveness: Goals, Scope, Cost, Time and Quality.</p>

	Interviews	
To investigate the major issues & challenges of PPP model	<ul style="list-style-type: none"> <li>▪ PPP's Effectiveness Framework designed for Development &amp; Growth.</li> <li>▪ Views from Key Informant Interview to validate finding of the Content Analysis.</li> </ul>	Content Analysis
Determine the categories of the PPP models	Review literature on available PPP Models.	Content Analysis
To identify the critical success factors (CSF) of PPP models.	<ul style="list-style-type: none"> <li>▪ Review literature on critical success factors (CSF) for PPP models.</li> <li>▪ Views from Key Informant Interview to endorse finding of the Content Analysis.</li> </ul>	Content Analysis

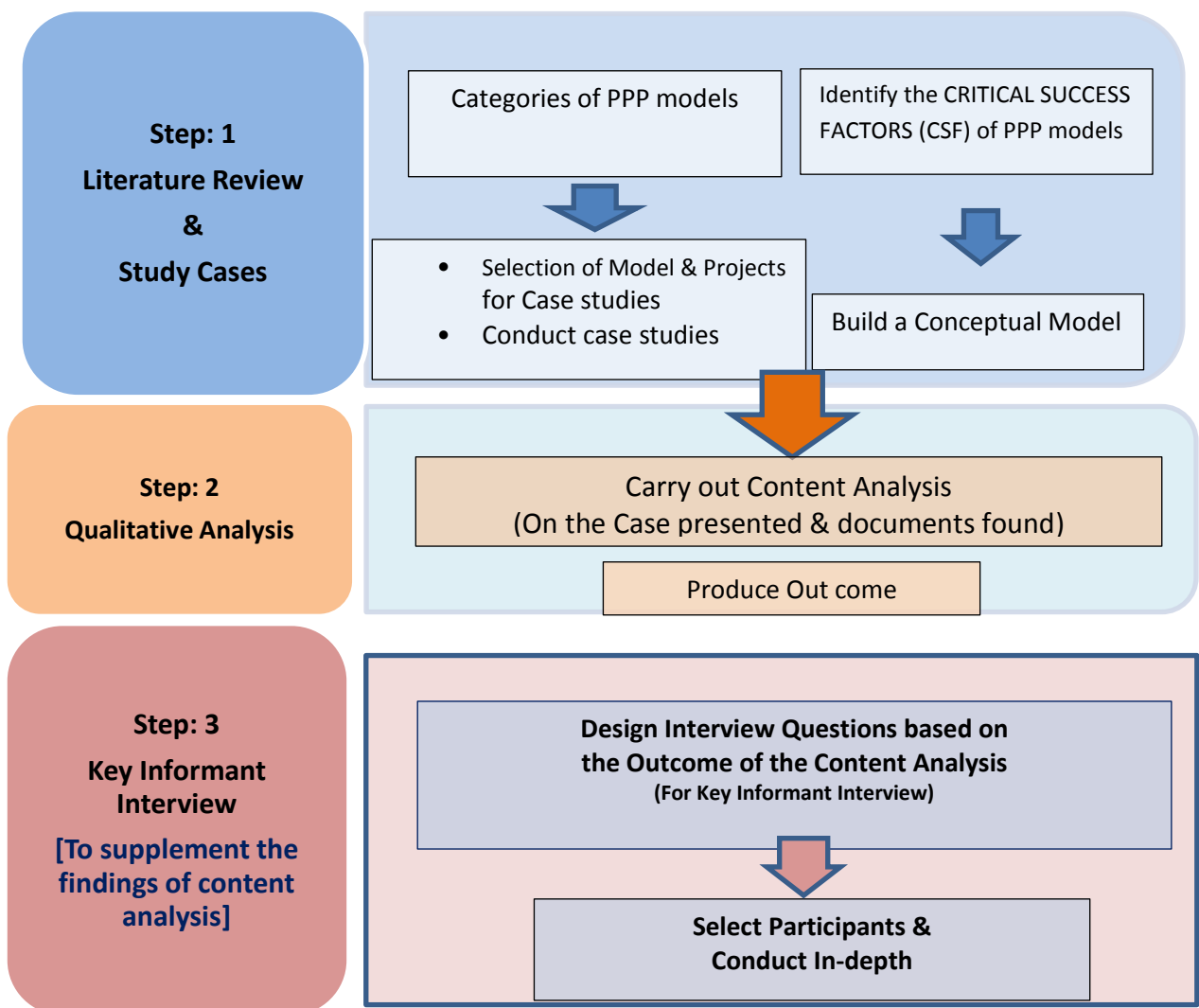


Figure 12: Research Methodology (source: author)

The research methodology figured out above consisted of three basic steps.

### **Step 1:**

The methodology here is the literature review. In this step, related literature review was carried out by analyzing more than 100 papers published between the years 2010 and 2022. The study approach here in this study is to check PPP Business approach for the development mega projects already been done & those are currently on going in Bangladesh – those contributes as a Fast Track Growth driver for the National economy. As there are various kinds of projects available (for instance: Self-financed, Donor Aided, and Loan based Projects in the Practices of Bangladesh) – the researcher would like to consider the PPP based projects to be checked for more efficiency & those are contributing for the development of Bangladesh as there are wide opportunities of using private capital & private expertise, which may also help building a vibrant private sector in the country.

All the data collected from the previous studies on PPP models and critical success factors of PPP are being summarized. Initially, the PPP sectors available for Bangladesh have been categorized and then the projects have been picked according to those sectors. Then, the CSFs have been explored in the context of Bangladesh which leads the study to outline the conceptual model.

Mostly it was a qualitative research based on secondary data from selected sources. Relevant data was gathered from different existing sources of published statistics and various facets of project implementation deliverables, based on different research reports and government publications including the Perspective Plan, Sixth Five-year Plan, Master Plan, Medium-term Budgetary Frameworks (MTBFs) documents, National Priority list for Development, Annual Development Plan (ADP) Books of different financial years, Fund-release statistics etc. Relevant international and national issues and cases regarding PPP in development projects also being studied, specifically, required data on PPP was mostly collected from PPPA (Public Private Partnership Authority) from their periodic reports. Almost 17 project completion reports (PCR) along with annual Reports on the project & project document were reviewed as the basic source of data. Data of a number of projects were purposively excluded due to the fact that in some cases weak project performance was overlooked considering the large economic benefits. Finally case study was done on four selected PPP projects.

## **Step 2:**

The contents gathered & observation captured were analysed in this stage based on “Content Analysis” approach. To analyse the data ‘QDA Miner Lite’ software & associated data mining tool was used ([@https://provalisresearch.com/](https://provalisresearch.com/)). The data found in the case studies & tracked by personal observation have been analysed to conclude with some effective findings.

*“As a method, content analysis is unique since it has both a quantitative (Krippendorff, 2004, Neuendorf, 2002) and a qualitative approach (Berg, 2001, Burnard, 1991, Catanzaro, 1988, Downe-Wambolt, 1992), and it can be used in an inductive or a deductive mode.”* Accordingly, Then, to build theory & to draw the core meaning of the words as the contents this method has extended from quantitative narratives to a particular & presentable format of the text or data.

To obtain a clear & deeper understanding on the effectiveness of PPP Projects the ‘Qualitative method’ seems to be a good-fit as an approach in this research effort, in any other method it will be tough to capture the thoughts & feelings of the key informants. To create openness to the research topic of PPP related issues & examine the finding deeply – the researcher believe it was much realistic & effective to proceed with Qualitative method.

## **Step 3:**

To validate the finding of the content analysis in-depth interview were conducted in this step. The data gathered from literature review in step 1 & content analysis in step 2- has been verified by the opinions of the industry experts. And, views were taken from designated industry experts and key Informant through In-depth Interviews with them to confirm the sense found from content analysis. Basically, Report Analysis, Case understanding & personal observations were the methods followed to collect data. For interviewing, interview questions were designed and appropriate participants have been selected. Finally based on the interviews the content study has been verified & finalized. In this way as feedback is coming directly from the practicing & knowledgeable professional, the researcher preferred key

informant interviews to obtain data as well as insights which cannot be obtained with other methods.

A flow chart of the research procedure has been depicted below:



Figure 13: flow chart of the research procedure (Source: author)

### 4.3 Sample and Sampling Technique:

To supplement the content analysis the participants for the Key Informant Interviews were selected by snowball expert sampling method. Snowball (Chain Sampling) is a technique to

track down key informants who have particular knowledge on the subject to identify serious cases. It is a non-random chain sampling method where the participants are taken based on their rare traits and importantly expertise on the topic. The first participant (existing) referred other participants to recruit as samples required for this research study.

In this study, the organizations have been selected by purposive sampling then followed the snowball sampling technique. Total 25 experts participated in this process. The participants related to the PPP practices in Bangladesh have been chosen from the six organizations. The in-depth Interviews were done using open questionnaire & discussion. A few key names get recommended repeatedly as important person by a number (more than one) of informants and have taken on special notes for attention. *“The chain of recommended informants would typically diverge - primarily as many as possible sources are recommended, then converge as a few key names get mentioned over and over again.”* (Patton 2002, p237).

#### **4.4 Selection of organizations and participants:**

The organizations playing role as the public party in the PPP sector are being selected from government organizations. Private organizations are chosen based on relevant experience and involvement with PPP of Bangladesh as well as who have completed projects. The selection of participants from the selected organizations has been based on sampling method discussed by Bhattacharjee (2012).

#### **4.5 The target population:**

The population targeted for this study is all the professionals related to PPP sectors. For this survey Project professionals, academicians, engineers, contractors and experts related to PPP in Bangladesh are the target population.

**Sampling frame:** Sampling frame is the accessible section from where a sample can be drawn. For this survey the Government PPP organizations, Private construction firm, private groups of industries have exposure in PPP who are directly involved with the PPP Projects in Bangladesh are considered. About three organizations from public sector and three organizations representing the private sector, a total of six organizations are considered for this Key Informant Interview. For pilot test of the questionnaire, PPP Authority (PPPA) was considered.

#### 4.5 Instrument for Data Collection:

For Collecting views of the experts the following Instruments were used:

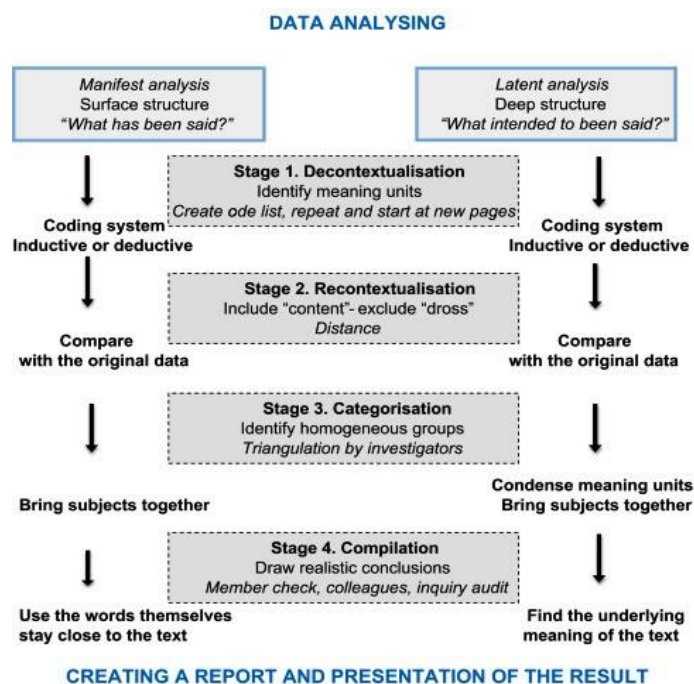
- In depth Interview & discussion following a Questionnaire [given at *Appendix I*]
- Response by e-mailed Questionnaire
- Observations from Project Documents / Reports.

#### 4.6 Method of Data Collection:

In this study the researcher used Secondary data gathered from multiple sources. Information & views gathered by interviews, written questions / observation are used to endorse the Content Analysis results.

#### 4.7 Method of Data Analysis:

Data analysis of this study is performed with Content Analysis method. For analysis, a four stage procedure is followed to discover meaningful information from the data. Most of the data have been analyzed by the software ‘QDA Miner’. Analysis method used to conduct this study is exhibited in Figure 12.



**Figure 14:** Data Analysis Method

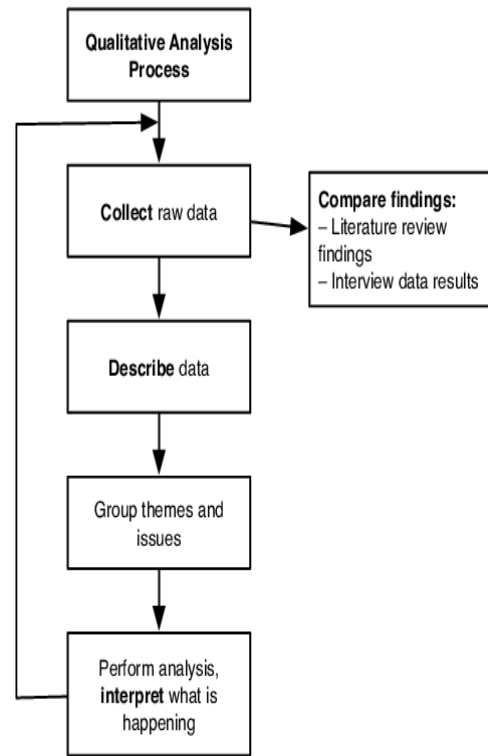
[Source: Bengtsson M. (2016)]

#### 4.8 Data Interpretation:

The data interpretation procedure includes the following steps:

**Table 8: Steps in data Interpretation**

Steps:	Activities
1	Went through transcript, arrange all gathered information in a transcription table and made a brief note on the nature of information collected. Based on that then Case study are done for selected Project & the case study findings are used for feeding the Content as software input.
2	Categorized the items based on content
3	Checked for the links among the categories
4	Divided the categories of data into major and minor heads by comparing and contrasting.
5	Mark the items of data with their categories in the transcript
6	Collected all the extracts from the transcribed texts.
7	Reviewed the data within the system of categorization.
8	Checked at the range of categories whether close categories can be fitted & merged together.
9	Get a clear theme.
10	Check the notes and identify the differences



**Figure 15: Flow Chart of the Basic Steps in Data Interpretation.**

#### 4.9 Identification of sectors, Critical Success Factors and Selection of Projects and Models for Case Study:

Tsai & Wen (2005) discussed that research study of a particular topic or research area helps to fully review and evaluate the findings from former research studies and a methodical examination of publications is requisite in academic research. This section covers the methods to identify the models and critical success factors from the **Chapter 2**, literature review part and narrowed it down. The extensive review of related and available references and



information from books, news texts, journal articles, conference papers, research reports, and internet material helped to categorize the sectors and the identification of CSFs in the context of Bangladesh. From the historical data, analyses of PPP projects have been done to select projects and models to conduct case study.

#### 4.10 Categorizing the sectors

To make the category of sectors, from Section 4.1 and Section 4.2, we can find out that there are similar projects done and the sectors are not so different from the observations of the researchers. From the literature review on sectors and types of project, there can be seen that five sectors are mostly used all over the world for the PPP projects which can be helpful to categorize the PPP sectors of Bangladesh shown in Section 4.6.

**Table 9: Category of the sectors of PPP.**

No	Sector Name	References by study	Description of Project / Country
1	Transport	AECOM Consult Team (2007); Halcrow Group Limited (2004); Bruchez (2014).	AECOM Consult Team (2007) showed transportation project in 11 states of United States. Halcrow Group Limited (2004) showed Thailand Skytrain and MRT; Monorail, MRT and automated transit projects in Malaysia; MRT projects in Philippines and railway systems in Indonesia; Bus, metro rail and light rail projects in United Kingdom; MRT projects in China and metro rail project in Singapore. Bruchez (2014) showed airports, rail corridor development, roads and tollways projects in South Africa.

No	Sector Name	References by study	Description of Project / Country
2	Power and Energy	Vagliasindi (2013); Biygautane (2017); KPMG INDIA (2006).	Vagliasindi (2013) mentioned renewable energy projects in China, Peru, Mexico and Brazil. Biygautane (2017) showed power projects in Saudi Arabia, Kuwait and Qatar. KPMG INDIA (2006) showed the energy distribution and transmission projects in India.
3	Information and Communication Technology (ICT)	PPPIRC (2017); Bruchez (2014); Owen (2006); Sharma (2007).	Bruchez (2014) showed the Information system and broadband initiative projects in South Africa. Owen (2006) showed the VOIP and WiMax projects in Vietnam. Sharma (2007) has talked about the e-government projects in Singapore and India. PPPIRC (2017) mentioned the projects worldwide.
4	Water and waste management	Marin (2009); Varma et al. (2013); Pusok (2016).	Marin (2009) showed projects of 65 developing countries in Sub-saharan region, East-Asia Pacific, South Asia, Africa, Europe and Latin America. Varma et al. (2013) showed the irrigation, canal water distribution system and drainage systems projects in India. Pusok (2016) showed the potable water and sanitation projects in the 56(fifty-six) countries.
5	Social and government infrastructure	Barrows et al. (2011); ADBI (2000).	Barrows et al. (2011) mentioned Health care initiatives in Canada. ADBI (2000) showed education projects in China (PRC), Philippines, Samoa, Health and education projects in Bangladesh.
6	Economic Infrastructure Management	Japan International Cooperation Agency (JICA) & Japan Development Institute (JDI) (2017), Prime Minister's Office (2019),	Mentioned in the 'Project Document of Economic Zones And Capacity Enhancement of Bangladesh Economic Zones Authority': In developing Economic Zones & Special Economic Zones through a PPP scheme, the private sector entities may participate Design, Build, Finance, Operate and Transfer (DBFOT) activities of the projects through PPP [Rule # 01, Bangladesh Economic Zones Rules, 2016] [Guidelines for Selection of Economic Zone, Prime

			Minister's Office, Govt. of Bangladesh (2019)]
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In **Table - 8** six sectors have been identified from previous research studies regarding PPP scenario in Bangladesh. Transport, Power and energy, ICT, water and waste management, social and government infrastructure sectors have been identified by most of the studies in different projects. Besides these projects, The World Bank et al. (2014) and PPPIRC (2017) showed many projects in the selected sectors all over the world.

The list of sectors according to **Section 4.9** are shown in five categories in Table 10.

**Table 10: PPP Sectors of Bangladesh (categorized in five sectors)**

Category Name	International Standard Industrial Classification (ISIC)	Sectors covered from PMO-Government of Bangladesh (2010)
Transport	ISIC 42 and 49; ISIC 42 and 51; ISIC 49; ISIC 52	Highways and expressways as well as mass-transit, bridges, flyovers, city roads, bus terminals, tunnels, commercial car parking etc.; Airports, terminals and related aviation facilities; Railway systems related facilities; Port (i.e. sea, deep sea, land and river) development including inland container terminals, depot and other services.
Power and Energy	ISIC 05-09; ISIC 19; ISIC 20; ISIC 35	Exploration, transmission, and distribution of mineral resources i.e. gas, coal, oil and others; Oil refinery and production of Liquefied Petroleum Gas (LPG); Fertilizer production; Generation, transmission, distribution and services of power.
Information and Communication Technology (ICT)	ISIC 60-63; ISIC 85-88	Telecommunication systems, telecom-networks, allied services along with Information and Communication Technology (ICT); E-service delivery to citizens, social infrastructures i.e. education, health, human resource research and development, and cultural provisions.
Water and	ISIC 36-39; ISIC 38-39;	Water supply, distribution, sewerage, drainage, and

waste management	ISIC 42	sewage water treatment; Environmental, industrial and solid waste management projects; Dredging of Rivers, Canals, Wetlands, Lakes and other land reclamation and allied facilities.
Social and government infrastructure	ISIC 79; ISIC 81-82; ISIC 84	Tourism related projects; Industrial parks and estates, economic zone, and industrial project development including services to provision non-commercial and commercial activities; Poverty alleviation projects: Remote area power and gas supply (ISIC 35), village water supply, irrigation and agricultural services (ISIC 36), River passenger terminals and landing stations (ISIC 52), internet in rural areas (ISIC 61), rural health services (ISIC 86) and other rural projects;.

#### 4.11 Selection of models and Projects for Case Study

The literature review gives the knowledge about the projects and models used in Bangladesh. For case study three mostly used sectors were selected where the most PPP projects have been implemented in Bangladesh. Most of the projects listed in Section 2.6.3 are before the PPP law and regulation implementation in 2010. Transport sector, power and energy sector and the social and government infrastructure sector were considered, to select projects for case study as these sectors are on high demand in context of Bangladesh.

To select the projects for case study, ‘two-stage decision making technique of PPP model selection’ has been used. This method is developed by Yang et al. (2012) to choose the best model for PPP projects. The equation of evaluation score,

$$Ts_i = \sum_{j=1}^7 X_{ij} \cdot W_j \quad (\text{Equation 3.1})$$

Where,

- $Ts$  = Evaluation Score.
- $i = 1,2,3,4,5,6,7$  respectively mean the Module: Outsourcing, Turnkey, Sale / Leaseback, Lease / Purchase, BOT/BOOT/BOO, TOT, and privatization.

- $j = 1,2,3,4,5,6,7$  respectively means bundle or unbundle, operation and maintenance, construction obligations, asset ownership, operation efficiency, investment efficiency and degree of cooperation.
- $X_{ij} = 0$  or  $1$ , ( $1$  means matched and  $0$  means unmatched)

$$\sum_{j=1}^7 W_j = 100\%$$

For the transportation sector, one of the PPP projects which is on commercial operation stage was considered. This project namely, Mayor Hanif Flyover Project was built on Build-Own-Operate-Transfer model. From the information from Orion Group (2017), the requirement of government and characteristics of the project can be found. Government requirements and characteristics of the power and energy sector project were discussed by InfraPPP (2017a). For the third case study, from the social and government infrastructure sector, one from lease model was chosen and requirements were shared by World Bank (2014). Required information for the sampled (considered) projects has been summarized in *Table 11*.

**Table 11: Characteristics of Selected Projects**

Project	Sector	Bundle / Unbundle	Operation and Maintenance	Construction obligations	Asset ownership	Operation efficiency	Investment efficiency	Degree of cooperation
Mayor Hanif Flyover Project	Transportation	Bundle	Private	Private	Public	High	Medium	High
Sirajgonj gas-fired power PPP project	Power and energy	Bundle	Private	Private	Public	High	Medium	High
BEPZA Lease Contracts	Social and government infrastructure	Bundle	Private	Private	Public	Medium	Low	Low
The Meghnaghat Power Project	Power and Energy	Bundle	Private	Private	Public	High	High	High
Mongla (PowerPac EZ Limited) Project	Economic Infrastructure	Bundle	Private	Private	Public	High	Low	High

(Source: Project Documents)

For all five projects, the weight for the characteristics of operation and maintenance, asset ownership and investment efficiency have been given a weight of 20% and others are considered for 10% weight depending on the degree of government priority. The value of  $Ts_i$  for Mayor Hanif Flyover project, Sirajgonj gas-fired power PPP project and BEPZA lease contracts, Mongla (PowerPac EZ Limited) PPP based Economic Zone Project, and Meghnaghat Power Limited (MPL) project were respectively 0.9, 0.9, 0.8, 0.8 and 0.9.

The value range of  $Ts$  is from 0 to 1. The maximum value is: 1; and the minimum value is: 0. The more the evaluation score is, the more it is suitable for selecting the model for PPP project. For being the appropriate model, the evaluation score,  $Ts_i$  has to be more than 0.7 as it is close to being the perfect evaluation score of 1. So, from the value of  $Ts_i$ , the conclusion comes that the models used were appropriate for Mayor Hanif Flyover project, Sirajgonj gas-fired power PPP project, BEPZA lease contracts project, Mongla (PowerPac EZ Limited) Economic Zone Project, and Meghnaghat Power Limited (MPL) project.

There are some examples of choosing the same type of projects depending on the cost, quality, time and innovation. Jefferies (2006) showed the Build-Own-Operate-Transfer procurement and leasing of Sydney super dome. In Malaysian context, Hensley & White (1993) showed the success of Build-Own-Operate/Build-Operate-Transfer / Build-Own-Operate-Transfer model selection. In Table 11 all the nominated projects are presented in brief:

**Table 12: Selected Projects for Case Study**

Sector	Project Name	Model Used:	Evaluation Score, $Ts_i$	Reference
Transport	Mayor Hanif Flyover Project	Build-Own-Operate-Transfer [BOOT]	0.9	Jefferies (2006) case studied the innovative Sydney superdome which is a prime example for using Build-Own-Operate-Transfer models in construction.
Power and Energy	Sirajgonj gas-fired power PPPproject	Build-Own-Operate	0.9	Hensley & White (1993) showed the innovation, high value for money, improved quality and time reduction of Build- Own-Operate models inMalaysian PPP initiatives.
Social and government infrastructure	Lease Contract at BEPZA	Lease	0.8	Jefferies (2006) showed the Sydney superdome successful lease contract after ending of BOOT contract.
Economic Infrastructure	Mongla (PowerPac EZ Limited) PPP based Economic Zone Project	Design, Build, Finance, Operate and Transfer (DBFOT)	0.8	Jefferies (2006) case study.
Power Infrastructure Project	Meghnaghat Power Limited (MPL)	Build-Own-Operate	0.9	Hensley & White (1993)

#### 4.12 Design Interview Questions

Creswell (2014) said qualitative methods are open-ended, flexible, depends on individuals experience as participant gets freedom to choose their own opinions in details, and Mack et al. (2011) said this method is more feasible than quantitative studies. This approach is necessary for determining the appropriate models and identifying the critical success factors unique to the PPP



environment of Bangladesh. Predefined question has helped to verify data necessary for the objectives. Further questions also has been added or revised depending on the exposure of the relevant data or the expert advice. The interview questions have been divided into three sections, as discussed below:

**Features of PPP Models:** The opinion on the features of PPP models has been asked in this section. Discussion on the available PPP models has been done in this part to learn about the practices in the context of Bangladesh.

**Performance of PPP:** The measurement of success of the projects has been asked in this section. The participants has been asked questions on the PPP project success measures,

**Issues & Challenges with PPP Projects:** This section consists of the information about the Issues & Challenges with PPP Projects based on the selected case study projects. The questions have been designed from the collected data from literature review.

The sample of the interview question is provided in *Appendix 1*. The interview questions are semi-structured and open ended.

The question for interview was consulted three experts for checking the validity and quality of the questions before conducting the interview sessions. The experts gave satisfactory marks on the question design and very little correction were suggested.

#### **4.13 Selection of Participants**

The selection of the experts is done based on the expertise, experience, and involvement with PPP Projects in Bangladesh. Two types of experts have been considered for the interview.

1. Academician: Experts from renowned universities & training Institutes who are involved or have core knowledge in PPP.
2. Professionals: Experienced experts who are involved with key positions of the PPP projects in Bangladesh or international level and from both private sector and the public sector.

Total ten persons have been interviewed. The interviewees were 8 persons from the government sectors and 2 persons from the private sectors. 2 of the interviewees were from the academic background (Finance & Project Management) and rest of them was from professional backgrounds. Two persons are from end use beneficiaries.

## **CHAPTER: FIVE**

### **DATA ANALYSIS & FINDINGS:**

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This chapter presents the analysis of the qualitative methodology adopted for this research. The qualitative research is conducted to analyze the interview data to assess the effectiveness of PPP business model along with identifying the appropriate models, and the issues & challenges of PPP Projects in Bangladesh.

#### **5.1 Data analysis:**

To assess the effectiveness of PPP model and to determine appropriate PPP Model for development Projects using the qualitative analysis technique is discussed in this section.

#### **5.2 Data preparation:**

The Project Reports sorted for case studies were of similar structure with project information about General data, Objectives , Scopes, Status, Project cost, outcome etc. From the Project Reports case study findings were prepared in similar format, and these case study findings were used as input for the qualitative analysis in content analysis method. Then the text data for input were structured & processed for qualitative analysis. For the qualitative analysis, the summative content analysis method was used to study the pattern and to derive the interpretation of the contextual meaning of the gathered data (Hsieh & Shannon, 2005). For Qualitative Data analysis QDA Miner Software were used.

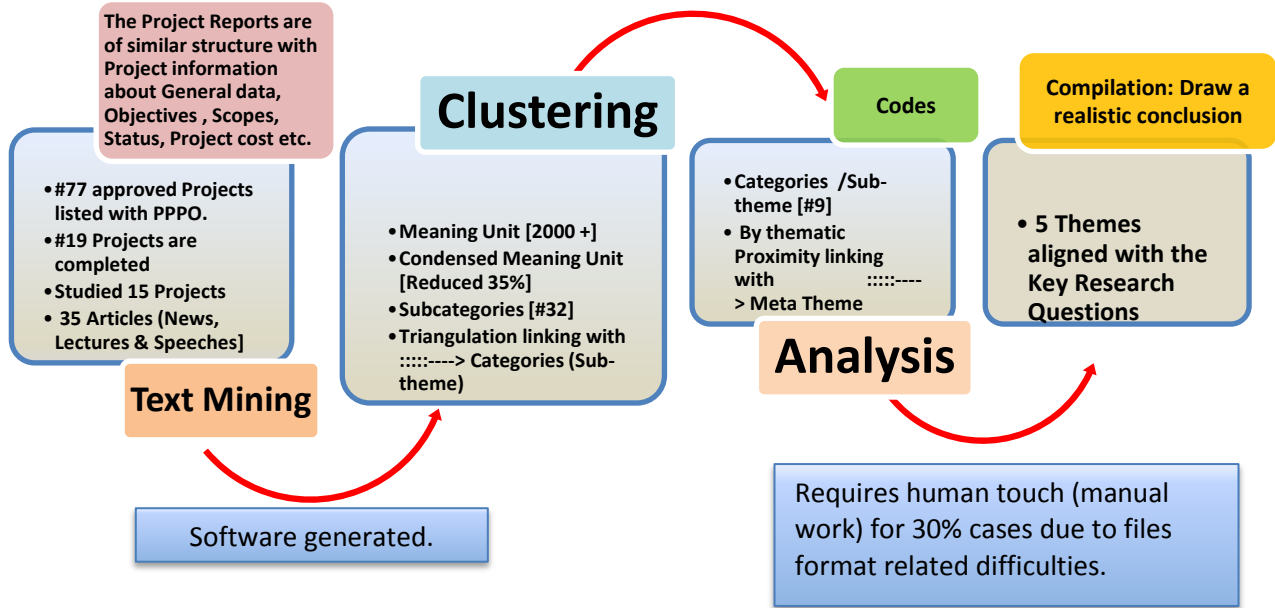
#### **5.3 Analysis of the data found in Case Studies & Interviews:**

Five Case studies were done on the projects from four sectors with an intention to analyze those texts by content analysis. The sources of the data used in the case presentation are: Project Documents, Project Closing Reports, Project Development Report, Annual reports etc. As per data there are 77 projects in the pipeline of PPPA, and other than PPPA listing them 19 Projects

are completed & providing services, 4 Projects have no development - those can be classified as non-performing. Content Analysis Procedure followed is as presented in figure #23. Reports & other documents for 15 Projects contained more than 1020 meaning unit (words). Condensing then meaning by software generated text mining reported #32 Sub-categories. By software based triangulation for clustering it generates #9 sub themes. Compiling and analyzing by considering the thematic proximity it linked the meta-themes with a realistic conclusion with 5 main themes aligned with the key research questions. At this stage of analysis it requires human touch (manual work) for 30% cases due to files format related difficulties.

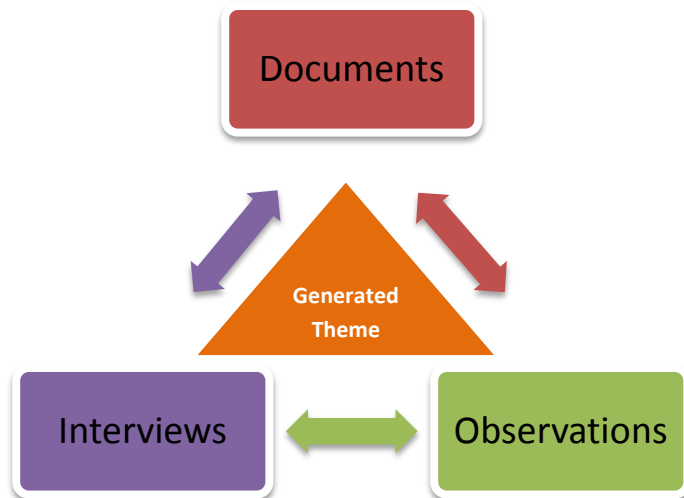
For text mining & analysis 'QDA Miner' software is used. To give an idea of the QDA Miner software it can be said that, it is a software package for computer-assisted qualitative analysis. It is typically used for the analysis of textual data as well as still images, including documents, interview and news transcripts, open-ended responses etc. It provides fundamental CAQDAS (Computer Aided Qualitative Data Analysis Software) capabilities like: coding, memoing, data organization, retrieval, and questioning features - that assist with qualitative research such as transcription analysis, organizing, coding and text interpretation, annotating, retrieving, recursive abstraction, content analysis, discourse analysis, grounded theory methodology and analyzing collections of documents and images. Software for computer-assisted (or aided) qualitative data analysis (CAQDAS) provides tools like transcription analysis, coding and text interpretation, recursive abstraction, content analysis, discourse analysis, grounded theory approach, etc. that help in qualitative research. Qualitative component of three integrated software tools is called QDA Miner. This software tool starts from a spreadsheet containing mixed quantitative and qualitative data sets & ends with a result in another spreadsheet or text report. The detailed process used in 'QDA Miner' is discussed in **Figure: 17.** At the first step the text data are feed in the software for de-contextualization, then those data are labeled for identifying meaning units and condensed meaning unit at re-contextualization stage, then the sorted data are given for clustering process through assigning codes to build the meta-themes. Then in the second step fine-tuned data are being analyzed through categorization process for theme generation & final reporting.

The finding of the qualitative data analysis is presented in **Table -12.**



**Figure 16: Content Analysis Procedures.**

In this research, the researcher employed triangulation as a strategy, used to emphasized employing various methods and tapping various sources for data to get the themes.



**Figure 19: Triangulation Process to generate themes**

**Table 12: Presenting all the Meaning, Categories & Themes Generated from Text / Data Mining process during Content Analysis (Summary of the Output from QDA Miner Software):**

Meaning Unit (at de-contextualization stage) :	Condensed Meaning unit (at re-contextualization stage):	Sub Categories (Total 32):	Categories (#09 Sub theme) :	Theme Generated:	Remarks:
<p>Researcher defined the smallest unit that contains insights needs to answer the key research question of PPP effectiveness, its issues &amp; challenges associated with. The Researcher find 2000 meaning units in the study.</p>	<p>The researcher worked with 850 Fine Tuned Meaning units</p>	1. Success Factors	<p>a)Effectiveness Indicators of PPP Model</p>	<p>i. Indications for Faster &amp; effective Development path with PPP model</p>	<p><b>Categories (a+b) marged to build theme (i)</b></p>
		2. Fail Factors			
		3. Improve Efficiency, Integrity and Transparency			
		4. Time, Cost			
		5. Stakeholder's satisfaction			
		6. Response to SDG challenges	<p>b)PPP for Development.</p>	<p>ii. Challenges in PPP based development</p>	<p><b>Caegory (f+i) conclude to theme(ii)</b></p>
		7. Mitigate Corruption & System loss			
		8. Infrastructure and Services delivery			
		9. Financial Impact	<p>c)Positive Financial Impact of PPP</p>	<p>iii. Issues with PPP Project Management Practices</p>	<p><b>Category (g) lead to the theme (iii)</b></p>
		10. Value addition			
				<p>iv. Room for Improvement in PPP Practices.</p>	<p><b>Category (c+d+h) lead to the theme (iv)</b></p>
				<p>v. Indications for devising a tailored Hybrid</p>	<p><b>Category (g) lead to the theme (v)</b></p>

		11. Revenue Earned, ROI		Model design for Bangladesh		
		12. Risk Covered				
		13. Economic Growth [GDP]	d)Positive Economic Impacts of PPP			
		14. FDI				
		15. Poverty alleviation				
		16. Job Creation				
		17. Public Benefits				
		18. Social Welfare / Development				
		19. Motivation & Incentives for PPP	e)Driving Forces in favor of PPP Model			
		20. Constrains overcame				
		21. Improved Infrastructures				
		22. Management Skill Gains	f)Skills for implementing PPP (Operational & Managerial)			
		23. Operational Efficiency gain				
		24. Key Performance				

		Indicator [KPI]			
		25. Quality gained			
		26. Maturity Gained			
		27. Innovation in PPP			
		28. Process Development			
		29. Expansion & replication			
		30. Trust Building & Effective partnership			
		31. Result measurement	g)Result Monitoring & Performance Evaluation		
		32. Objectives Achieved			
		33. Improved Governance			
		34. Problems with PPP	h)Issues with PPP		
		35. Classifications of PPP model	i)Others/ Miscellaneous		
		36. Misconception			



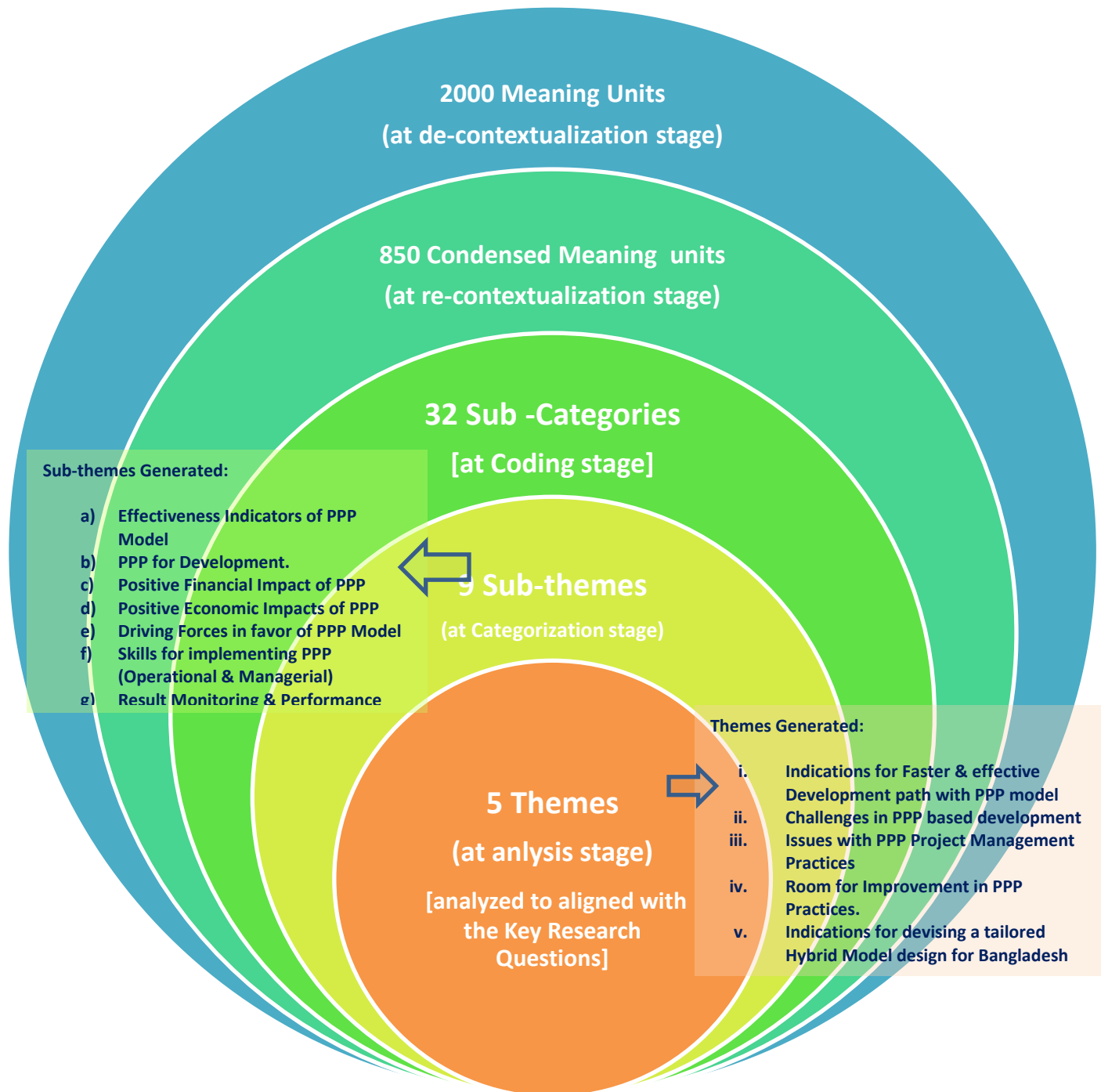


Figure 20: A summary of the Software Output of Content Analysis.

#### 5.4 Findings of the Content Analysis:

- The analysis clearly opined that model selection needs to be appropriate to make a project successful, but it is only one of the many factor for success. There are lot other factors those also play vital roles in the success of the projects.
- One of the good example came out of these Case studies is: the Mayor Hanif Flyover project from the transportation sector. Theoretically, the project presented a good evaluation score for model selection. The evaluation score: is 0.9 out of 1.0 scale for the selected Build-Own-Operate-Transfer (BOOT) model. The relevant discussion also supported that the model selection for this project was appropriate. But actually the project is overall a failed case. The reasons behind this are the: defective feasibility study of cost-benefit analysis; failed to meet the goals of schedule and budget, and also unsuccessful to attract users.
- The other two case studies on the Power and Energy sector, and Social and Government infrastructure sector also indicated the appropriateness of model selection theoretically. The evaluation score for the Meghnaghat power project's Build-Own-Operate (BOO) model presented a value of 0.9. The content tells that the model selection is proper for this project and also for this sector. The BOO model is the best choice for the time being and for the near future regarding the power and energy sector in Bangladesh. The Lease contract model of BEPZA indicated an evaluation score of 0.8 which also suggested this as a theoretically appropriate model. The sense in the project reports also approved that the model selection is appropriate.
- In the cases study there is no correlation found in the overall 'Project Result' & 'Model Selection Appropriateness'; rather it was seen that a good model failed to make the project a success due to other fail factors like : Project Management Failure, poor planning, faulty feasibility studies or wrong financial modeling etc. In this mixed scenario, the content analysis suggests that PPP can be considered as an effective

approach for Bangladesh to pursue its desired development. According to the maximum of the project reports it can be concluded that PPP model is moderately effective for the development of the country; and therefore PPP approach can expedite the development process of Bangladesh.

## 5.6 Discussion on the combined finding from Content Analysis & the expert opinion:

### 5.6.1 Discussion on the major finding with regards to the exploring the major issues & challenges of PPP model:

#### Findings of the Content Analysis:

- PPP is an **effective** approach for Infrastructure Project Management in Bangladesh for supporting its faster development.

#### Findings of the Key Informant Interview:

- **90%** of the responding experts thought that PPP is an **effective** approach for Bangladesh in favor of its faster development.
- From the opinion of all the responding experts an exhaustive list of #33 Critical success factors for implementing PPP model In Bangladesh has been generated, which resembles mostly the list found & discussed in literature review & content analysis.

Success Factors those are common among the experts opinion:	Remarks:
1. Good Governance & Management Practices	Listed and Ranked with number of the Success Factors mentioned by more than 50% of the Experts mentioned. Ranking part is done by author's own styled prioritization Matrix.
2. Proper risk-allocation and risk-sharing among parties	
3. Adherence to budget & time	
4. Reliable & quality Service Operations	
5. Satisfying the need of public Services	
6. Profitability & Economic benefits	
7. Long term Partnership	
8. Government Control	
9. Reduced Administrative Cost	
10. Reduced Project Life Cycle cost	

11. Reduced Litigation & Dispute	
12. Effective Technology Transfer & Innovation	
13. Environmental Impact	
14. Reduced Public & political Protests	
15. Favorable legal framework.	
16. Sound Economic policy.	
17. Stable macro-economic condition.	
18. Available & sound financial market.	
19. Local Economic Development	
20. Multi-benefit objectives.	
21. Meeting Up specification	
22. Commitment and responsibility of public and private sectors.	
23. Strong and active private consortium.	
24. Technical Feasibility Analysis	
25. Shared Authority Between Public & Private Sectors	
26. Well organized & Committed Public Agencies	
27. Through & realistic assessment of the cost & benefits	
28. Project efficiency,	
29. Political & social support	
30. Transparent tendering process,	
31. Competitive & acceptable Procurement Process	
32. Effective Bureaucratic Procedures.	
33. Positive impact on the citizens/ users	
34. Government's involvement by Providing Guarantee	

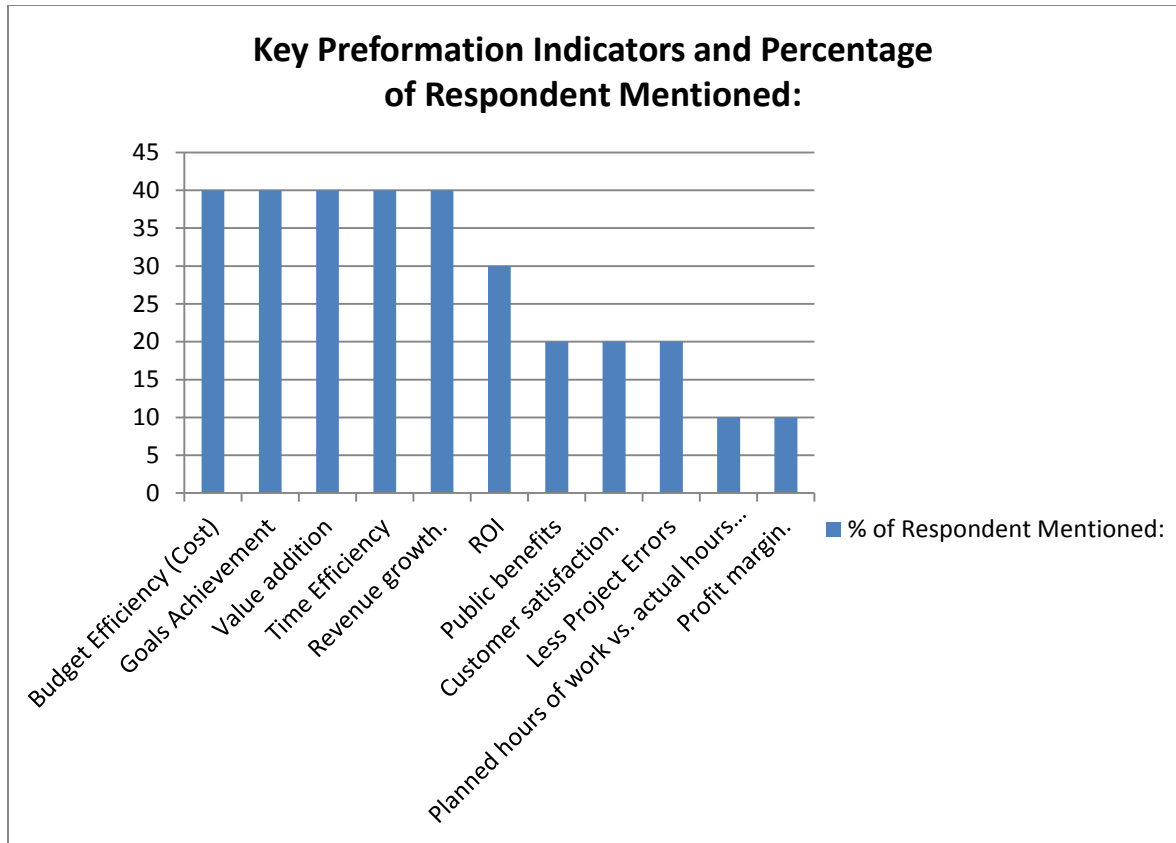
- Despite the above exhaustive list in place - in the discussions based on the practical experience & observations of the experts they have mentioned about some tricky factors, which are usually important for PPP project success but somehow overlooked in regular success story discussions:

<b>Success Factors those are usually ignored for PPPs but very relevant for Bangladesh:</b>	<b>Percentage of Respondent Mentioned:</b>
▪ Effective Team work.	40% of the Experts mentioned
▪ Practice of Co-management approach	
▪ Having Mutual trust among parties	
▪ Business Motivation of the parties	20% of the Experts mentioned

▪ Acceptable Technology Readiness Level (TRL)	10% of the Experts mentioned
▪ Dispute & Conflict resolution Mechanism	10% of the Experts mentioned

- **80%** of the responding experts thought that PPP Business model is **very Effective** for implementing development Projects in Bangladesh; and **10%** opined that PPP Business model is **Slightly Effective** for implementing development Projects in Bangladesh
- 90% of the responding expert's opinion was in favor of taking up PPP Projects for greater and faster economic growth & efficiency of the country.
- The experts mentioned about the following Key Preformation Indicators for PPP Projects in Bangladesh. The first nine Key Preformation Indicators were also in the content analysis findings :

Key Preformation Indicators:	Percentage of Respondent Mentioned:
1. Budget Efficiency (Cost)	40% of the Expert's opinion
2. Goals/ Objectives Achievement	
3. Value addition	
4. Time Efficiency	
5. Revenue growth.	
6. ROI (Return on Investment)	30% of the Experts has mentioned
7. Public Benefits	20% of the Experts has mentioned
8. Customer Satisfaction.	
9. Less Project Errors	
10. Planned hours of work vs. actual hours of work.	10% Expert has mentioned
11. Profit margin.	

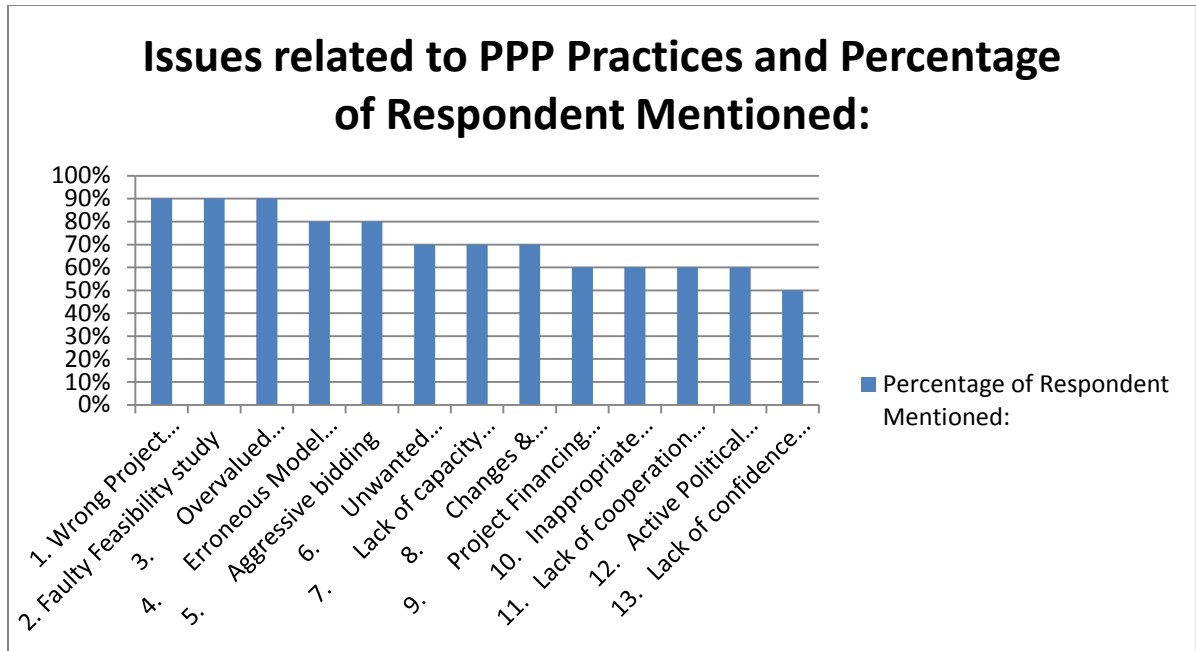


**Figure 21: Key Preformation Indicators and Percentage of Respondent Mentioned**

- **80%** of the responding experts thought that Bangladesh is **moderately ready** for taking up PPP based development mega Projects (estimated for more than 1 billion US Dollars) effectively. And 10% opined that Bangladesh need to improve further in terms of capacity for leading PPP based mega Projects.
- According to the 70% of the responding expert's opinion: PPP can play a good role for attracting FDI in the economy, which can help faster development.
- 80 % of the experts emphasize on the need of sector specific dedicated funding options for PPP projects in Bangladesh. 50% of the informant thought that syndicated bank facility will be helpful for PPP Projects.
- Content analysis result indicates that there are Issues can be defined as tricky situation against being effective - which condition can be overcome by appropriate efforts. And the

experts mentioned the following issues hindering the successful implementation of the PPP Projects in Bangladesh:

<b>Issues with PPP Project:</b> *(Ranked in terms of Seriousness according to the Experts Responds & Author's observations)	<b>Percentage of Respondent Mentioned:</b>
1. Wrong Project Selection	90%
2. Faulty Feasibility study	90%
3. Overvalued costing due to wrong estimates	90%
4. Erroneous Model Selection & inappropriate Risk allocation	80%
5. Aggressive & wild bidding	80%
6. Unwanted implementation delays & Legal Dispute	70%
7. Lack of capacity based maturity of the parties	70%
8. Changes & Disputes about the scope of work	70%
9. Project Funding Issues	60%
10. Inappropriate Quality Standard	60%
11. Lack of cooperation among the partners	60%
12. Active Political Connections to influence contracts	60%
13. Lack of confidence and bad (immoral) intentions of the Investors.	50%



**Figure 22:** Issues hindering the effective implementation of PPP Project and the Percentage of Respondent Mentioned

Studying the issues related to PPP models – some serious issues were identified in content analysis which often causes failure of the PPP based Project, are discussed in the table below with the opinion from the experts:

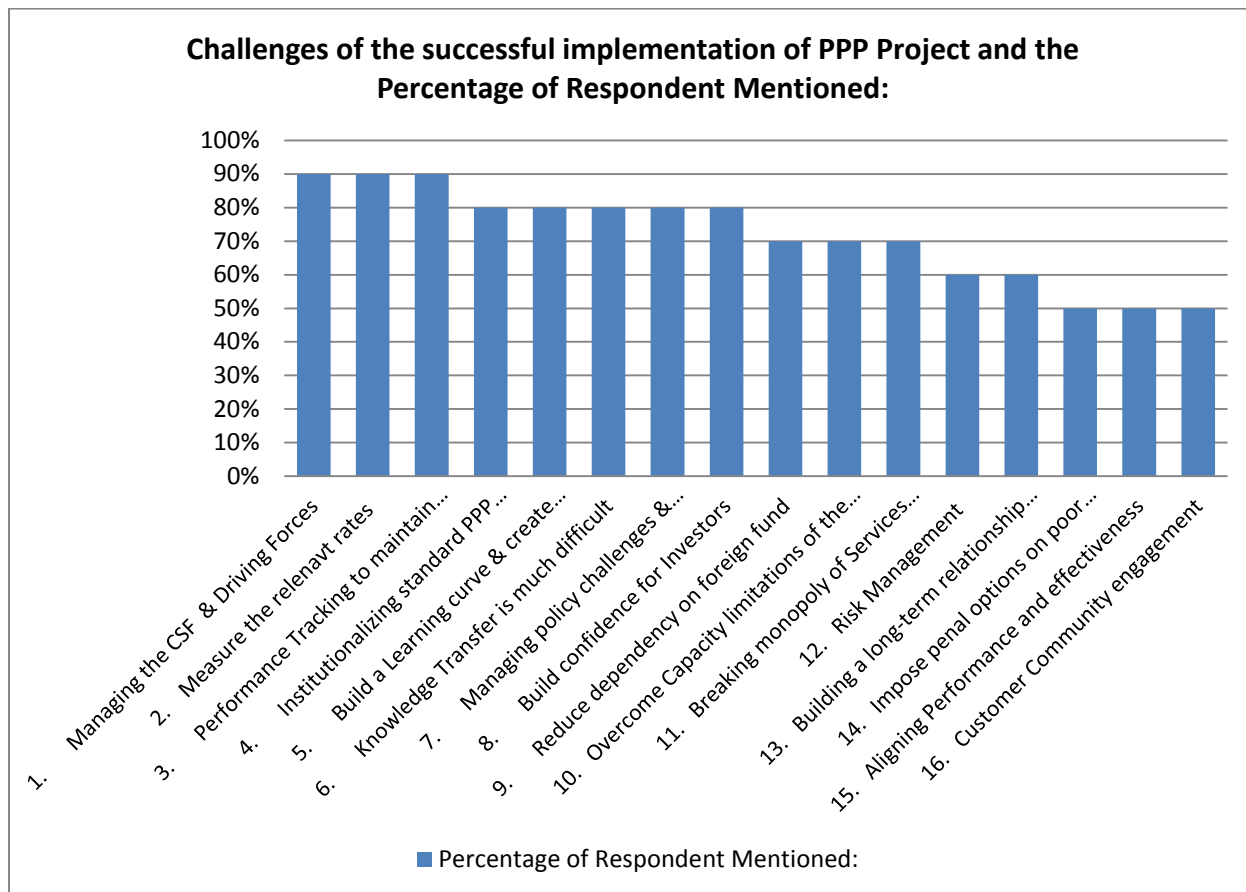
Key Reasons of Project failure: *(Ranked in terms of Seriousness according to the Experts Responds & Author’s observations)	Percentage of Respondent Mentioned:
1. Wrong Project Selection	90%
2. Faulty Feasibility study	90%
3. Wrong Estimates based planning	80%
4. Erroneous Model Selection & inappropriate Risk allocation	80%
5. Aggressive & wild bidding	80%
6. Lack of capacity based maturity of the parties	60%



- As per content analysis Challenges are defined as the tough situation against being effective - which are really hard to overcome by imperfect efforts.

The experts mentioned the following general Challenges with regards to the successfully execution of the PPP Projects in Bangladesh:

<b>Challenges of PPP Project:</b> *(Ranked in terms of Seriousness according to the Experts Responds & author's observations)	<b>Percentage of Respondent Mentioned:</b>
1. Managing the CSF & Driving Forces	90%
2. It is much tough to measure the rates in contrast with market-based rates available.	90%
3. Performance Tracking to maintain KPI / Success Index	90%
4. Institutionalizing standard PPP practices	80%
5. Build a Learning curve & create knowledge base	80%
6. Knowledge Transfer	80%
7. Managing policy challenges & interventions	80%
8. Build confidence to motivate the investment community	80%
9. Reduce dependency on foreign fund	70%
10. Overcome Capacity limitations of the parties	70%
11. Breaking monopoly of Services Providers	70%
12. Financial & economic Risk Management	60%
13. Building a long-term relationship based on mutual trust.	60%
14. Impose penal options on poor performance	50%
15. Aligning Performance and effectiveness	50%
16. Customer Community engagement	50%



**Figure 22: Challenges of the implementation of PPP Project and the Percentage of Respondent**

- The experts discussed about the failed PPP cases and mentioned the following reasons of failing PPP Projects In Bangladesh:

<b>Reasons of Project failure:</b> *(Ranked in terms of Seriousness according to the Experts Responds & Author's observations)	<b>Percentage of Respondent Mentioned:</b>
1. Wrong Project Selection	90%
2. Faulty Feasibility study	80%
3. Erroneous Model Selection	80%
4. Aggressive & wild bidding	70%
5. Changes & Disputes about the scope of work	70%
6. Lack of capacity of the parties (in terms of experience)	60%
7. Legal Dispute	50%

8. Wrong estimates	50%
9. Bad intentions of the Investors	50%

- **80%** of the responding experts thought that PPP is an effective solution to improve integrity and mitigate corruption in the country.
- **70%** of the responding experts thought that having a trusted understanding among the partners is important for successful PPP management.
- 80% of the respondents believe that PPP is effective in achieving development goals.
- 50% of the respondents said that PPP can be a tool to solve SDG (Sustainable Development Goals) Challenges.
- **80%** of the respondent expressed that innovation & practice of creativity in PPP design will bring good result for the economy.
- Content analysis suggested a number of potential sectors for PPP. Combining it with the experts mentioned the following sectors are found prospective for PPP Projects in Bangladesh:

<b>Prospective Sector for PPP Projects:</b>	<b>Percentage of Respondent Mentioned:</b>
1. Agriculture, Afforestation, Agroforestry,	90 %
2. Alternate Power (Solar Power System]	
3. Environmental recovery (river recovery) , Climate Management	
4. Water Treatment, Waste Management Programs.	
5. IT Infrastructures (Communication backbone management, Data Center Management and service delivery),	
6. Blue Economy related Projects (Marine Fishing Facilities, Marine Transportation, Marine Tourism, Marine natural resources exploration) ,	
7. Air Transport , City Transport: Metro, Tunnel etc. & Expensive Tourism	60%
8. Special Economic Zones, Export	

Zones	
9. Industrial Parks (for manufacturing), Technology (Hi Tech) Parks	
10. Agriculture, Afforestation, Agroforestry,	50%
11. Alternate Power / Solar System	

### 5.7 Discussion on the Key Findings of the Interview:

In last 12 years average GDP growth of Bangladesh was 6.56% and ranging up to 8.15 % - was the highest growth rate among (in the year 2019). From the interviews with the professionals it is understood that, the GDP growth rate is expected to be contributed by the PPP Projects in such a way that the projected growth rate can overreach the average growth. As per the projection, to increase the GDP in coming years Bangladesh need to invest \$1,150B by the year 2041 to achieve GDP (nominal) \$2,580B & GDP (PPP) \$6,950B, where contribution from PPP will be much significant and investment also correspond the asking growth rate. According to a publication of the Asian Development Bank (ADB), up to now \$6.74 billion has been invested in PPP projects against the requirement of \$384 billion by 2030. [*Ref: "Public Private Partnership Monitor, Bangladesh.*].

Based on the Interviews with the Key Informants, the outcomes in this study can be concluded by saying that, PPP is much prospective and had significantly contributed to expedite the development of Bangladesh with regards to attaining a faster growth path. Most of the experts endorsed that PPP Business model is **very effective** for implementing development Projects in Bangladesh, according to the researcher's own observation it still seems that there are rooms for DEVELOPMENT with the PPP business models. Generally the findings we got are kind of mixed. While there is some clear evidence of efficiency gains restricting from the performance of PPPs, especially in infrastructure, power, communication and Industrial / Economic Zones Sectors. So it is literally difficult to determine it explicitly that, PPPs are always the best solution.

Checking through the lenses of effectiveness - it has identified some major issues & challenges with PPP Projects approach. The indication regarding Effectiveness, Issues & Challenges got from the study of PPP approach is discussed below:

### **5.8 Finding on Effectiveness of PPP model for a faster development path:**

- PPP Business Model is effective for Faster Development with regards to implementing & Managing development Projects in Bangladesh, once there is a suitable PPP model in place - which can be innovation based tailored made / hybrid as requires.
- PPP can effectively play a good role for attracting FDI in the economy - that can also support faster development.
- PPP model is effective to improve overall integrity - which will encourage Good Governance Practices through ensuring Transparency and will ultimately mitigate corruption & system loss in the country to supplement the rapid development.
- PPP will ensure a Win-Win result for both the parties engaged (Public & Private in terms of ROI, Profit, and Public Benefits) that will keep them motivated towards faster development.
- PPP can be a tool to solve SDG (Sustainable Development Goals) Challenges which will help to ensure a balanced development of the country.
- For the Complex Problems with regards to Development, PPP can be recommended as a practicable and management oriented solution for the country.

However, as a business model PPP can claim its effectiveness - which is justified by the evidence in support of the fast track National development. But there is always room for further improvement with the practicing models, so in the recommendation part - the researcher recommended an effective model for PPP Practice in Bangladesh.

### **5.9 Issues found Related to PPP Practices are discussed here in order of seriousness:**

1. Wrong project selection is an obvious problem with the PPP Management practices.
2. A faulty feasibility study sometimes creates glitches in the result of PPP modeled projects.

3. Wrong estimates due to overvalued costing leads to cost overrun & schedule disappointments. Inaccuracy in estimates will mislead the PPP project.
4. Erroneous Model Selection leading to inappropriate Risk allocation is often reasons for PPP Project failure.  
Sometimes private firms accept risk beyond their capacity - which causes terrible result end of the day.
5. Aggressive and wild bidding frequently negatively impact the benefit / cost ration of the Project.
6. Due to unwanted Legal Dispute Projects sometimes suffers a lot. This kind of Unwanted implementation delays is always an issue in the PPP practice of Bangladesh
7. Project funding complexity an important issue to care in PPP Financing. Inadequacy of Financial regulation is also an important problem in PPP financing matters.
8. Lack of capacity based maturity (in terms of Technical & financial skills) of the parties at times causes the projects suffer badly.
9. Little Changes in the Project scope of work sometimes lead to disputes situation which causes to strike the progress.
10. Inappropriate Quality Standard is the root cause of project frustration.  
As per agreements Private sector is bound to cover only what it is to be paid for and not any more of that, consequently the question of quality sometime become minor, and so there is always risk of quality failure.
11. Lack of cooperation among the partners occasionally hampers the project result.
12. Active Political Connections most of the time influences the process to win contracts which results in suffer the project adversely. Some projects may become seriously challenging politically or socially to introduce and implement.
13. Lack of confidence and bad (immoral) intensions of the Investors often impact the project consequence.

### **5.10 Challenges in PPP based development:**

The researcher identified some general challenges of PPP approach based development Projects, as discussed below:

1. Monitoring & managing the Driving Forces and CSF (Critical Success Factor) intended for faster development is very challenging for Bangladesh.
2. Measuring the rates for PPP Projects in contrast with the market-based rates is really tough to assume. In most cases theme building, bidding and other ongoing miscellaneous costs involved in PPP projects are perhaps greater than those of traditional procurement processes, so for the government - justifying these additional cost in the sense of business is really challenging. It seems that PPP is an expensive option for Bangladesh.
3. Performance Tracking of the PPP Projects & maintaining the KPI driven Success Index requires a huge effort.
4. Tracking the frequent changes with scopes & deliverables will be a challenge for the PPP Information Management System.
5. Institutionalizing standard PPP Management practices is a huge job.
6. Building Learning curves & to create experience based knowledge is tough & trial & error basis 'learning by doing' practice is always expensive for the development of the country. To overcome the limitation of capacity of the contracting authorities and match making with on hand experienced parties in handling PPP projects is also challenging.
7. Knowledge Transfer is much difficult in PPP sector.
8. Managing policy challenges, policy interventions were identified as a challenge for Bangladesh.
9. Building confidence to motivate the local / international investment community is really a challenge for Bangladesh.
10. Reduce dependency on foreign fund is a time critical mission for Bangladesh.
11. To overcome Capacity limitations of the parties it requires huge capability building movements.
12. Breaking the monopoly of Services Providers needs a massive intervention.
13. Financial & Economic Risk Management needs additional care & due-diligence. Handling Economic or financial risk will be a challenge since any variations in the rates of interest, exchange rates or inflation situation can unexpectedly impact the

- project results. Literally finding a bankable project is really challenging in the current setting of Bangladesh.
14. As it is important to balance the interest of different parties, Building a long-term relationship among the PPP partners based on mutual trust for risk sharing & revenue management is challenging.
  15. Imposing penal options on poor Project performance is very critical to handle in Bangladesh. Calling the Re-negotiation process due to any contingency is also very challenging. Addressing the legal enforcement issues is also of huge challenge.
  16. Aligning Performance, value addition and effectiveness of PPP based development projects is much difficult in Bangladesh.
  17. Engagement with the Customer Community is an advance stage mission - which is also challenging.

### **5.11 Rooms for Improvement in PPP Practices:**

Throughout this study, there are some areas observed around the current PPP Practices & thoughts in Bangladesh - where serious Improvement is required. Basically these thoughts have been generated from the issues & challenges discussed earlier:

1. Improve Project selection Criteria through a Feasibility check list, so that unsolicited proposals can be filtered through a standard eligibility criterion.
2. Error correction of Estimation, Model Selection, Risk allocation & Bidding Process to improve cost efficiency and overall project success rate.
3. Avoid Project delays & properly handle legal / dispute issues.
4. Building PPP related capacity of the country is a potential area to put efforts. PPP can be utilized to develop capacity of the private sector of the country by having joint-ventures international firms with capable international companies.
5. Solve the Project Financing Issues.
6. Focus on Quality Management in every steps of the Project.
7. Enhance Cooperation among the PPP partners
8. Reduce Political influence (negative influence) on the Project.
9. Build Confidence among the partners.

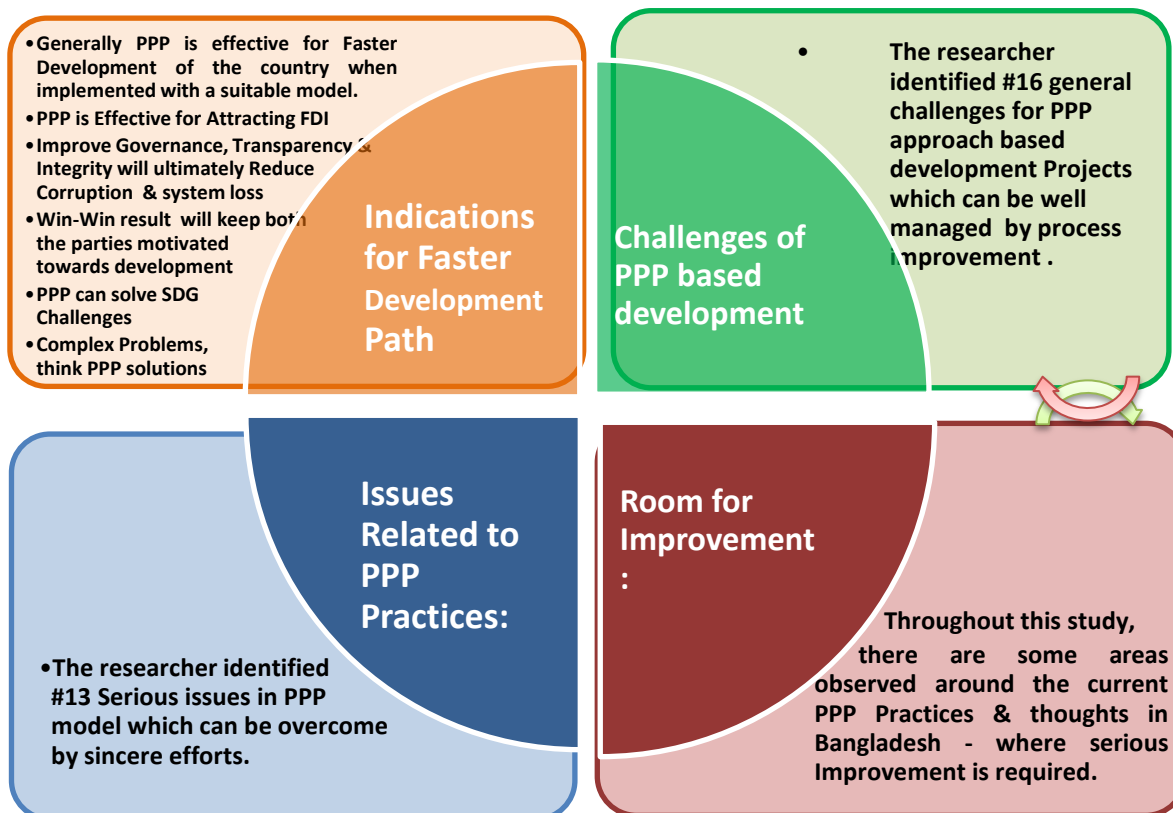


10. Properly manage the Project performance and tracking of KPI achievements.
11. Widely institutionalize standard PPP Management practices to build a credible PPP pipeline at national level
12. Insert Innovation & creativity based components backed by proper research in PPP design to have suitable partnership models.
13. Co-create experience based knowledge & build a national PPP learning curve by benchmarking examples from the developed world.
14. Devise knowledge transfer techniques
15. Keep the investment community motivated by incentivizing them properly.
16. Put efforts to ensure Fund sufficiency & Reduce foreign fund dependency
17. National level Capacity Building for PPP management
18. Create fair competition among the partners
19. Build trust for a long-term relationship among the PPP players.
20. Discourage poor Performance & system loss of the PPP Projects.
21. Nationally align PPP Projects performance & effectiveness components to create synergy for development management.
22. Engage the Customers community in various levels of PPP Practices.
23. Frame Good Governance Principles for PPP sector & encourage its practice through regulation from the Government side. Besides from the Private sector should practice Good Governance in the joint projects.

### **5.19 Summary of the Key findings:**

This study identified sixteen general challenges for PPP approach based development Projects which can be well-managed by major process improvement. The researcher identified thirteen serious issues in PPP model which can be overcome by sincere efforts. Throughout this study, there are some areas observed around the current PPP Practices & thoughts in Bangladesh - where serious Improvement is a must. It can be concluded that PPP is effective for faster growth & development of the country - when implemented with a suitable model. The study shows that PPP is effective for attracting FDI – which will also ensure growth. According to the study finding -

improved Governance including Transparency & Integrity will ultimately Reduce Corruption & system losses in PPP ventures. And in PPP Win-Win result will keep both the parties motivated towards development of the country. It suggests that PPP can solve SDG Challenges. In accordance with the findings it can be said that, in complex problems PPP can help with good solutions.



**Figure 23: A Summary of the findings**

**Discussion on Key findings of the study those corresponds the main research questions:**

**Table 13: Key Findings:**

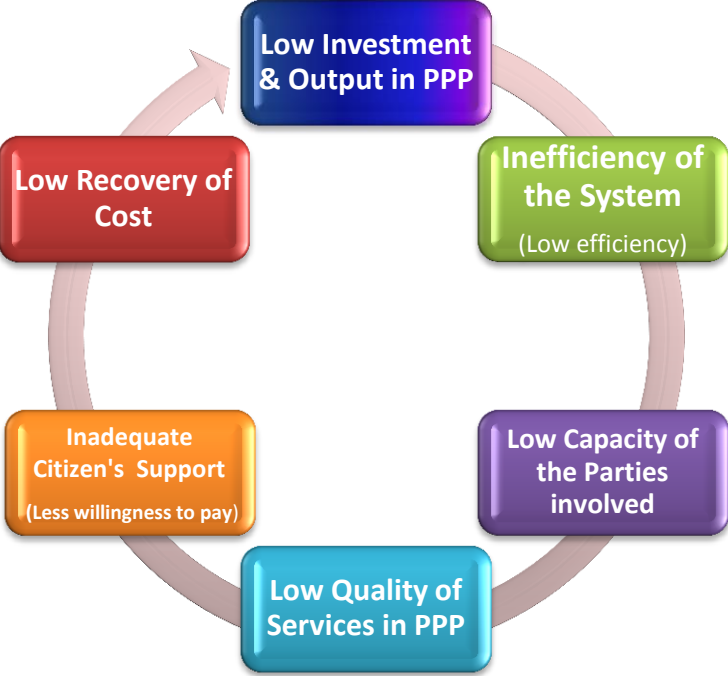
SI No:	Key Findings:	Remarks:
1	Generally PPP is effective for Faster Development of the country when implemented & managed with a suitable model.	Satisfying the Research Question - 01

2	The Issues & Challenges identified with PPP model can be overcome by addressing the gaps through process improvement initiatives.	Satisfying the Research Question - 02
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**5.20 Other important Takeaway based on the observations and the research experience:**

**A Vicious Cycle found in PPP Sector:**

Analyzing the interconnected findings of this study both from the content analysis & the expert opinion - there is a crisis situation seen in the PPP ecology which can be explained by the vicious cycle principle - which is actually a low level equilibrium trap for the PPP practices in Bangladesh. The investment in PPP is low - due to having inefficiency of the system, which causes low quality of services from PPP outcome, and so the citizen’s support is less for PPP projects. Then again it starts with underinvestment in PPP concerns and the whole equilibrium remains at a lower level than requires and could not get out of the loop easily. Individual experts from different back ground also mentioned the issues in their own views.



**Figure 24:** Vicious cycle of the low level equilibrium seen in PPP Practices of Bangladesh

There are some other Important Findings regarding ‘Few common Misconceptions about ‘PPP for fast track development of the country’. At the inception it was thought that, PPP is an instrument for achieving faster development of the country but the fact finding efforts evident that appropriate use of PPP method is important to achieve positive result regarding the economic growth of a country like Bangladesh. From the content analysis it was found that the respondents discussed about a number of prevailing misconceptions among the general people about PPP Projects; a good number of experts opined that this false perception need to be rectified with proper care otherwise it will impact acceptance of PPP model in development practices.

**Table 14: Misconceptions around PPP Concept.**

<b>Misconceptions:</b>	<b>Facts &amp; Reality:</b>	<b>Remarks</b>
“The Government has much less concern about PPPs in Bangladesh. “	The reality is that Govt. usually holds a stake in it - independent of its participation in the project directly.	Observed that Misconceptions are not any isolated occurrences; they have originated from the factors like: personal experience, lack of examples, glitches and errors, and media representation etc. But, Learning should be taken seriously to overcome the barriers for learning. So, the researcher recommends for sincere efforts to revise misconceptions and generate accurate knowledge on PPP & development.
"PPP project is a universal remedy for infrastructure development."	Fact is that: Covering all the infrastructure needs by means of PPP mechanisms may not be feasible nor be desirable due to many of its limitations, which are basically reliant on on the socio-political-economic context.	
“Generally it was thought that PPP projects are much less expensive.”	This is not right, in cases where the higher cost of borrowing is hardly can be offset through the efficiency gains.	
"The public sector relinquishes its responsibility about PPP Projects.”	In reality, governments constantly try to preserve some sorts of regulatory control in terms legal procedures, policies and regulations over PPP Projects.	
“Private sector has nominal influence on PPP”	In reality, Govt. can anytime delist of the non-viable projects, because private sector disinterest would harm the current PPP wave	

	of initiative of the government.	
"PPP projects need to be large and its investment intensive."	It is not a thumb rule; in real practice PPP projects need not to be large always, but to be of a manageable size. There are a lot global PPP examples which are small in scale.	
PPP is a name of Privatization.	Not really, it is to develop partnership among the Government & private partners concerned.	
PPP are not for the poor people,	No, it can be inclusive of the need s of the poor & marginalized population of a country. It is related to the design, scope & context of the project	



## CHAPTER SIX

### CONCLUDING REMARKS AND RECOMMENDATIONS

#### 7.1 REMARKS:

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The chapter explores findings based implications of the results. The chapter has prudently observed the messages of the results for PPP sector in Bangladesh economy and proposed several recommendations.

Actually effective partnership enables public sector players to solve development challenges by capitalizing on the non-traditional resources, private sector's expertise and the market based practices which can ensure a greater result and sustainability. Events of shaking hands among Public & Private partners through PPP approach are relatively new phenomena in the national and international development practices, especially in Bangladesh. Due to endorsement and upholding by the United Nation's programs - PPP has been recognized by a lot of governments, academics and researchers worldwide as a promising instrument in favor of sustainable development. PPP is believed to create Cooperative Growth and Synergy for national development. Along with economic growth large scale development projects are keys to overall economic development of a country which can be done in PPP fashion. Making the PPPs work for the balanced development of the developing country is challenging with regards to financing, management & implementation outlooks of the project, still questions remains there about its success path & effectiveness. For a low-middle income developing country like Bangladesh, PPP based development projects need to be implemented with highest care, so that the partnership can be a win-win engagement.

PPPs can be a supplementary as well as alternative initiative for the development of the country Bangladesh, most importantly it can be considered as a multipurpose tool for development. PPP is identified as a key force in driving the accelerated growth for a developing country like

Bangladesh - which country is expected to cross the development milestones soon to be graduated as a developing country. PPP can be taken as an instrument for desired changes in terms of achieving SDG, for higher & sustained economic growth, for a more efficient management of public Infrastructure and resources, for a vibrant private sector that is transparent to the investors and the society, for a reduce in corruption, and for a good inflow of private funds from domestic and foreign investors, and finally contributing to build the country following the Bangladesh Vision 2041. Negative issues those hinders smooth development of the country need to be overcome by right efforts, and the challenges on the way of development should be abridged as well as keep manageable; otherwise the faster development agenda of the country will become far-fetching . Considering PPP for their development projects - developing countries like Bangladesh can have a spare method for service delivery to satisfy their public service related commitments and drive towards augmented prosperities. PPP approach can be used to make a big difference in the bottom line of the public service delivery to bridge the gaps for pursuing a faster growth track for the country.

This study went through a well-structured process to reach its goals by formulating the Research Objectives, Problems, Theoretical Framework towards research results, implications, contributions & limitations. According to this study's findings, it can be said that, there are many factors and Success Indicators plays important role in the effectiveness of the PPP approach. Selection of the right Model is just one vital factor for the successful project implementation but other factors cannot be ignored which are also substantial for achieving success in the context of Bangladesh (as example: Technical capability of Project Management, Project Funding, Quality insurance; having right Policy Framework etc.). Need based Innovation is another important element to be considered here to draw an effective PPP model.

PPPs have been taken up around the world since they are able to offer flexible arrangements for bringing required capacities together to implement a wide range of large-scale (mega) projects. PPP based projects can enables government to satisfy its obligation of services delivery to the citizens on the other hand ensures required return on investment for the private sector. PPP mega



projects are widely accepted worldwide for delivering a ‘win-win-win solution’ [triple win/3W situation] that make all the stakeholders benefited including the surrounding people & environment.

PPP nowadays can be recognized as a highly promising method to handle the strategic development issues by leveraging on the private resources, expertise & creativity to organize activities in innovative ways to ensure result; but PPP is not an answer to all development issues & challenges. “*PPPs should not be considered as a panacea to address the infrastructure needs of countries*” (Guasch, Laffont & Straub, 2008; Casady et al., 2020). So, PPPs should be considered as a potential option for faster development initiatives for Bangladesh. PPPs are not really a ‘magic bullet’ for development’ rather their effectiveness must be accustomed in a case-by-case basis. While considering a PPP engagement, the public authority needs to assess & capitalize on the economic value of such a partnership with private parties, anticipating the potential benefits, efficiency gains, and also the possible risks and returns involved.

## **7.2 Recommendations:**

This study suggests a set of guidelines for deciding on the appropriate models in PPP Projects in Bangladesh:

### **A set of Guidelines Recommended for selecting the appropriate models in PPP Projects:**

Based on the study findings and discussion in the project reports, a set of Guidelines for choosing the appropriate models on Transport, Power and Energy, and Social & Government infrastructure sector can be drawn as follows:

**7.2.1 For the Transportation sector the following thoughts can be useful while selecting the model:**

- Build-Operate-Transfer (BOT) model is suitable for managing the medium to large scale projects which are having contract periods of 30 years or less. Worldwide - BOT is the mostly used model especially in developed countries. This model is the best option for transportation sector with regards the upcoming development projects in Bangladesh.
- Build-Own-Operate-Transfer (BOOT) model can be used effectively for those projects which have longer contract periods more specifically having contract periods of greater than 30 years. This model can be useful for large constructions with huge budget limits and low expected rate of return.
- Operation Contracts and Management Contracts can be good options for existing facilities already in operation in transportation sector. In case of damage repair or in need of regular maintenance of the existing Roads, Infrastructure & Facilities in operation, and existing ports and bridges of which service quality degraded due to depreciation or requires regular maintenance - can be managed through these types of PPP contracts.

**7.2.2 For the Economic Infrastructure Sector the following views can be useful while selecting the model:**

- Design, Build, Finance, Operate and Transfer (DBFOT) is suitable for long-term project (more than 30 Years of Project length) in the Economic Infrastructure Sector. In the project area where government doesn't have any expertise can transfer the projects to private sector through DBFOT model. This model can be useful for mega infrastructure like: Economic Zones, Industrial Parks, Hi-Tech Parks and EPZ etc. Bangladesh Government is working to establish 100 Economic Zones in the strategic locations throughout the country by the year 2030, DBFOT and leasing out can be two good models recommended for the PPP based EZ.
- Operation Contracts and Management Contracts can be a good option for maintenance of

economic Infrastructure like: Free ports, Deep sea Ports, Industrial Parks which are already in operation for a considerable time.

- At the present time - in Economic Infrastructure Sector G2G model (Government to Government based) is a good approach for establishing Economic Infrastructure (for examples: Economic Zones, Industrial parks etc) in a developing country. These kinds of Economic Infrastructure Projects may be executed through Construction & Management Contract by breaking it down into more than one phases. In procurement stage EPC (Engineering, Procurement and Construction) Contract is a good model on the other hand when procurement is not a serious challenge at the management stages PMC (Project Management Contract) is an effective model.
- Bangladesh should encourage PPP in economic Infrastructure Projects - which successful implementation will impact the development positively.

### **7.2.3 For the Power and Energy sector, the following recommendations can be followed:**

- Build-Own-Operate (BOO) model is the most standard and the best option for power and energy sector. This model has been used in this sector of Bangladesh for many years and maximum of the project is showing good success following this model.
- Lease contracts can be recommended as an option for power and energy sector if government owned infrastructures are given to deserving private parties to develop, generate and sell the power at a lower price to National Power Grid.
- Management and Operational contracting model can be recommended to develop the service quality and operating existing power grids already in operation.

### **7.2.4 For Social and Government infrastructure sector, the following guidelines can be followed:**

- Management and operational contracts are the best options for this sector. Government

can give the educational institutes, health care systems and citizen service based organizations under these models for ensuring proper and quality services. Build-Operate-Transfer (BOT) model can be used if any kind of social and government infrastructures needed to be constructed or reconstructed. Government can utilize the unused non-agro lands for making Hospitals, Community Centers and Educational institutes under this model of PPP.

- Lease contract is also an option for developing certain areas i.e. Economic Zones, Health Sector, Education Sector **etc.** in social and Public infrastructure sector.
- The guidelines for these sectors are not limited to the above recommendations. Many additional points of thoughts can be recommended based on the ground reality.

This study has recommended the following policy interventions based on the findings to improve effectiveness of PPP business model for contribution the national growth & development.

#### **7.2.5 Proposing a business model designed for PPP Project:**

Considering all the existing challenges found in this study to design a commonly accepted and sector specific PPP model for the dealing with the upcoming Projects in Bangladesh - a learning based approach can be contemplated which is flexible to obtain inputs from the earlier documented project's learning or knowledge as suggested in content analysis. The main objective of this model should be: to represent the facts with Minimization / zeronization of a set of Variables (negative variables like: Error, Cost-time over runs, corruptions, Defects) in X-axis and Maximization of a second sets of Variables [Positive variables like: Efficiency gains, Profit made, Public benefits produced (service delivery, employment, export), growth attained, development accomplished, achievements etc] in Y-axis. In this ideal model all other Crosscutting factors also need to be considered, namely: Critical success factors, regulatory activities, role of public sector, process for selecting the Private Partner (concessionaire), business model selection, capability of Private partners, risk management, cost and time management, HR, finance, Monitoring & result management, appropriate Model selection methods etc.

This proposed model is expected to produce effects on PPP practices towards ensuring faster growth for the country. The best alternative PPP business models can be identified by means of

being embedded with open and disruptive innovations through a progressive continued revision process, frequent adaptation and fine-tuning based replacements and addition on top of the existing business model in practice. Shifting of business models should involve modification of a single element, shifting multiple elements concurrently, altering the pattern of interactions among elements in the major components of innovation (for example: Value proposition, Operational importance, Human capital, economic and financial value etc).

This proposed model is based on three pillars, namely: World's Best Practices, Business Process Improvement (through innovation) and Harmonization of Factors. Based on which this model will flourish with balancing the weight of suitability, effectiveness, Challenges and Performance Maturity etc.

### **Assumptions of the proposed models:**

It is observed during the recent years in countries like Bangladesh - higher growth of the national economy many a times created exceptional demand of infrastructure and allied services which are vital for generating goods and services as well as important for keeping supply and distribution chains most efficient, consistent and worthwhile. Then PPPs approach came in to attention of every one, as traditional funding sources & scopes proved to be inadequate to cover the infrastructure finance requirements in most of the countries. Whatsoever - accessibility of private fund or having interest of the private sector cannot be the only condition for PPP concerns. Often in PPP cases certain additional costs involvement of private financing, as well some unseen kind of sunk costs, hidden costs and contingent accountabilities to government may come across in the medium and long run. Moreover, there are lot other significant aspects with regards to economic, social, political, legal, and administrative, PPP Projects Management (Communication, HR, Finance, Monitoring & Result management) an approaches those need to be evaluated wisely while permissions of PPPs are assumed by the authority / government.

Proposing a hybrid PPP model is not enough because there are limitations for Bangladesh. A model is very likely to be specific not common to every PPP Projects. Then, not necessarily all projects are viable through PPP (due to numerous reasons: political, legal, commercial viability, etc.).PPP approach sometimes prove to be a costlier option except additional costs are compensated by efficiency gains due to higher transaction and financing costs involvement. Ownership Transfer to a private party about a PPP driven infrastructure establishment some time

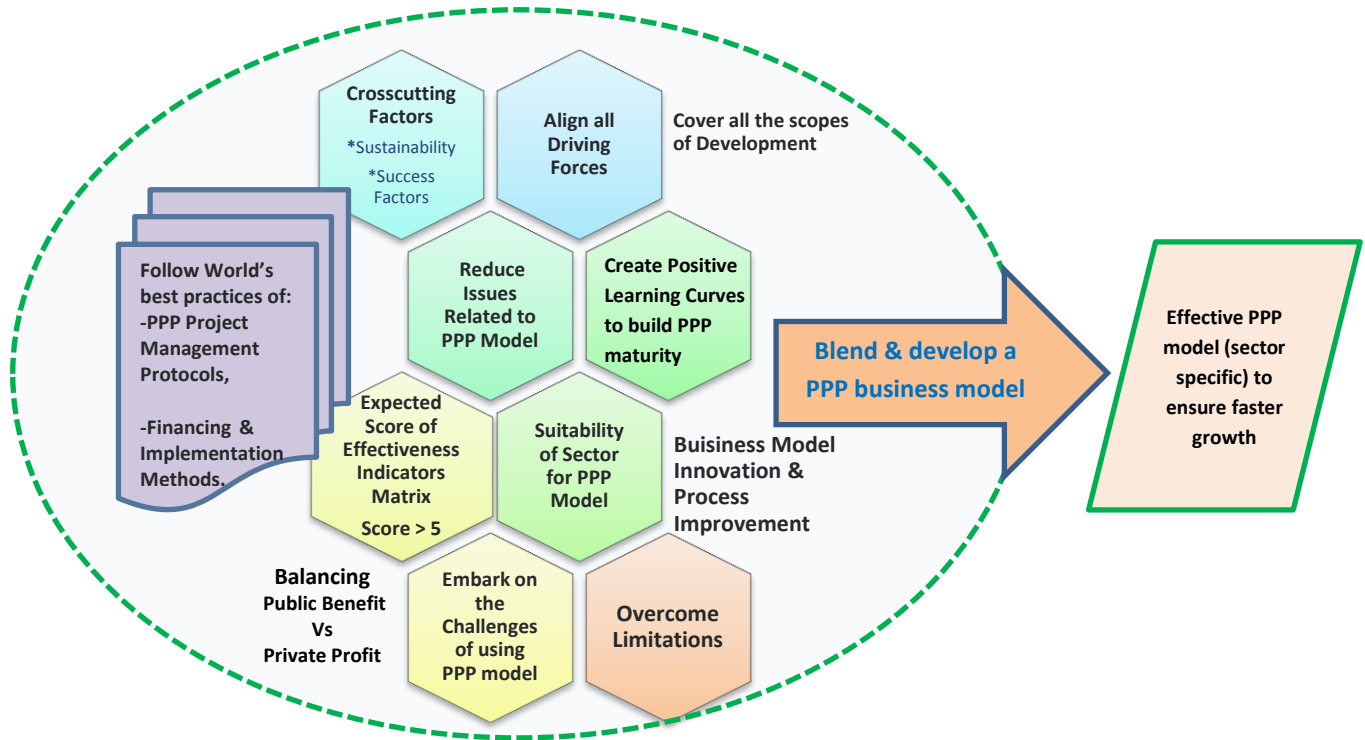
become inadequate to improve its economic performance excepting some other preconditions are satisfied; which may include: proper sector as well as market reforms, and required adjustment with the operational and management methods for up & running the services through the concerned project.

Therefore, efforts taken for bringing innovation and Creativity to practice efforts may fail every so often - which is a kind of risk for the Project success .Success requires a prior learning curve - so building up relevant expertise, knowledge creation & sharing requires extra care. Weak Dispute & Conflict resolution Mechanism among the parties can be a major reason for failing of PPP engagements in any model, which largely depends on governing efficiency & regulator's negotiation proficiencies. Maturity is required in that sense also. Due to high risk perceptions private sectors may also lose interest about PPP partnerships, sometimes it may also experience lack of confidence & capability for implementing projects; there should be incentives to offset the risk with lucrative return along with capacity building drive.

#### **7.2.6 Guidelines to follow for developing a PPP based suitable model for PPP Projects in Bangladesh:**

As the findings are diversified due to thoughts coming from a number of project scenarios and also from individual subject matter experts - it is very likely to suggest a hybrid model. The component of a suitable PPP model should include: Driving Forces for having Sustainable Development, Financial Impact, result oriented movements and gain of Management Skills etc. Suitability of Sector is a prerequisite component for implementing PPP Model. For an example: in the case of intangible Projects like: IT/ Hi-tech service facilities the modality and management priority should be predefined in contrast with the traditional models. For renovating business Model Innovation based components are must to be considered. World's best practices of: PPP Project Management Protocols, Financing & Implementation Methods etc. need to be in built in the proposed model. A PPP model must be keeping a well balance between Public Benefit & Private Profit with in its scope. Crosscutting Factors including Sustainability, Success Factors, and Fail Factors etc must be considered in the proposed model. Being guided by the findings &

discussion above a suitable model for PPP projects in Bangladesh can be developed as proposed in Figure: 28.

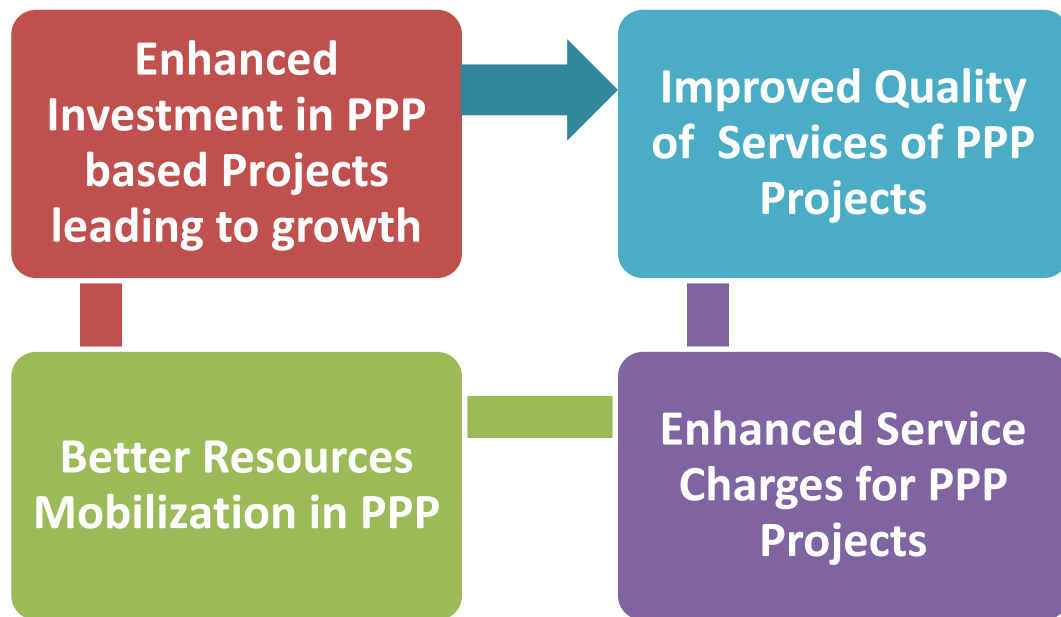


**Figure 25: A sector specific model proposed for the PPP Projects in Bangladesh.**

### 7.2.7 Policy Recommendations:

1. A befitting PPP approach for mutual benefits of Public & Private partners should be identified / devised and followed in the national level PPP strategy where win-win-win is the equation. Strong breaks through followed by serious interventions are required at the concerned levels of the said Vicious Cycle of the low-level equilibrium with PPP system discussed in section - 5.20. To escape of the trap - it should be started at some point; the entire eco-system must be reorganized specially with capacity building efforts for the PPP players to improve on the Quality of Service Delivery & Citizen's Support towards increasing PPP investment & its final outcomes to contribute the national growth.

As a kick off point for converting the Vicious Cycle into a Virtuous Cycle can be to put enhanced Investments in the Human Capital Development which will boost the national productivity, and in addition to that augmented investment in PPP projects for public infrastructure will contribute the national growth positively.



**Figure 26:** A Proposed Virtuous Cycle to beat the Vicious Cycle of the low level equilibrium trap seen in the PPP Practices of Bangladesh.

2. Considering the end result of PPP - Public Benefit VS Private Profit is always a point of controversy, whereas it requires and recommends an equilibrium condition. Authority need to define the core motivation of the project - whether it is initiated by public demand or driven by private interest. Regulator should reduce the negative elements to a tolerable level (zero tolerance level) of the Zero Tolerance Approach. And need to ensure a check and balance between the greed (hunger for dishonest gains) of the Private Sector and the corruption (immoral practices) of the Public Sector; otherwise - if it goes wrong, it could breed a wild 'evil twins' to impede & ruin the desired development path, which may turn up another critical problem for



development of the country. Since, wrong partner selection or weakly designed partnership may lead a PPP project to failure, there should be a safe exit plan in the extreme case of a bad bedfellow consequence due to unfair advantages taken by the Private Partner. There should be mechanism to deal & discipline the corruption - while ensuring the project's continuation; or else the impact of corruption will abandon a project in the worst case scenario and that will impede the development of the country.

3. Project identification and screening for PPP should be done prudently in order to find the right Project for PPP approach. Then it is important to find the right partner. Government must establish a solid control mechanism over PPP engagements, as sometimes private parties with immoral intension are sitting idle and killing time to do the needful on the other hands taking benefits of public resources. Government as a regulator should be cautious enough to checkout - if private sector is creating situation to ask for too much of favor on their behalf. PPP approach is not completely safe for development & growth of the country, if not handled carefully national assets might fall in a risk of expropriation.
4. To effectively continue, grow and contribute for development in the years ahead - a sound PPP ecosystem should be established ensuring a durable political support and greater institutional competence along with reinforced financial assurance backed by strong policy supports & national leadership. Also need to utilize PPP approach as a tool for Private Sector pulled development recipe.
5. Need to patronize PPP strongly & consistently at national level, which may afford an enhanced opportunity for a wider scope to make real differences in mechanism of public services delivery with special regards to management approach, technology usage and policy supports to bypass complex & time consuming bureaucratic process.
6. Policy coordination, right tuning & alignment should be taken care with regards to SDG & development objectives of the country - especially the policy those are in practice for PPP based Infrastructure development Projects (discussed in para 6.3) should be integrated into one central PPP related Policy to support national

development. Governments can use the SDGs as a framework to assess the PPP proposals. And the private sector can be motivated through sector specific incentives to find PPP driven avenues to address the sustainable development challenges of the country in a cost-effective approach.

7. Should recommend & devise a befitting Model based on Innovation in PPP sector, which can be a hybrid / invented model. Development of the partner's capability to plan, manage and taking part in PPP process is a key success factor here, which is very much pertinent for practicing PPP based innovation. To make PPP approach more effective there should be innovation on top of the regular business model in practice with PPP sector. Review based innovation in business model will make PPP Project more effective in terms of desired economic development of the country. Furthermore business process reengineering & development can support the innovation process in the business models of PPP Projects. There should be efforts to devise a befitting model based on research & innovation.
8. To enhance effectiveness of PPP Projects with regards to ensuring faster growth of the country - sector specific and applicable models should be recommended for effecting PPP projects in Bangladesh, end of the day it will bring PPP maturity for the country. To encourage diverse and multiple private sector engagement in overall PPP projects - the Design, Build, Finance, Operate and Transfer (DBFOT) / Design, Build, Finance and Operate (DBFO)/ Design, Build, Finance, Operate, Maintenance and Transfer (DBFOMT) concession based model can be recommended generally, which are almost close in nature and somewhat more friendly models for private sector over the conventional BOOT & BOO models. Especially in the cases of in the Economic Infrastructure Sector - of which Projects promise expedited growth in the economy and in the project areas where government doesn't have much expertise can transfer those projects to private sector through DBFOT model. These modes led by Private sector can bring good result for Bangladesh in terms of timely project completion & cost control. To materialize all the possible efficiency gains through PPP Projects there should be instruments handy to govern the process dynamics.

9. Should institutionalize perfect provisions & standard formalities for PPP projects. It is necessary to set perfect goals, policy & regulations, and to monitor and evaluate them on a regular basis using most recognized, transparent, and competitive methods. At every level of a project's implementation, especially in the procurement process, transparency must be guaranteed. Shortcomings of PPP for instance: concentrating mostly on high end technologies and high profit making accomplishments, mistrust among partners, lack of transparency and noncompliance to the agreements among partners should be overcome through ensuring best suit working procedure and policy guidance.
10. All the regulatory institutions in the country should be harmonized in terms of process simplification to improve shared performance in all the well-coordinated development projects assumed at a time. Establishing One Stop Service (OSS) system can be a good idea for facilitating an easy access to all licensing, regulatory and service support agencies through a single window.
11. To encourage private sector financing in PPP sector there should be policy provisions to create space for priority lending in the banking practice of the country. Provisioning it through bank borrowing, the rate of interest needs to be kept lower for PPP sector and Monetary policy must be aligned with PPP investment schemes too. Banks should be sensitized by policy intervention to create special options for PPP financing otherwise off shore financing spree will be encouraged and idle savings will rise in Bangladesh, which may be detrimental to expected growth. Some times VGF as a bidding parameter turned into a government subsidy end of the day. Usually Banks are not interested in funding private partners, so government can access the soft loan or dedicated line of credit scheme to cover the Viability Gap Fund (VGF) to hold an additional stake proportionately in the PPP project. This line of credit can be used for Viability Gap Financing in any PPP project based on requirement. Moreover, Competitive fiscal and non-fiscal benefit framework for PPP projects should be developed to inspire private sectors. An alternative Project financing model for PPPs can be developed based on Islamic business principle (ie. halal business concept based interest eliminated methods). Also Need to ensure balanced and need

based funding schemes for various sector specific PPP projects by the regulator to Improve Project funding support system for long-term financing by ensuring guarantees (through institutional arrangements.

12. All the Fast Track National Projects should be categorized and registered for fitness check through the PPP framework then the implementation model can be decided. To reduce complexity - Govt. should draft the first plan, then after viability check / feasibility study government will search for private partner to negotiate for investment.

Programs should be undertaken to create conducive investment environment for PPP Projects by positively sensitizing investment community considering the benefits & motivations of PPP Practices to build strong confidence. Need to place additional efforts at top level to overcome the 'lack of business' culture in the public sector and inadequate work experience in commercial projects.

13. Should improve the techniques for 'Knowledge Transfer' from Government sponsored research organizations as inspiration for the public sector to get involved in PPPs in new sectors & project domains. Need to facilitate Technical & Technological cooperation channels among the PPP players.

A project ends but in most cases Government obligation continues - citizens will keep asking the government for good quality of services. Accordingly public sector needs to maintain enough capability to carry out its responsibilities. So, 'Transfer of Knowledge' in PPP should get proper attention at national level.

14. Build trust based long-term relationship among the PPP partners. Need to find scopes to Implement PPP Projects through Government to Government (G2G) initiatives with friendly countries. In G2G model the partner will source funds with a lower interest rate from outside the country which will enhance project strength in terms of viability; on the other hand there will be FDI & new technology coming in the country- these three points will contribute to expedite the country's growth.

15. Need to confirm better facilitation with the public sector in terms of up-skilling for negotiation & IPR functions which are common for the roles of both the Public &

- Private sides having the risk of market interference; if the margin is not defined clearly between the Public & Private party's roles the public sponsoring continues to subsidize the private interest, Besides, as the private sector supposed to have better proficiency and with a certain period of maturity the will gain some data advantage as well as control over the project - strong reporting obligation must be there to ensure a balanced control. Otherwise, it will hamper the Project result.
16. To attain maximum return from private participation in PPP based projects - rational risks allocation in order to harmonizing of the gains to both the parties should be arranged. To attain the optimum value of public asset/money & private investment the government / regulator should set the management's priority in line with the core objectives of development.
  17. Should develop a National PPP Knowledge Centre in Bangladesh, which can be hosted in the top PPP related authority and will work as the key agency for creating, tracking & dissemination of knowledge about PPP Project Management practices along with having International affiliation backed by a central PPP Information Management System
  18. Should develop a National level PPP 'Think Tank' to progress further and to collaborate with other international organizations with regards to knowledge creation on PPP issues and upcoming challenges. And Need to establish National Research Cooperation for PPP issues concerning academia and industry to deliver worthwhile visions about PPP management trends.
  19. A well-accepted Conflict & dispute resolution mechanism should be developed to handle dispute arises (if any) among the parties of PPP. Moreover, need to build local capacity to handle PPP related arbitration process effectively and need to develop avenues to reduce conflicts of interest proactively. Need to provide protected environment for PPP Practice otherwise PPP will be detrimental to the development of the country.

20. Tendering / bidding Process for PPP should make more business friendly, transparent and paper less (digitized). Foreign investor's participation should be made easy to attract FDI in PPP sectors.
21. A skilled management cadre (pool) should be developed nationally to effectively handle the PPP based mega projects in the country & establish approaches for long term PPP Contract management (at both public and private ends). In the public end public service staff-members should be up-skilled by receiving standard training to handle the bureaucratic issues smoothly.
22. A well-accepted Conflict & dispute resolution mechanism should be developed to handle dispute arises (if any) among the parties of PPP. Moreover, need to build local capacity of global standard to handle PPP related arbitration process effectively.
23. To ensure good result from the PPP instruments the regulator should focus on the quality of the Project at national level in terms of good return & sustainability. PPP-Based Development PPP Projects of high economic returns should gain importance for the faster growth of the economy through developing more Economic Zones / Technology Parks Hi –Tech parks/ Free trade zones etc. in the country. Befitting PPP models should be conceived & exercised for developing economic infrastructures - especially building Economic Zones in the country. As Economic Zones can bring about higher economic growth, it allows the tenants to go for both export and meet domestic demand - besides substitute imports; therefore - EZs should be considered as an effective instrument for integration with world economy through PPP approach.
24. The PPP Regulatory Framework released by PPPPA should be analyzed & updated on a regular basis along with made-easy & clearly explained process flow for devising, evaluating and approval of PPP projects those are important for national growth. Avenues for adopting International Best Practices & ensuring coherence as well as similarity in the guidelines for projects taken in various sectors should be ensured there in the Regulatory principles.
25. Need to build a PPP Project's capability maturity model for Bangladesh. Should ensure appropriate public institutions and legislative arrangements towards attainment

a maturity level. Also need to enhance Capacity Building programs at national level with regards to PPP Project handling, problem solving & maturity gains.

### **7.2.8 General Recommendation based on observation & project experience:**

The study has suggested the following findings-based interventions as cross-cutting components in the PPP practice of the country for practicable solutions to the issues identified:

1. Recommending research & development activities to Identify & Bridge the gaps towards further development of PPP Practices in terms of Financing, Knowledge creation & transfer, Quality Improvements, Policy interventions, Management skills, maturity gaining and promotional activities.
2. Good Coordination among the Service sector institutions involved in PPP projects are highly recommended, with regards to the services like: Technical Feasibility Study, Fiscal Feasibility, Environmental Feasibility, Social Compliance Management, due diligence, Risk Management & backup, Insurance Coverage Services and Project Management & Financing services. This sort of dexterity will ease the complex project development and implementation process and also reduce cost of doing business in PPP sector.
3. Establishing a PPP Cell in every organization related to Research and Development can drive the progress of PPP - as well as appreciate PPP induced sustainable growth to contribute in faster National development. Every Project sponsor should have a well-equipped in house PPP cells to handle PPP Project Management concerns in accordance with the PPPA. PPP cells will capture lesson learned out of the project closer reports & created knowledge to share with the National PPP knowledge Centre.
4. Should develop a built-in Safety – Protection, Performance Guarantee (PG) and quality control mechanism in standard PPP Project framework & encourage its practice (For an example: Liquidated Damage (LD) / liquidated and ascertained damages" (LADs) etc keeping in consideration while preparing the PPP agreements).

5. Should develop research based home-grown innovations to add process improvements in PPP Models to make decisions considering the points of merit balancing the Profit Vs Economic Benefit for the country. The Practical implications of the research findings and recommendation should be discussed and documented for the general people, academics, researchers, development practitioners and the decision makers of the country. Need to facilitate public Research & Development scopes regarding various PPP issues as identified.
6. There need to have additional caution for the regulator to monitor & impose significant level of control, to prevent private partners to accept risk beyond their capacity. For an example: risk related to exchange rate risks or risk of existing assets will reflect in the price of the services which impact its competitiveness. Besides Private sector also requires to be warned to maintain caution if it is to bear unlimited risk.

Due to the long-term characteristics of PPP projects and its accompanied complexity, it is much challenging to predict all conceivable eventualities in the course of project development phase. Unforeseen happenings and problems may arise those were not estimated in the contracts- which may lead to renegotiate the contract to accommodate these emergencies. So, there should be buffer space in PPP agreements practice. Due diligence is always recommended considering the extensive contingent liability that could delegate on the Government's shoulder in PPP projects.

To make a PPP project commercially practicable, Government provisions should be there in the form of capital grant on top of the proper risk sharing. To support & appreciate the PPP projects from the government end there should be revenue grants, along with tax breaks or minimum income warranty coverage for a certain period; otherwise the additional cost involved in PPPs need to be borne by the end customers – which may cause public disappointments.

7. Need to put people first while planning skilling programs. Wider Training, knowledge management, knowledge transfer sessions and experience sharing sessions regarding Project Management success cases studies on PPP Project is required for up-skilling / re-



skilling the project associated people, and the retention of trained & skilled people in the sector / country to keep the PPP workforce & knowledge pool skillful is critically important for project's success.

8. Need to develop an effective diagnostic tool along with a national level dashboard for the government counterparts (regulator) to identify gaps in its legal, regulatory, and institutional framework or issues in particular sectors or with its access to finance for having a PPP enabling ecosystem. Government / the regulator on behalf of the Government should create PPP enable environment by ensuring compatibility of the legal & regulatory Frame works. Required adjustment of legislation should be taken care by adopted of Policy document on PPP.
9. Need to solve the problems & issues in current PPP performance measurement methods by developing a Process-based evaluation approach (for an example: KPI) to establish a measurement scale considering the Project's input, business processes, strategies and outcomes.

### 7.3 Implication for Future Research:

Based on this study some further prospective researches & studies can be recommended on the following aspects given in **Table 16**:

**Table 15: Recommendations for further prospective research:**

<b>Research theme:</b>	<b>Focuses:</b>
<b>PPP Project Management</b>	<ul style="list-style-type: none"> <li>• To find a befitting future PPP model for Bangladesh</li> <li>• Improvement of existing PPP Management Practice</li> <li>• To build the PPP Maturity Model</li> </ul>

<b>Research theme:</b>	<b>Focuses:</b>
<b>Explore Feasible PPP Sector</b>	Study can be undertaken to Identify the yet-unexplored sectors for PPP in Bangladesh, namely: <ul style="list-style-type: none"> <li>• Agriculture, Afforestation, Agroforestry,</li> <li>• Alternate Power / Solar System</li> <li>• Environmental recovery (river recovery) , Climate Management, Water Treatment, Waste Management Programs.</li> <li>• IT Infrastructures (communication backbone, data center management and service delivery),</li> <li>• Blue Economy related Projects (Marine Fishing facilities, Marine Transportation, Marine Tourism, Marine natural resources exploration) ,</li> <li>• Transportation: Air Transport, Metro, Tunnel etc. &amp; Expensive Tourism</li> <li>• Special Economic Zones, Export Zones</li> </ul> Industrial Parks (for manufacturing), Technology (Hi Tech) Parks
<b>PPP Project Financing Mechanism</b>	<ul style="list-style-type: none"> <li>• Alternative Financing (interest free profit based financing concepts)</li> <li>• Innovation in PPP design</li> </ul>

#### **7.4 Conclusion:**

It is crucial to emphasize that PPP arrangements may occur in a variety of configurations and are still a developing concept that must be tailored to the unique features & requirements of each sector, project, and stake holders. In fact, debate over the terminologies and definitions of PPP types itself reflects - how PPP approach have transformed over time, as well as how the regulatory framework that defines PPP has reformed in many countries, including Bangladesh,. To ensure the maximum of PPP benefits, it is necessary to understand the relative advantages and disadvantages of each project type, as well as the goals and objectives of each stakeholder. The role of the public sector, which might change from a supplier/service provider to a supervisor of service contracts as it finds higher return income in the PPP collaborations. So, PPPs must be meticulously evaluated in the project's context along with calculating public benefit & the relative gains to be attained in the approaches being practiced for PPP.

At present Public-private partnership model has been gaining popularity to support development of the developing countries in terms of its infrastructural development, SDG achievements & overall economic growth. Effective implementations of PPP projects are actually bound by various factors and associated with some issues & challenges, which needs proper attention for smooth development management of the country. To glorify PPP landscape of Bangladesh a good number of success cases in implementing PPP projects should be written, published, disseminated & showcased as a 'win-win-win story' of an emerging economy like Bangladesh. It should be emphasized on developing smooth partnerships between both the sectors as well as G2G initiatives based P3 models. Effective PPP initiatives may also provide support for post-COVID economic recovery in this crisis induced down turned period of the world economy. A positive PPP eco system should be created to support Bangladesh in achieving a faster economic growth along with its smoother transition to middle income status on the expected time (by 2030) & way beyond up to Year 2040. Therefore, rapid development of infrastructure is essential for the country growth.

Bangladesh is growing spontaneously; PPP approach can expedite its development by catalyzing with private parties' contribution in the growth path. Along with current development trends an projected US\$ 928.48 billion of supplementary funding is required to inject in the economy till 2030 for Bangladesh to meet the Sustainable Development Goals (SDGs) [Bangladesh Planning Commission, June 2020], this huge amount cannot be funded & managed merely by the government budget and now it highly requires private sector participation to bridge the investment gap. "PPPs are acknowledged by the governments particularly with heavy debt burdens, as magical solutions for the shortcomings of traditional infrastructure provision (Hammami et al., 2006)". Therefore, if properly planned and implemented, PPPs will considerably boost the national development and expansion across all socioeconomic sectors; which will benefit both the private and public sector actors.

The concept of PPP and its application is still to be refined & tailored for a developing country like Bangladesh. It need to be established as a 'WIN-WIN-WIN' approach for the development of Bangladesh, which will ensure advantages for all the parties concerned (Public & Private in terms of ROI, Profit, and Public Benefits and wellbeing of surrounding environment) that will

keep them motivated towards deserving development. PPPs in a sense help to develop the capital markets and also offer an instrument to channel private savings & capitals into the much-required infrastructure projects that cannot simply be covered by public allocations. Private parties can also contribute know how, creativity, and handling efficiencies that typically reduce service delivery costs while improving the quality. To ensure overall effectiveness to contribute the desired development of Bangladesh - the PPP approach should be tailored and built on the expertise of each partner; knitted with integrity & motivation of the partners and best practice based adoption efforts - where issues and challenges are handled carefully to reduce the risk of miscarriage in order to find a sophisticated means of balanced national growth.

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**Questionnaire for Key Informant Interview:**

**(Industry practitioners)**

**Research Topic: “Effectiveness of PPP (Public Private Partnership) business model as a fast-track growth driver in National Development”**

**General Information:**

**Name:** .....

**Profession:** .....

**Current Position:** .....

**Name of Organization:** .....

**Interview Questions**

**Part A –**

**Suitable Features & effectiveness of PPP Models for Bangladesh:**

1. In your opinion, is PPP a good model for Bangladesh in favor of its faster development?
2. In your opinion, what are the Critical success factors for implementing PPP model In Bangladesh?
3. In relation to your previous response, Rank the success factor in terms of importance?
  - I. ....
  - II. ....
  - III. ....
  - IV. ....
  - V. ....
4. In your opinion, can you name some factors which are important for PPP project success but ignored in daily discussions.
  - I. ....
  - II. ....



III. ....

5. In your opinion, how effective are the PPP Business model for implementing development Projects in Bangladesh?

Effectiveness Scale:

(a) Slight, (b) Moderate, (c) Serious (d) Not effective at all

6. Do you think Bangladesh can gain greater and faster economic growth & efficiency by taking up PPP Projects?
7. Can you give us an idea about the faster Development path through PPP?

### Part B –

#### Performance of PPP Projects:

1. In your opinion, what should be the key preformation Indicators for PPP Projects?
2. What is your opinion regarding the readiness of Bangladesh for taking up PPP based development mega Projects (cost more than 1 billion US Dollars) effectively?
  - (a) Just ready
  - (b) yet to develop further
  - (c) moderately ready
3. Do you think PPP can play an important role in attracting FDI in the economy?
4. In relation to your previous response, if your answer is YES, what will be possible impacts?
  - a) Do you think a dedicated funding option for PPP projects will be useful for PPP Sector?
  - b) If your answer is YES, then do you think syndicate loan will be helpful for PPP Projects in Bangladesh?

### Part C –

#### Issues & Challenges with PPP Projects in Bangladesh:

1. In your opinion, what are the major issues hindering the successful implementation of PPP Projects?
2. In your opinion, what are the general Challenges of implementing PPP Projects in Bangladesh?
3. In your opinion, what are the reasons (fail factors) of unsuccessful PPP Projects in Bangladesh?
4. Do you think PPPs is a solution to improve integrity and mitigate corruption?
5. Do you think having a trusted partnership among the partners is important for successful PPP Project Management?
  - a) What is your opinion regarding effectiveness of PPP Projects in achieving development goals?
  - b) In your opinion, in the case of SDG how PPP can support the development?
6. Do you think research based innovation & creativity in PPP design can bring good result for the economy?
7. In relation to your previous response, If your answer is YES, explain How It could benefits?
8. In general, do you have any recommendation / prescription/ thoughts/ constructive comments for improving the PPP approach for Bangladesh?

9. Do you think there are misconception about PPP that is to be corrected now?
10. In your opinion, which sectors are most prospective PPP Projects in Bangladesh?

**Part D - Case study Questions**

In this section questions about the selected cases including the model followed in the Projects will be asked to the respondents.

**(i) Transportation Sector: Mayor Hanif Flyover project**

Level of involvement in the Project? .....

1. What is your opinion about the Mayor Hanif Flyover project? Will you describe this as a successful project? What were the challenges in implementing this Project?
2. BOOT model has been used in this project, what was the background of choosing this model?
3. In your opinion, do you think BOOT is a good model for the transportation sector?
4. In your opinion, which models are good options for PPP projects in the transportation sector of Bangladesh?
5. Do you think the model varies depending on the project's conditions? If yes, what are the conditions for the selected models?
6. In your opinion, do you think PPP model is effective in term of development for the Transportation Sector of Bangladesh?

Effectiveness Scale:

- (a) Slight, (b) Moderate, (d) Not effective at all

**(ii) Economic Infrastructure Sector : The Mongla (PowerPac EZ Limited) PPP based Economic Zone Project**

Level of involvement in the Project? .....

1. What is your opinion about the PowerPac EZ Project? Will you describe this as a successful project? What were the challenges in implementing this Project?
2. DBFOT model has been used in this project, what was the background of choosing this model?
3. In your opinion, do you think DBFOT is a good model for the Economic Infrastructure Sector?
4. In your opinion, which models are good options for PPP projects in the Economic Infrastructure Sector of Bangladesh?
5. Do you think the model varies depending on the project's conditions? If yes, what are the conditions for the selected models?
6. In your opinion, do you think PPP model is effective in term of development for the

Economic Infrastructure Sector of Bangladesh?

Effectiveness Scale:

(a) Slight, (b) Moderate, (d) Not effective at all

**(iii) Power and Energy Sector: The Meghnaghat PPP based Power Project**

Level of involvement in the Project? .....

1. What is your opinion about the The Meghnaghat Power Project? Will you describe this as a successful project? What were the challenges in implementing this Project?
2. BOO model has been used in this project, what was the background of choosing this model?
3. In your opinion, do you think BOO is a good model for the transportation sector?
4. In your opinion, which models are good options for PPP projects in the Power and energy sector of Bangladesh?
5. Do you think the model varies depending on the project's conditions? If yes, what are the conditions for the selected models?
6. In your opinion, do you think PPP model is effective in term of development for the Power and Energy Sector of Bangladesh?

Effectiveness Scale:

(a) Slight, (b) Moderate, (d) Not effective at

**(iv) Social and Government infrastructure sector: Lease contracts at BEPZA**

Level of involvement in the Project? .....

1. What is your opinion about the BEPZA Lease contracts? Will you describe these as successful projects? What were the challenges in implementing this Project?
2. Lease out model has been used in this project, what was the background of choosing this model?
3. In your opinion, do you think Lease is a good model for the Social and government infrastructure sector?
4. In your opinion, which models are good options for PPP projects in the Social and government infrastructure sector of Bangladesh?
5. Do you think the model varies depending on the project's conditions? If yes, what are the conditions for the selected models?
6. In your opinion, do you think PPP model is effective in term of development for Social and Government infrastructure sector of Bangladesh?

Effectiveness Scale:

(a) Slight, (b) Moderate, (d) Not effective at

Thank you for your kind participation

## Appendix 2

**List of ongoing PPP Projects under PPP Authority:**

Sl No :	Project Name	Sector	Contracting Authority	Project Cost (\$mn)	Remarks:
1	Hemodialysis Centre at National Institute of Kidney Diseases and Urology (NIKDU) and Chittagong Medical College Hospital	Health	DGHS	3	Operational Stage
2	Dhaka-Elevated Expressway.	Transport	Bangladesh Bridge Authority	1,243	Construction Stage
3	Upgrading of Dhaka Bypass to 4 Lane (Madanpur-Debogram-Bhulta-Joydebpur).	Transport	Roads and Highways Department	350	Construction Stage
4	Construction of High-rise Residential Apartment Building for Low- and Middle- Income Group of People at Jhilmil Residential Project Dhaka	Civil Accommodation	Rajdhani Unnayan Karttripakkha (RAJUK)	1,174	Construction Stage
5	Bangabandhu Hi-Tech City (Block 2&5)	IT	Bangladesh Hi-tech Park Authority	210	Construction Stage
6	Bangabandhu Hi-Tech City (Block 3)	IT	Bangladesh Hi-tech Park Authority	25	Construction Stage
7	2 Jetties at Mongla Port through PPP	Shipping	Mongla Port Authority	53	Construction Stage
8	Economic Zone 4: Mongla.	Industry	BEZA	12	Construction Stage
9	Economic Zone 2: Mirsarai.	Industry	BEZA	735	Construction Stage

**List of recent PPP projects done in Bangladesh:**

1. Dhaka Elevated Expressway
2. Dhaka By-pass Toll Road
3. Gabtoli-Savar-Nabinagar PPP Road
4. Outer Ring Road
5. Chattogram-Cox's Bazar Highway
6. Dhaka-Joydevpur-Mymensingh Road
7. Circular Railway Line around Dhaka City
8. Bay Terminal and Patenga Container Terminal at Chittagong
9. Water Supply, Sewerage
10. Drainage System & Solid Waste Management System in Purbachal New Town
11. Khulna Khan Jahan Ali airport
12. Info-Sarkar - Phase-3
13. O&M of Mass Rapid Transit (MRT) Line-2
14. Multimodal Hub at Kamalapur and Biman Bandar Railway Station
15. Mayor Hanif Flyover Project
16. Sirajgonj gas-fired power PPP project
17. The Meghnaghat Power Project
18. Haripur Combined Cycle Power Plant
19. Mongla (PowerPac EZ Limited) Project

### **Glossary of terminology:**

- **Approach:** a way of dealing with a situation or problem.
- **'evil twins':** A counterpart that acts in a conflicting, wicked, or insidious manner.
- **Synergy:** Is the combined power of a group of things - when they are working together with a greater than the total power achieved by each of them working separately.  
Example: team work.
- **Triangulation:** In Data Management ground 'Triangulation' is a technique where the researcher uses two or more methods for cross examination and verification of the findings and results
- **Win-win-win [triple win / 3W situation]:** a situation that makes all the stakeholders benefited including the surrounding people & environment.