STUDIES ON THE FISH MARKETING SYSTEM AND OBSTACLES IN JESSORE DISTRICT, BANGLADESH

A Thesis Submitted to Department of Fisheries, University of Dhaka
in Partial Fulfillment of the Requirement for the Degree of
Master of Science (MS) in Fisheries

Submitted by:

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Registration Number: 2010-613-007   **Registration Session: 2010-2011**

Department of Fisheries

University Of Dhaka

Dhaka-1000

Bangladesh

February, 2017

Declaration by Student

I hereby declare that the dissertation entitled "**STUDIES ON THE FISH MARKETING SYSTEM AND OBSTACLES IN JESSORE DISTRICT, BANGLADESH**"submitted to the Department of Fisheries, University of Dhaka for the degree of Master of science(MS) is based on self investigation, carried out under the supervision(Dr. Md. Raknuzzaman),Department of Fisheries, University of Dhaka,Dhaka-1000,Bangladesh.

I also declare that this or any part of this work has not been submitted for any other degree anywhere. All sources of knowledge used have been duly acknowledged.

Name: Md. Sharif Raihan

Examination Roll: 815   **MS Session:2015-2016**

Registration Number: 2010-613-007   **Registration Session: 2010-2011**

Department of Fisheries

University of Dhaka

Certificate

This is to certify that the research study entitled **"Studies on Fish Marketing System and Obstacles in Jessore District"**submitted by **Md. Sharif Raihan**, Roll-815, Session:2015-2016, Registrationnumber:2011-612-746, has been carried out under my supervision.

This is further to certify that it is an original work and suitable for partial fulfillment for the degree of Master of Science (MS) in Fisheries from the Department of Fisheries, University of Dhaka.

We wish every success in his life.

(Supervisor)

Dr. Md. Raknuzzaman

Associate Professor
Department of Fisheries
University of Dhaka

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February, 2017   Author

ABSTRACT

The study was carried out on fish marketing system of Jessore district to find out fish marketing system and obstacles in Jessore district from October to December, 2016 in sixteen different fish markets of Jessore District. Among them Jhikargacha and Doratana fish market were identified as the largest fish market based on daily fish marketing. In study area it was estimated that total marketing cost of fish for aratdar, paiker and retailer was 1.325, 6.052 and 1.829 Tk in per kg of fish respectively. Cost item of fish for different intermediaries was Tk. 9.965 total which included aratdar commission, transportation, personal expenses, wastage, icing, wages and salary, market toll, rent and electricity, packaging materials, loading and unloading, telephone bill, grading and security. The highest marketing costs (Tk. 6.052) were for Paiker as they had paid highest aratdari commission and transportation cost. Average Net profit varied among Paikers, Aratdars and Retailers during peak and lean period, which is Tk. 3.317 for Paikers at peak period and Tk. 2.90 at lean period; for Aratdars Tk. 1.627 at peak period and Tk. 1.494 lean period and for Retailers Tk. 5.229 at peak period and Tk. 5.347 at lean period in per kg of fish. Ilish (*Hilsailisha*) had high demand to consumers and available in the market with approximate price of Tk. 250 to Tk. 300 per piece. During the study different kind of obstacles were identified in traders and consumers such as uncontrolled transport costs, poor facilities in road communication, inadequate drainage system, poor supply of ice and water, unhygienic condition of fish market, poor sanitary facilities, highest demand of labors, lack of storage and marketing facilities and political disturbances etc. Therefore, to maintain a standard system in fish market cost control among Paikers, Aratdar, Retailers and consumers is essential as well as development in fish transport facilities, introduction of fish quality control measures were suggested to mitigate different problems and improve the fish marketing system in the study area.
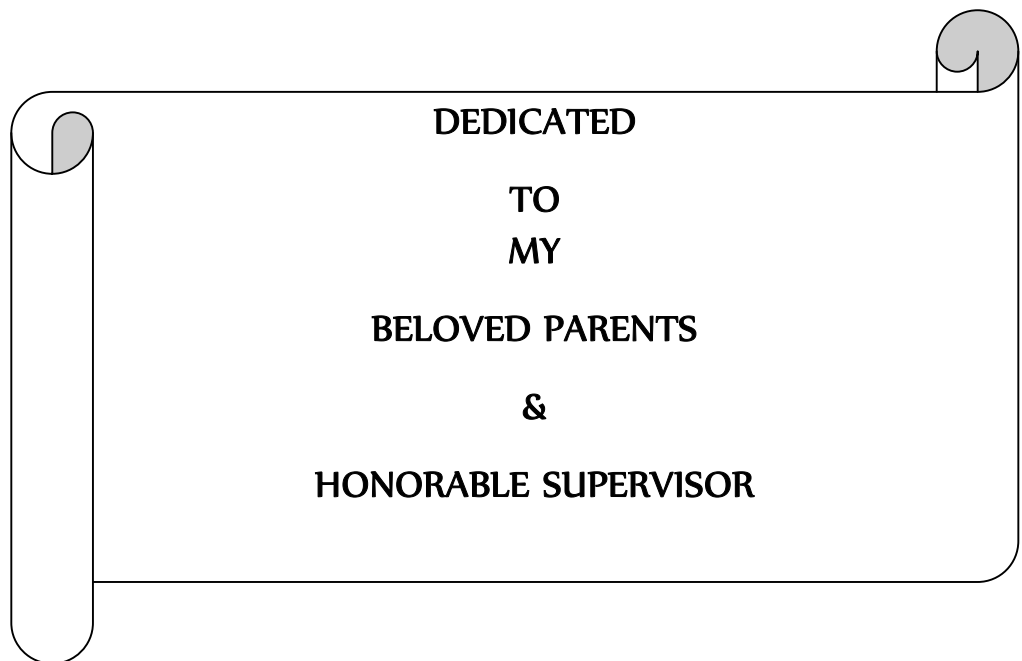
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INTRODUCTION

1.1 General introduction

Bangladesh is one of the resourceful country having a huge potentiality and development of fish and fisheries sector due to having many rivers, canal, ditches, lakes, ponds, estuarine, haor-baors and the Bay of Bengal.Fish is the second most valuable sector in Bangladesh and its production contributes to the livelihoods and employment of millions of people. Therefore, culture and consumption of fish has important implications for national income and food security. People of Bangladesh are popularly referred to as "Mache BhateBangali" or "fish and rice makes a Bengali".

The fisheries sector in Bangladesh is broadly divided into four sub-sectors- inland capture, inland culture, mariculture (artisanal fisheries) and marine industrial fisheries. On the basis of fish species number and abundance Bangladeshi fisheries resource is one of the world (Shah, 2003). There are 260 fresh water fish species and 475 marine water fish species are available in the water area of Bangladesh (Rahman, 1989; Hussain and Hossain, 1999).

According to Department of Fisheries (DOF, 2016) the total inland aquatic resources of Bangladesh consisting of 4699387 hectares which includes pond and ditches (371309 ha). Oxbow lake (5488 ha), shrimp farm (275274 ha), river and estuaries (853863 ha), beel (114161 ha), kaptai lake (68800 ha), flood plain (2702304 ha). These water bodies are highly potential resources for aquaculture development.

Fisheries and aquaculture sector have emerged as the second most important contributors in export earnings of Bangladesh. It is the second largest export industry in Bangladesh and produces 2.5 percent of the global production of shrimp. Though rice is the most widely produced agricultural crop in Bangladesh, fisheries has a unique feature for its role in providing an important source of animal protein and essential elements for the population. Fisheries sector is contributing 2.01% of the total export earnings and 4.39% to the GDP (DOF, 2016). About 12 million people are directly or indirectly involved in this sector.

Bangladesh has some 130 deep-sea fishing trawlers, 22000 mechanized fishing boats, and 25000 non mechanized fishing boats. Currently there are 133 fish processing plants in Bangladesh which are mostly located in port cities (Khulna and Chittagong) of which 74 processing plants are EU approved (Ghose, 2014). Though the country is endowed with enormous fishery resources which are vital to the livelihood of millions of people

and national food and nutrition security, the sector is facing major constraints including climate change, poor fisheries infrastructure, resource mismanagement, water and environmental population, natural disasters such as recurrent flood and cyclones, and lack of knowledge among farmers. Bangladesh is working with close collaboration with Department for International Development (DFID), World Fish Center and other international organization to develop the sector by building research partnerships and increasing investment. Community based management of fisheries is proving its potential to avert the longstanding political challenges farmers have been facing. The country, however, faces urgent imperatives to strengthen environmental laws to curb pollution which is significantly compromising the performance of the fisheries sector.

1.2   Status and potential of culture fisheries in Bangladesh

The fish culture in Bangladesh has a long history since time immemorial. However, as an agriculture activity the practice started from the beginning of the last century. In the past, people were used to culture fish, mainly for their own consumption and game purpose. In the face of rapid population growth with simultaneous decline in captures fisheries aquaculture emerged as a viable option for increasing production in our country. Freshwater fish culture mainly ponds based and to some extent It is done in oxbow lakes. Tremendous efforts have been given to the development of appropriate culture and seed production of different species. Successfully breeding techniques and culture method are now available for a number of species. Unfortunately, these are mainly centered on large indigenous carps (rohu, catla, mrigal, kalibaus etc.) and exotic fish species (silver carp, grass carp, big head carp, Thai pungus, African catfish, Vieatnamse koi etc.)

Fish production has been increased to 34.10 lakhs MT in 2012-2013, which was 32.62 lakhs MT in 2011-2012 and 25.63 lakhs MT in 2007-08 (DOF, 2014). This has been possible due to generation adoption of new and appropriate technologies. The high demand for fry/fingerling for aquaculture resulted in the development of infrastructure facilities both in public sector are engaged in fish seed production.

In spite of phenomenon achievement in culture fisheries sector, fisheries experts believe that it is possible to double the current value of fish production by shifting from traditional extensive and semi-extensive culture to intensive culture. The present level of per acre production in lower than neighboring countries, because the productive water bodies of Bangladesh have not been utilized properly for scientific fish culture. On the other hand, there is need for diversification of the culture species by bringing

new species under culture. Indigenous species, which have great potential for aquaculture, are neglected. Large fishes require large and permanent water bodies as their appropriate habitat. Therefore, sometimes culture of large fishes remains beyond the reach of poor people. Again, exotic fishes may adverse effects on our native fish species. Therefore, culture of native fish species, small fish in particular, would be the viable means for increasing fish production in the country through which the common rural people can be benefited.

A substantial number of derelict and marshy water bodies, approximately 18.37% of total ponds, are available in the country, which is not suitable for culture of carps. In addition to an estimated 1.3 million perennial ponds, there are hundreds of thousands of shallow seasonal ponds and ditches, borrow pits etc. in rural areas. Proper aquaculture as a whole and high density fish culture using supplementary formulated feed in particular is no very popular in Bangladesh. However, there is increasing interest in hardly fishes particularly those air breathing fish farming in Bangladesh. Among various production inputs, the choice of fast growing species with desirable aquaculture traits is a pre-requisite for augmenting fish production in culture based fisheries. Natural food based culture of major carp is still in practice in Bangladesh.

Jessore is one of the districts of Khulna division of Bangladesh. The district covers an area of around 4,363 square kilometers, with several small valleys between high forests. The city of Jesore stands on the bank of Bhairab River. Jessoreis the biggest town of greater Jessore district. A number of fish markets and fish landing centers are situated around the town. Fishes from different localities are regularly coming to the town through different transport systems for consumption of the town dwellers and other people. Some marine fishes (iced or dried), prawns are also regularly landing in this town.

Fisheries are recognized as integral component of agro-based production system in Bangladesh. It provides food nutrition for human and earns lot of foreign exchanges for economic development. It is also recognized as the potential sector for generating selfemployment opportunities and income generating for the unemployed youths and other peoples.

To make fish available to consumers at the right time and in the right place requires an effective marketing system (Bahaduret al., 2004). A number of intermediaries are involved in fish marketing system to transport fish from farmers to consumer. Preserving, transporting and marketing are three important links in the chain of fish

production and consumption connecting the producer, broker, wholesaler, retailer and consumer. Fish harvesting and marketing become profitable only when the fishery products are delivered in a wholesome condition and at a price acceptable to the consumers.

Fish marketing is almost entirely a function of the private sector and operates through a complex system of village markets (Hat), township markets (Bazar), assembly centers, major urban wholesale and retail markets. There is a corresponding network of personnel, from buyers who may be hat traders or agents of bigger bazaar fish merchants (Bepari/Mahajan) to wholesale market commission agents (Aratdar/Paikar) who effectively control the whole system. The fishermen are compelled to hand over their catches to the trader/middleman (Aratdar/Paikar) at a price determined by the latter. The middleman is not just a trader in fish. He is often an owner of capital like boat, net, etc., which he leases out to fishermen. He may be a fisherman himself owning and operating boat, gear, employing fishermen on a fixed wage as hired labourers and enjoying unearned income depriving the actual fishermen of the benefit of their labour and production. The exploitation of the fishermen is mainly due to the monopolistic set up of the fish trade.

Jessore region is recognized as the fisheries zone of our country. Both Inland and marine fish species are found abundantly in the JessoreDistrict. Availability of species in landing and with markets gives a rough knowledge about fish fauna available in this region. It also helps to show the real picture of species abundance of an area and thus also helps to evaluate the marketing system of these fish in Jessore town.

1.3 Problems in fish marketing

During the survey we observed fish traders faced different kind of obstacles in fish marketing. It included higher transport costs, poor road communication facilities, inadequate drainage system, poor supply of ice, poor water supply, unhygienic condition, poor sanitary facilities, lack of capital, higher demand of labors, exploited by middlemen, lack of storage facilities, lack of marketing facilities, lack of market information etc. According to retailers, political disturbances sometimes affect fish transport as well as marketing. As a result, perishable fishes get damage and the traders are to sell these at a cheaper price; sometimes they even fail to get any return, due to decomposition of fishes. Fish traders were asked to mention to top most problems as they fell regarding fish marketing. Where, 20% of the respondents identified unhygienic market place 25% poor supply of ice, 15% lack of capital, 15% exploited by

middlemen, 25% mentioned inadequate drainage system, were the most important problems for fish marketing.

1.4 Objectives of the Study

The present work was therefore undertaken with the following objectives:

I. To find out the existing marketing system of fish.

II. To analyze the price variation of fish at lean period and peak period.

III. To identify problems faced by the traders in fish marketing and to suggest for improving fish marketing system.

IV. To evaluate sanitation of fish market system

MATERIALS AND METHODS

The present chapter described the research methodology which was done to achieve the objectives of the study and explained the choice for selecting the methods for data collection. The study was based on market survey obtaining information through a sample survey among fish intermediaries.

2.1 Selection of study area

Jessore town markets were selected as the study area (Fig.1). It was important step to select an area and largely depend upon objectives which are selected for the study. In Jessore Town there were about 20 fish markets. Among them data was collected from 16 fish markets of which Jessorekachabazer and Arabpur fish marke were most important. The study area included Jhikargacha fish market, Godkhali fish market, Chachra fish market, Nutunhat fish market, Monirampur fish market, Bankra fish market, Jessorekachabazer ,Daratana fish market, Arabpur fish and so on.
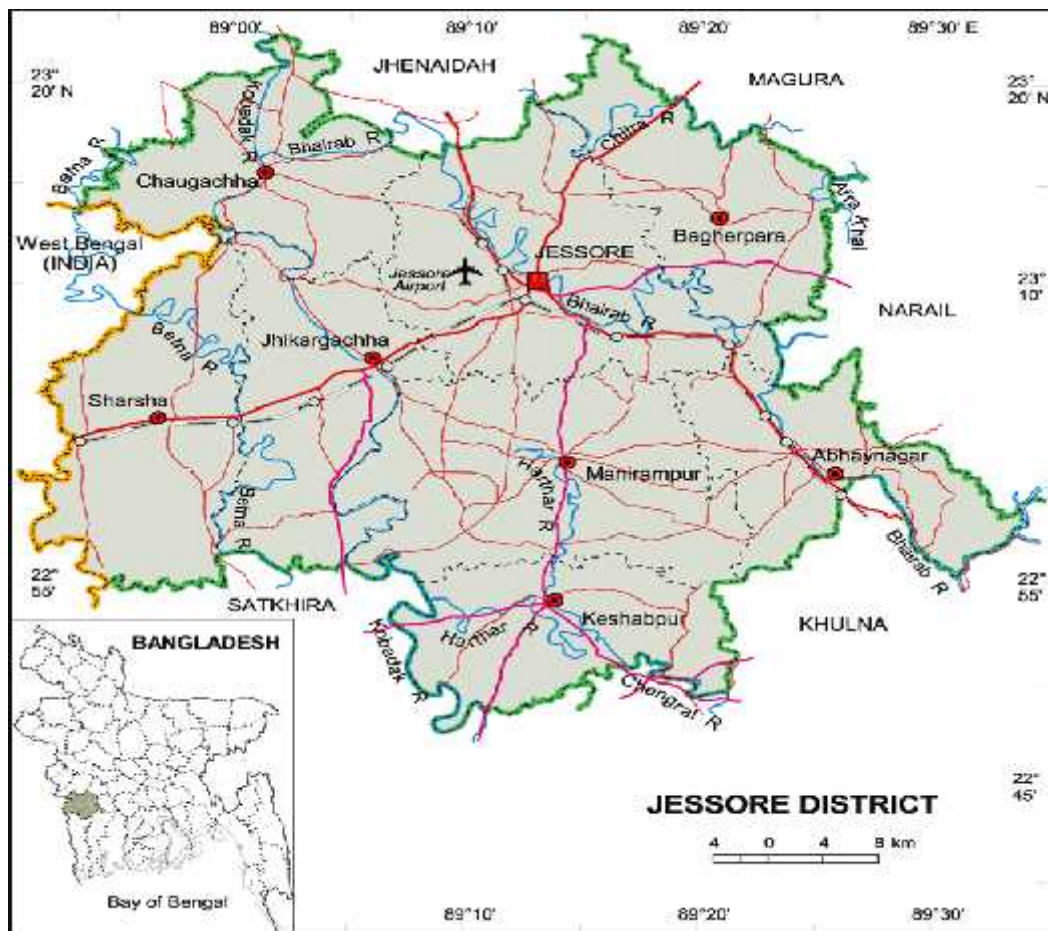
Figure 1: Geographicallocation of the study area

2.2 Selection of sample

Sampling is an important part of any research work. The traders who dealt with fish trading were categorized into three groups, namely Bepari, Aratdar and Retailer. In the present study those traders were selected who dealt with freshwater fish in Jessore town fish market. Data were collected from 35 fish traders at 20 fish markets.

2.3 Preparation of interview schedules

It is very important task of any research work to prepare an interview schedule. In this study to fulfill our research objectives, an interview schedule was prepared to collect data from traders. Before preparing the final interview schedules draft schedules were prepared in accordance with the objectives of the study. Then the schedule was pretested to verify. After necessary adjustment final survey schedule was developed (Appendix1)

In the present study, the criteria that were used to measuring the efficiency of fish marketing system were:

a) Financial support of intermediaries

b) Marketing cost

c) Marketing lost

d) Marketing margin of the intermediaries

e) Availability of fish

f) Problem faced by intermediaries

2.4 Period of data collection

The data were collected for Two month from November to December (2016). Three days were selected to collect data in a week.

2.5 Collection of data

In this study data was collected through an interview schedule. The main target group was Beparies, Aratdar and Retailer. By using interview schedules the researcher himself collected the relevant data from the selected intermediaries through face to face interview.

Figure 2: Interview with fish traders (Aratdar) at Jhikargacha fish market

Figure 3: Interview with fish traders (Aratdar) and Taking Data at Daratana Fish

Market

RESULTS

The main findings of this chapter are the marketing system and marketing channel of fish. An effort has been made to find out the marketing channel of fish which are performed by a number of fish intermediaries in Jessore town.

3.1 Marketing system

The fish marketing system in Bangladesh is traditional but plays a vital role in connecting the farmers and consumers, thus contributing significantly in the value adding process. A large number of people were involved in the fish marketing channel as Bepari, Aratdar, Paiker, Retailer, Exporter and day laborers. Farmers were the primary producers in the fish marketing systems.

3.2 Marketing channel

Marketing channel is that channel that includes involvement of some middlemen through which transformation of fish take place from producer to consumer. The market chain from farmers to consumers encompassed mainly primary, secondary and retail markets, involving local agents, suppliers, wholesalers and retailers. The demand for fish was high in markets but supply was limited, and a strong network had developed with intermediaries and traders. Communication between the suppliers and wholesalers was generally good and takes place by mobile phones. Suppliers were tied to a limited number of wholesalers. Suppliers commonly used trucks, buses, pickups and taxis to transport fish to wholesale markets in Jessore (Fig. 4 and 5).

3.2.1 Primary markets

Markets located in villages, district headquarters or at a crossroads were considered primary markets. They were usually near areas where fish were caught. Fishermen brought a variety of fishes (dominated by small fish from both open-water capture and from ponds) to the primary markets. Fifty-two percent of such primary markets were held twice a week, 28% three times a week and 20% were held daily. Of all these markets, 80% were open during morning-hours, particularly for trading meat, vegetables and fish (Market Survey, M-AEP, 1995) and were attended by a relatively small number of sellers and buyers compared to the usual afternoon markets.

3.2.2 Secondary markets

The Beparies took the fish bought from the Nikaries/fishermen/primary markets/landing points to the nearest Upazilla or river port markets by road, river or rail to sell to wholesalers or through Aratdars. From these secondary markets/assembly points the

distribution of fish moved through different channels to urban markets/higher secondary markets by commissioned agents for wholesalers/Aratdars, or by other kinds of Beparies.

3.2.3 Higher secondary markets

From secondary markets/fish assembly points, Beparies brought fish to the higher secondary markets serving large areas of consumer/terminal markets. The higher secondary market may consist of one or more wholesale markets or centers, where Aratdars deal in fish. These markets are well connected by road, river and rail. Higher secondary markets had trading connections with several secondary markets. Markets in district headquarters could be considered as higher secondary markets that were connected with several secondary markets for the supply of fish.

3.3 The institutional approach

In Jessore District there were three types of fish markets. Its include Bepari, Aratdar and Retailer. The Marketing agents involved in fish marketing were as follows:

3.3.1 Bepari

Beparies were found to be the professional fish traders and they purchased fish from producers and sold their consignment to the retailers through Aratdars or commission agents. Usually, they purchased fish from the farmer and brought their aquatic product to Arat center for sale. They were professional businessmen and had wide experience in fish marketing. Most of the beparies temporarily employed laborers to involve in activities of fish marketing. Beparies who purchased fish from the fishery ghat/landing centre and sell it through the aratdar and had to pay 3-5 % commission to aratdar for selling the products.

3.3.2 Aratdar

The aratdar is a commission agent who has a fixed establishment and helps the beparies to sell their products and usually charges a fixed commission of Tk.30 to 40 per thousand sales revenue. Since commission was charged on sales revenue, an aratdar tried to sell fish at higher prices. They provided short period storage facilities and also perform the function of grading. They made cash payment to beparies and supply fish to retailers, in most cases, on credit. Aratdars did not share any cost of beparies or retailers. They hired laborers and salaried persons for performing various functions such as loading, unloading, weighing, grading etc. Usually, they handled larger volume of fish than the Beparies. The Aratdars often provided loan to beparies on the condition that the beparies have to sell fish through them. A bepari may take money from more than one aratdar and in this case he divided his products and sells through different Aratdars. The beparies and Aratdars reported that about 70% of coastal and marine aquatic products are sold by auction through aratdar. Some Aratdars in landing station sometimes purchase exportable fish directly from the producers.
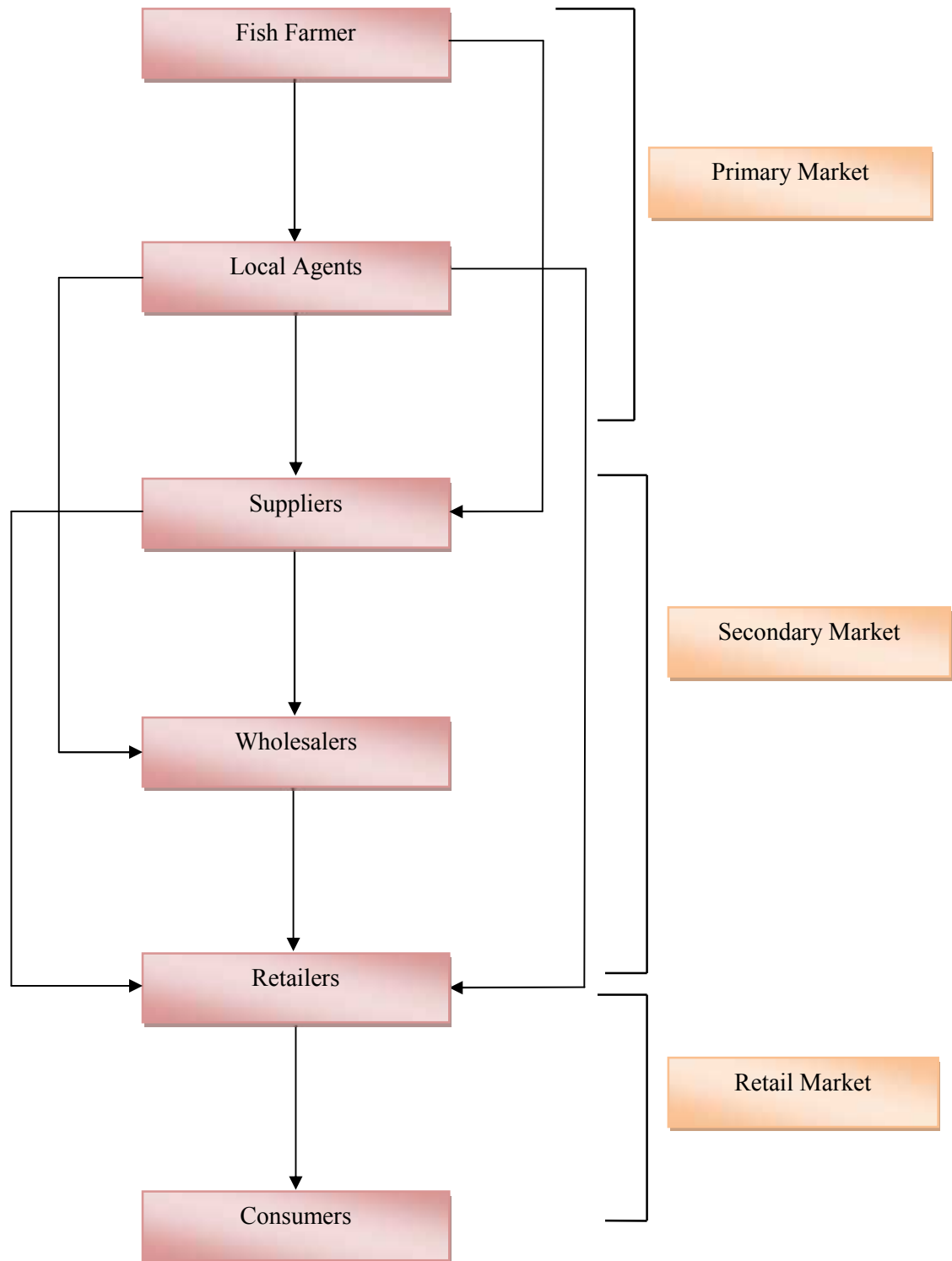
Figure 4: Marketing channel of fish market

FISHERMAN

LOCAL WHOLESALER

LOCAL RETAILER

CONSUMER

PRIMARY MARKET

ARATDAR

DISTRIBUTOR

SECONDARY MARKET

ARATDAR

LOCAL WHOLESALER

LOCAL RETAILERS

FINAL CONSUMER MARKET

RURAL RETAILERS

CONSUMER
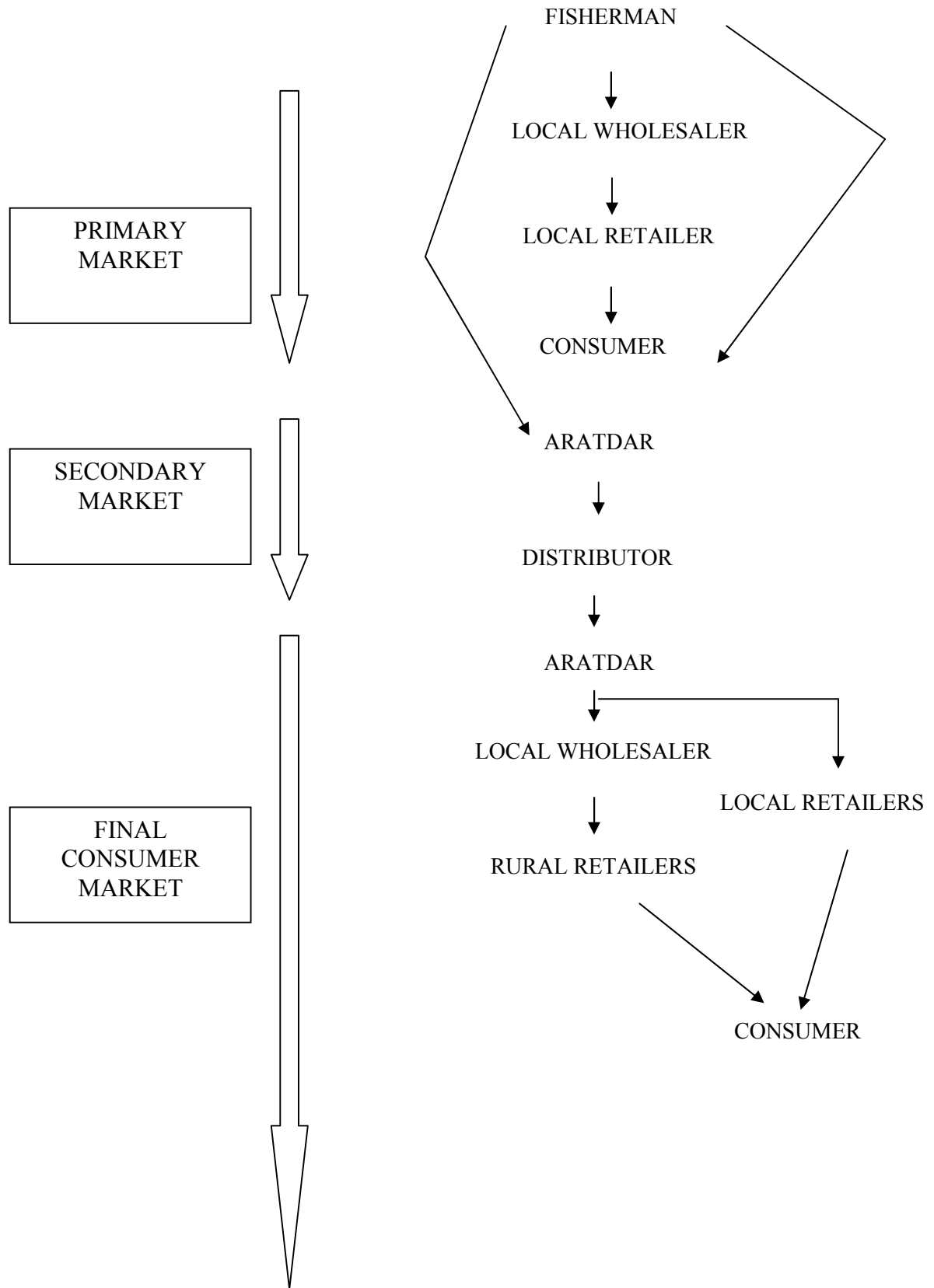
Figure 5: Marketing Channel of Jessore District

3.3.3 Retailer

Retailers were the last intermediaries of fish marketing channel. They had fixed place to sit on the market place. The retailers of Jessore town bought fish from the Beparies and Aratdars. In Jessore town fish market, most of the retailers bought fish from Mechhua Bazar. Aratdar from Mechhua Bazar sold their fish through retailers. The function of retailers was to procure supplies and display them in the same forms to the consumers at their convenient times.

3.4 Function performed in fish marketing

After the end of culture period, farmer harvested their fish by netting and finally, sold their fish through Beparies. During harvesting there was a chance of quality loss.

Sources of freshwater fish in the markets: From different parts of Jessore District, particularly from different Upazilla fish are transported to Jessore District. They are SadarUpazilla-Monirampur, Satkhira, Rajganj, Bakra, Jhikargacha, Natunhat, Chougacha and so on. They are also coming from other district for example Khulna-Satkhira, Dhaka- Jatrabari, Gajipur, Jamalpur, Jhinedah, Chittagong, Jessore, Bogra and other country such as India, Myanmar etc.

These fishes are collected from Rivers, Beels and Haors. They are-

River:

River name	Length(km)	Area covered
Betna-Kholpotua	191	Jessore,Khulna
kapotakkho	260	Jessore,Khulna
Bhadra	193	Jessore,Khulna
Bhairab	250	Jessore,Khulna
Chitra	170	Jessore,kushtia

Beel:

Dakatiabeel, Galariabeel,Panjiapatrabeel,Bhairabbeel,Mukteshwaribeel etc.

Haors:

JhapaHaor,DoshaniHaor,KeshabpurHaor,KeyatolerHaor etc.

Availability of fish species:

Fresh water fish**:** Tara baim, GuchiBaim, Baim, Sal baim, Muni/ Rishi, Khalisha/Khailsha, LalKhalisha, Koi, EkThuita, Bele, Dahuk, Chewa, Bheda, PoaChanda, LombaChanda, Rangachanda, Kuicha, Shol, Gajar/ Gajal, Taki, Lata, Telotaki / Cheng, Ragha, Kaikka, Shing, Magur, Pangas, Gharua, Kajuli, Banspata, Bacha, Ghaura, Batasi, Pabda, Boal, Madhupabda, Boalipabda, Tengra,

Golsha, Bujuri-tengra, Ayre, Rita, Gutum, Puiya, Rani, Rui, Catla, Mrigal, Kalibaus, Bhangon, Bhangna, Bata, Sarpunti, Cholapunti, Ghora chela, Tit punti, Jatpunti, Mola, punti, Bashpata, Mola, Dhela, Khoira, Tatkini, Dankina, Fulchela, Chela Eleng, Elong, Chebli, Teri punti, Ghonia, Chital, Foli, Phasa, Chapila, Choukka, Ilish, Chandanailish, Kachki, Tepa, Khorsula, Bao, Baim, Potka, Kumirer, Kharu, Baghair, Mirror carp, silver carp, Carpio, Scale carp, Bighead carp, Black carp, Rajpunti/Thai sarpunti, Grass carp, African catfish, Thai pangus, Tilapia, Nilotica, GIFT, Red bellied piranha.

Marine water fish: Bhetki, koicha, Loitta/Nehari, Poa, Vola/Lalpoa, Sadapoa, Lakhua, Bhangan, Chhuri, Chitra, Rup chanda, Foli, Chanda, Phasa.

3.4.1 Transportation

Transportation provided the movement of product in different places which facilitates availability of goods at the proper place and utility. Adequate and efficient transportation is essential of modern marketing system. In the study area, the producer and intermediaries used different modes of transportation such as van, train, truck etc to transfer products from the producing areas to fish market in Jessore. During transportation there was also a chance of quality loss.

3.4.2 Grading

Grading was done on the basis of size, species, quality which provides exchange by simplifying buying and selling. Most of the intermediaries graded fish for easy sale and high price.In the study area at the Arat level and retail level fishes were graded on the basis of size and species. Because size and species of fish has an effect on price. Big size of fishes was high price that of small size fish and some species is high price that of others, because they had high demand in the market such as Shing, Catal, Tengra etc.

3.4.3 Storage

Storage was an important function of fish marketing system because fish was one of the most perishable products. Storage helps the sellers to reduce the wide fluctuation of prices and those fish that were not sold. In the study area there was no proper storage facility. Storage was done by the use of ice.

Figure 6: Retailers show their fish to consumer at Arabpur

Figure 7: Retailers show their fish to consumer at Doratana

Figure 8: Retailer sold their fish to consumer at Bankra Bazar.

Figure 9: Retailer sold their fish to consumer at Monirampur Bazar.

3.4.4 Buying and selling of fish

Buying and selling of fish was the main function of fish market. In Jessore, fish farmers sold a large portion fishes and rests of them were consumed by themselves.Beparies purchased fish from fish farmers and their fishes to Aratdars. Aratdars sold their product to retailers and Beparies. Retailers collected fish from Aratdars and Beparies by the exchange of money and sold their entire fish to consumers.

3.4.5 Financing

In the marketing system financing was one of the most important functions like other functions. For run business smoothly the availability of finance at proper time is very much important.The sources of finances for Aratdars, Paikars and retailers in the study area were shown in the Table and figures.

Table 1: Source of finance for Aratdar, Paiker and Retailers

Traders	Different Source			Total (%)
	Own fund (%)	Relative (%)	Others (%)	
Aratdar	95	4	1	100
Paiker	90	-	10	100
Retailers	80	5	15	100

3.5 Marketing costs and margins of fish intermediaries

In this chapter, an attempt has been made to analyze the marketing cost and margins of different intermediaries in the marketing system of fish in the study areas. It was important to know whether or not the services of the intermediaries were provided at reasonable rates.

3.5.1 Marketing cost of Producer

Major items of marketing cost of producer of all the groups were transportation market toll, loading and unloading, personal expenses and grading. Data on the marketing costs of fish producer have been presented in Table (2).

Table 2: Marketing cost of Producer

Cost item	Cost (Tk/kg)	Percentage (%)
Transportation	0.355	39.75
Market toll	0.15	16.8
Personal expenses	0.105	11.76
Loading and Unloading	0.208	23.29
Grading	0.075	8.4
Total	0.893	100

The total marketing cast of producers of study area was Tk. 0.893 per kg. Table (4.2) revealed that the highest cost item of producers of study area was transportation, which accounted for 40 percent of total cost. The second highest cost was due to loading and unloading of fish (20%). The other cost items of producer of study areas in descending order were market toll (15%), personal expenses (10%) and grading (8%). Producers do not bear any storage cost.

3.5.1.1 Marketing cost

The cost that moved the product from producers to consumers was known as marketing cost. In other word, the cost of marketing represents the cost of performing the various marketing functions (Biswas, 1990). In fish marketing, the cost of fish is not same at different stages in the marketing process. This might fluctuate from producer to consumer by the involvement of various intermediaries.

On the basis of collected data, marketing cost and marketing margin have been compared below.
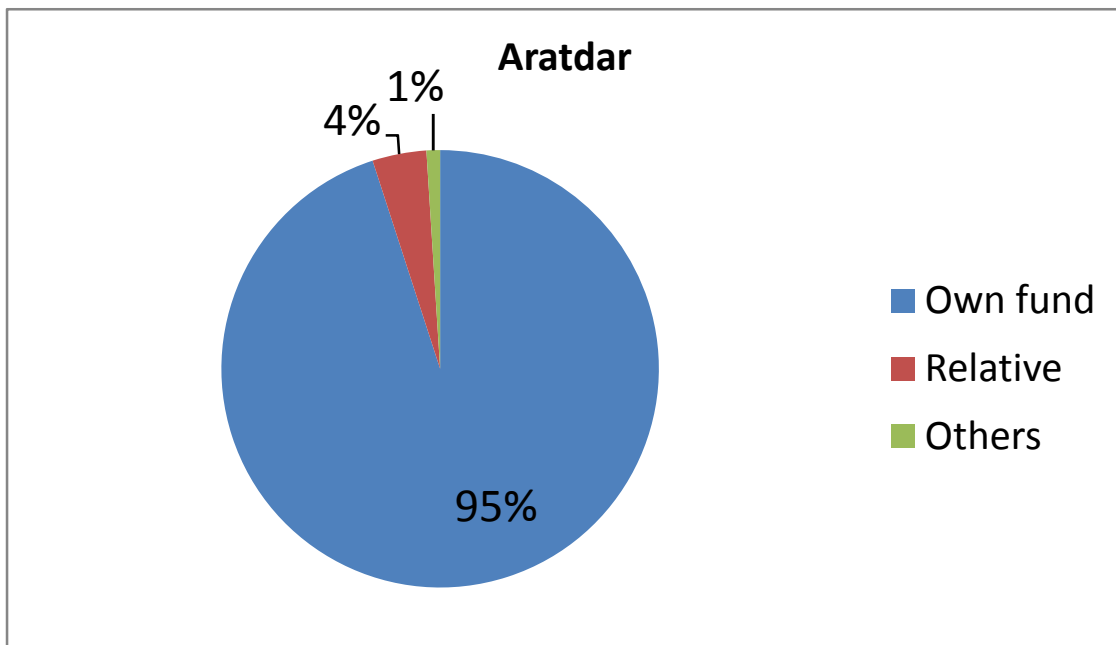
Figure 10: Source of finance for Aratdar.
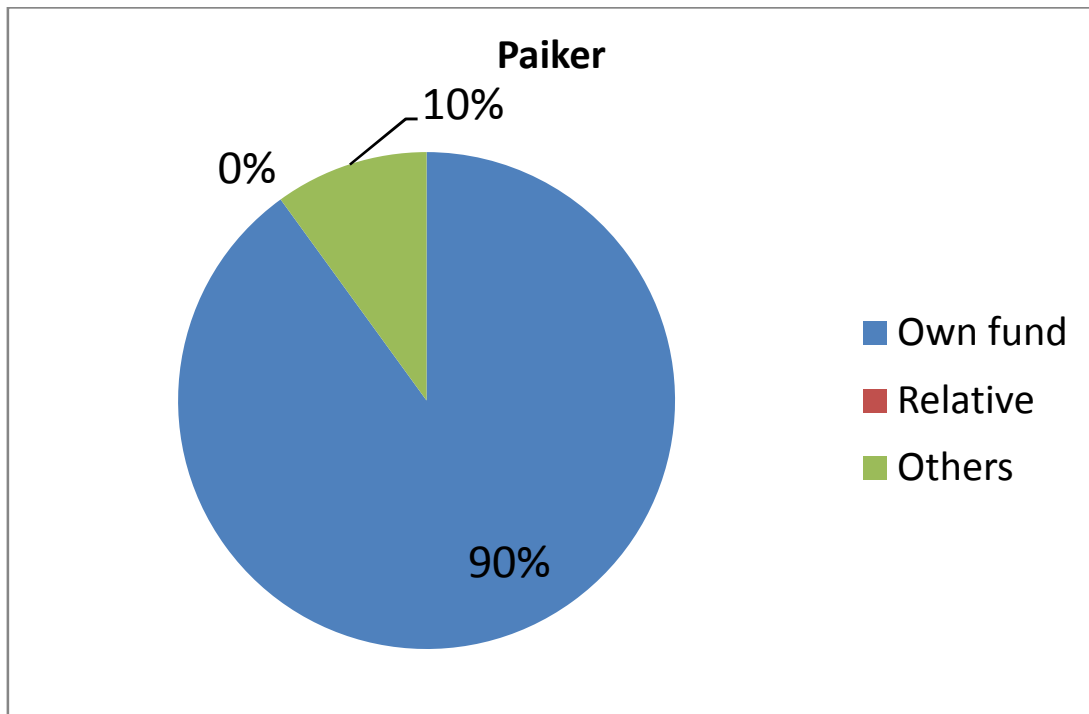
Figure 11: Source of finance for Paiker.
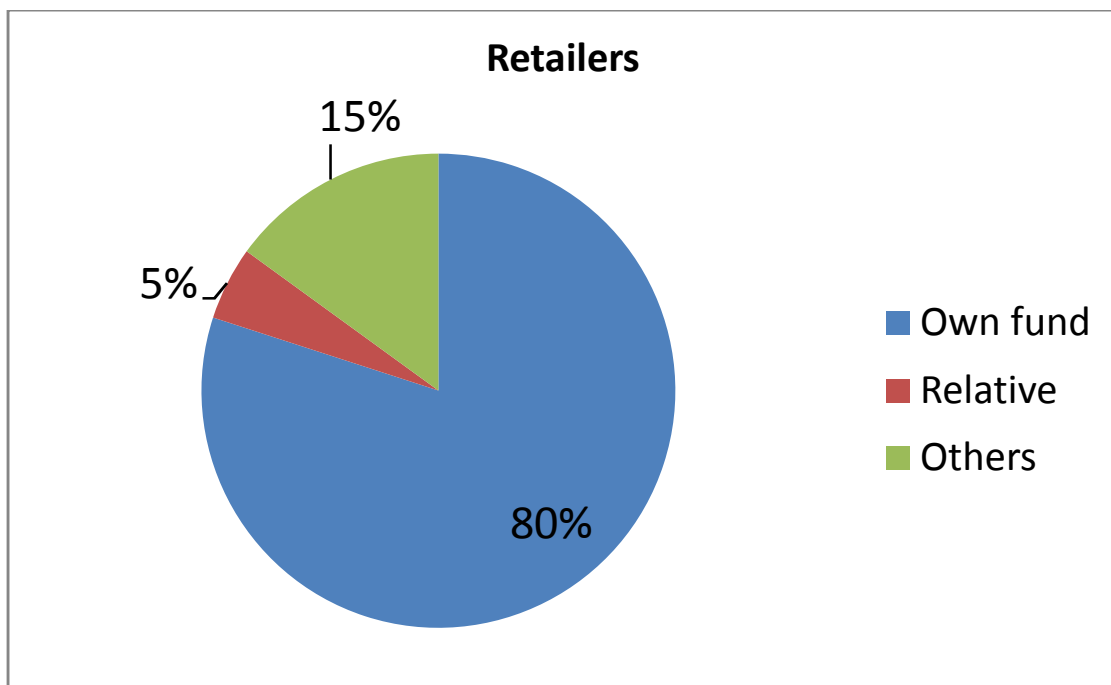
Figure 12:Source of finance for Retailer.

3.5.1.2 Marketing cost of Aratdar

The Aratdars was the commission agents who performed the function of marketing arrangement for selling fish of producers and Paikars. For performing these functions, they had to incur some costs. Marketing cost of Aratdars shown in Table (3)

Table 3: Marketing cost of Aratdar

Cost items	Cost (Tk/kg)	Percentage (%)
Wages and Salary	0.50	37.80
Personal expenses	0.305	23.06
Rent and electricity	0.105	7.94
Telephone bill	0.155	11.72
Market toll	0.2075	15.69
Security	0.5	3.79
Total	1.3225	100

The total marketing cost of Aratdar was estimated at Tk. 1.323 per kg of fish. Wages and salary of employee was the highest cost item comprising 37.80 percent of the total marketing cost. The next highest cost item was personal expenses cost, which accounted for 23.06 percent of the total marketing cost. The other cost items in descending order were market toll (15.69%), telephone bill (11.72%), rent and electricity (7.94%) and security (3.79%).

3.5.1.3 Marketing cost of Paiker

Paikars mainly purchased fish from local Arat center and sold to the Paikars through Aratdar at terminal markets and others markets. They performed mainly exchange function of buying and selling. For performing these functions, they had to incur some costs (Table 4).

Table 4: Marketing cost of Paiker

Cost items	Cost (Tk/kg)	Percentage (%)
Aratdars commission	2.955	48.83
Transportation	0.802	13.25
Personal expenses	0.555	9.17
Wastage	0.444	7.34
Icing	0.405	6.69
Wages and Salary	0.2160	3.57
Telephone bill	0.184	3.04
Market toll	0.145	2.4

Packaging materials	0.125	2.07
Loading and unloading	0.155	2.56
Grading	0.066	1.09
Total	6.052	100

Table shows that the total marketing cost of Piker was calculated at TK.6.052 per kg of fish. Aratdars commission was the highest cost item comprising 48.83 percent of the total marketing cost. The second highest cost item was transportation cost, which was 13.25 percent of total marketing cost. The other cost items in descending order were personal expenses (9%), wastage (7%), wage and salary (3.57%), telephone bill (3%), market toll (2.54%), packaging materials (2%), loading and unloading (2.57%), and grading (1.09%).

3.5.1.4 Marketing cost of Retailer

The retailers generally purchased fish from the producer and Paikars through Aratdars and sold to the consumers at different market. The cost components included transportation, market tolls, wastage, icing, packaging materials, personal expenses and rent and electricity.

The total marketing cost of Retailer was estimated at Tk. 1.8285 per kg of fish. Wastage was the highest cost item comprising 22 percent of the total marketing cost. The second highest cost component was the personal expenses, which accounted for 20 percent of total marketing cost. The other cost items in descending order were transportation (14%), icing (16.68%), market tolls and packaging materials (8%) and rent and electricity (7%).

Table 5: Marketing cost of Retailer

Cost items	Cost (Tk/kg)	Percentage (%)
Icing	0.305	16.68
Wastage	0.405	22.15
Personal expenses	0.3775	20.65
Transportation	0.2560	14.0
Market toll	0.205	11.21
Packaging materials	0.1550	8.48
Rent and electricity	0.125	6.84
Total	1.8285	100

3.5.1.5 Total marketing cost of fish for different intermediaries

The total marketing costs of fish included all costs incurred by different intermediaries standing between the producers and ultimate consumers. Nature and extent of marketing cost varies of all intermediaries had been shown in Table (4.6). The total marketing cost of producers, Aratdars, Paikars and retailers were Tk.0.89, Tk.1.32, Tk.6.05 and Tk.1.83 for per kg fish respectively. Cost of marketing of Paiker was the highest because of the fact that they had to pay higher Aratdar commission and higher transportation charges as they took fish from primary market to the long distance in terminal market. Since retailers needed to keep fish few in times before sale than other intermediaries, they spent higher cost of marketing because of larger wastage cost.

3.6 Marketing margin

Marketing margin at a particular stage of product flow may be defined as the difference between purchase and sale price of a commodity. Marketing margin may be defined as the difference between what the consumer pays and what the producer receives. Marketing margin, in a sense is the price of all utility-adding activities and functions that are performed by intermediaries. Marketing margin includes both marketing cost of performing various marketing functions and profit or loss of intermediaries involved in a marketing channel. Marketing margins of fishes were calculated separately for different intermediaries. Gross marketing margin of each type of intermediaries was calculated by deduction the purchase price of fish from their sale prices while net margin or profit component was calculated by deducting the marketing cost from gross marketing margins.According to retailers, political disturbances sometimes affect fish transport as well as marketing. As a result, perishable fishes get damage and the traders are to sell these at a cheaper price; sometimes they even fail to get any return, due to decomposition of fishes. Fish traders were asked to mention to top most problems as they fell regarding fish marketing. Where, 20% of the respondents identified unhygienic market place 25% poor supply of ice, 15% lack of capital, 15% exploited by middlemen, 25% mentioned inadequate drainage system, were the most important problems for fish marketing.

Table 6: Total marketing cost of fish for different intermediaries (Tk/kg)

| Cost items	Producer	Aratdar	Paiker	Retailer	Total	%
Aratdars commission			2.955		2.955	29.66
Transportation	0.355		0.802	0.256	1.413	14.18
Personal expenses	0.105	0.305	0.555	0.3775	1.335	13.4
Wastage	0.444	0.405			0.85	8.53
Icing	0.405	0.305			0.71	7.13
Wages and Salary		0.5	0.216		0.716	7.19
Market Toll	0.15	0.2075	0.145	0.205	0.7075	7.1
Rent and Electricity		0.105		0.125	0.23	2.31
Packaging Materials				0.155	0.155	1.56
Loading and Unloading	0.208		15.5		0.363	3.64
Telephone Bill		15.5	18.4		0.339	3.4
Grading	0.075		6.6		0.141	1.42
Security		5			0.5	0.5
Total	0.893	1.3225	6.052	1.8285	9.9645	100
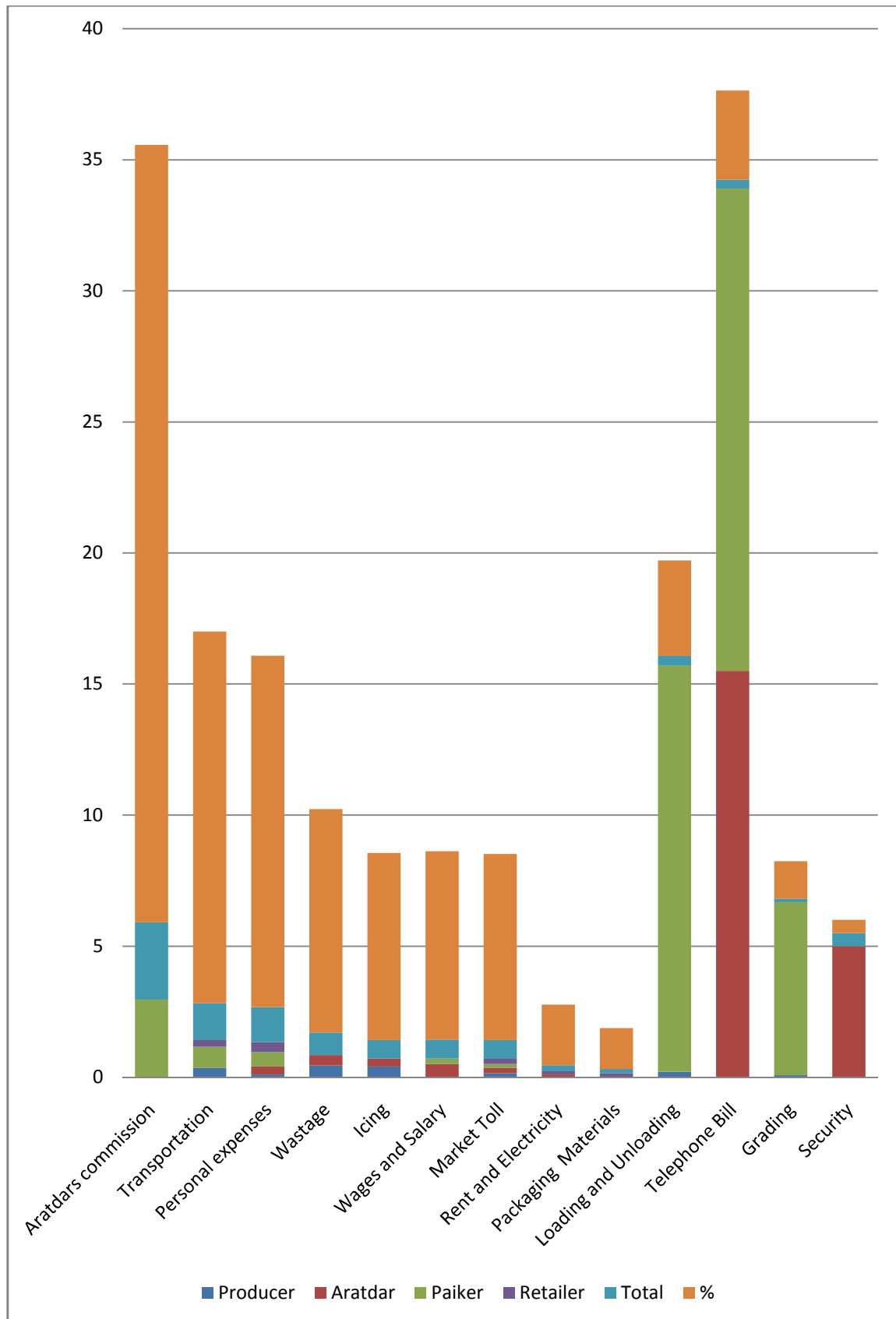
Figure 13: Total marketing cost of fish for different intermediaries

3.6.1 Marketing margin of various intermediaries

3.6.1.1. Marketing margin of Aratdar

Since Aratdar did not perform buying and selling functions, the commission they received was considered as gross returns because it consisted of both profit and cost of marketing. Aratdars commission was 3 percent in the study area. In the present study, the estimated profits of Aratdar of different fishes are presented in Table (4.7). Peak period is the period when fish supply was adequate in the market and fish price was comparatively low. On the other hand, just opposite situation in the lean period. In the peak period, the average gross profit and net profit of Aratdar were estimated at Tk 2.95 and 1.63 per kg of fish respectively. The net profits for Rohu, Catla, Mrigal, Silver carp, Pangus, Shorputi and Carpio were Tk. 2.23, Tk. 1.87, Tk. 1.73, Tk. 1.11, Tk. 1.14, Tk. 1.50 and Tk. 1.83 respectively in peak period. In the lean period, the average gross profits and net profit of Aratdar were estimated at Tk. 2.63 and Tk.1.50 per kg of fish respectively. The net profits for Rohu, Catla, Mrigal, Silver carp, Pangus, and Shorputi were TK.2.37, Tk.1.98, Tk.1.86, Tk.1.33, Tk.1.27 and Tk.1.66 per kg respectively in lean period. Aratdar earned the highest and lowest profit from Rohu and Silver carp fish respectively in both periods. Aratdar earned the higher profit in lean period than peak period for all fishes; Fish prices are higher in lean period than peak period.

3.6.1.2 Marketing margin of Paiker

The marketing margins of Paiker for different types of fishes presented in Table (4.8). In the peak period, the average gross margin and net margin of Paiker were estimated at Tk.9.37 and Tk.3.32 per kg of fish respectively. The net margins for Rohu, Catla, Mrigal, Silver carp, Pangus, Shorputi and Carpio were Tk. 9.20, Tk. 3.90, Tk. 2.70, Tk. 0.55, Tk. 0.33, Tk. 2.45 and Tk. 4.10 respectively in peak period. In the lean period, the average gross margin and net margin of Paiker were estimated at Tk. 8.10and Tk. 6.05 per kg of fish respectively. The net margins for Rohu, Catla, Mrigal, Silver carp, Pangus, and Shorputi were Tk. 9.80, Tk. 3.90, Tk. 2.70, Tk. 0.75, Tk. 0.53 and Tk. 2.70 respectively in lean period. Paiker earned the highest and lowest net margin or profit from Rohu and Silver carp fish respectively in both periods. Paikars marketing cost are same in both periods, but fish prices are fluctuating within two periods. Fish price ishigher in lean period than peak period. For this reason, Paiker earned higher net marginin lean period than peak period in the study area.

3.6.1.3 Marketing margin of Retailer

The marketing margins of Retailer for different types of fishes are presented in Table (4.9). In the peak period, the average gross margin of Retailer was estimated at Tk. 7.06 and Tk. 5.23 per kg of fish respectively. The net margin for Rohu, Catla, Mrigal, Silvercarp, Pangus, Shorputi and Carpio were Tk. 7.72, Tk. 6.27, Tk. 5.67, Tk. 2.82, Tk. 3.47, Tk. 4.42 and Tk. 6.22 respectively in peak period. In the lean period, the average gross margin and net margin of Retailer were estimate at Tk. 6.91 and Tk. 5.35 per kg of fish respectively. The net margins for Rohu, Catla, Mrigal, Silver carp, Pangus and Shorputi were Tk. 8.72, Tk. 8.27, Tk. 7.17, Tk. 3.12, Tk. 4.47 and Tk. 5.67 respectively in lean period. Retailer earned the highest and lowest net margin or profit from Rohu and Silver carp fish respectively in both periods. Shortage of fish supply and comparatively higher demand of fish, consumers pay higher price for purchasing fish in lean period than peak period. As a result, Retailer earned higher net margin in lean period than peak period. Finally, the study reveals that for all types of fishes net margins or profits were higher in lean period compared with peak period. This indicates that per unit profit of traders decreased with the increase of volume of trade.

Table 7: Profits of Paiker for different types of fishes

Fish species	Peak period (Tk. Per kg of fish)		
	Gross profit	Marketing cost	Net profit
Rohu	15.2500	6.052	9.198
Catla	9.9500	605.2	3.898
Mrigal	8.7500	6.052	2.698
Silver carp	6.6000	6.052	0.548
Pangus	6.3800	6.052	0.328
Shorputi	8.5000	6.052	2.448
Carpio	10.1500	6.052	4.098
Total	65.58	42.364	23.216
Average	9.3686	6.052	3.3166
	Lean period (Tk. Per kg)		
Rohu	15.8500	6.052	9.798
Catla	9.9500	6.052	3.898
Mrigal	8.7500	6.052	2.698
Silver carp	6.8000	6.052	0.748
Pangus	6.5800	6.052	0.528
Shorputi	8.7500	6.052	2.698
Total	56.68	42.364	20.368
Average	8.0971	6.052	2.9097

Table 8:Profits of Aratdar for different types of fishes

Fish species	Peak period (Tk. Per kg of fish)		
	Gross profit	Marketing cost	Net profit
Rohu	3.550	1.323	2.228
Catla	3.188	1.323	1.865
Mrigal	3.050	1.323	1.728
Silver.carp	2.43	1.323	1.108
Pangus	2.465	1.323	1.143
Shorputi	2.820	1.323	1.498
Carpio	3.150	1.326	1.828
Total	20.648	9.258	1.139
Average	2.949	1.323	1.627
	Lean period (Tk. Per kg of fish)		
Rohu	3.688	1.323	2.365
Catla	3.30	1.323	1.978
Mrigal	3.185	1.323	1.863
Silver carp	2.650	1.323	1.328
Pangus	2.588	1.323	1.265
Shorputi	2.985	1.323	1.663
Total	18.395	9.258	1.046
Average	2.628	1.323	1.494

Table 9:Profits of Retailer for different types of fishes

Fish species	Gross profit	Marketing cost	Net profit
	Peak period (Tk. Per kg of fish)		
Rohu	9.550	1.829	7.722
Catla	8.100	1.829	6.272
Mrigal	7.500	1.829	5.672
Silver carp	4.650	1.829	2.822
Pangus	5.300	1.829	3.472
Shorputi	6.250	1.829	4.422
Carpio	8.050	1.829	6.222
Total	4.940	12.799	36.600
Average	7.057	1.829	5.229
	Lean period (Tk.Per kg of fish)		
Rohu	10.550	1.829	8.721
Catla	10.100	1.829	8.271
Mrigal	9.000	1.829	7.171
Silver carp	4.950	1.829	3.121
Pangus	6.300	1.829	4.471
Shorputi	7.500	1.829	5.671
Total	4.840	10.974	37.429
Average	6.914	1.829	5.347

Return over working capital for all intermediaries was high in the study area compared with bank rate (8 or 9%) that means fish trading is a profitable business in the study area.

3.6.1.4 Total marketing cost and margin for intermediaries

Total marketing cost and margin for different fish intermediaries are shown in Table (10). It is seen from the table the highest marketing cost (Tk. 9.369) was for Paiker because they had paid higher Aratdari commission and higher transportation cost. The net margin was highest for retailer and lowest for Aratdars in both periods. The retailers earned highest profit in the both periods because of their lower marketing cost and assuming more risk compared with other intermediaries. Although per unit profit was the lowest for Aratdar, their total profit would be the highest as become they handle the

largest quantity of fishes per unit of time compared with other traders. Intermediaries earned more profit in the lean period than peak period.

3.7 Marketing channel of Ilish fish

Ilish (*Hilsailisha*) is an anadromus fish species under the family of Clupeidae. They migrate from marine water to fresh water for their spawning purposes. The spawning season of Ilish was August to September. The main source of Ilish in Jessore town was from Chandpur and Chitagong district. Mohajon, who caught fish from sea and river by fisherman. Because they have boat, net. Ilish have a high demand due to its taste. In Jessore town fish market the retail price of Ilish is 250 to 300 Tk. Per piece. Size is a very important factor for fluctuation of fish. In Ilish fish marketing ice is used for marketing.

Table 10: Total marketing cost and margin for intermediaries

Peak period (Tk. per kg of fish)			
Intermediaries	Gross Margin	Marketing cost	Net Margin
Aratdar	2.949	1.323	1.627
Paiker	9.369	6.052	2.909
Retailer	6.914	1.829	5.347
Average	6.411	3.068	3.295
Lean period (Tk. Per kg of fish)			
Aratdar	2.628	1.323	1.305
Paiker	8.097	6.052	2.045
Retailer	6.914	1.829	5.085
Average	5.879	3.069	2.81
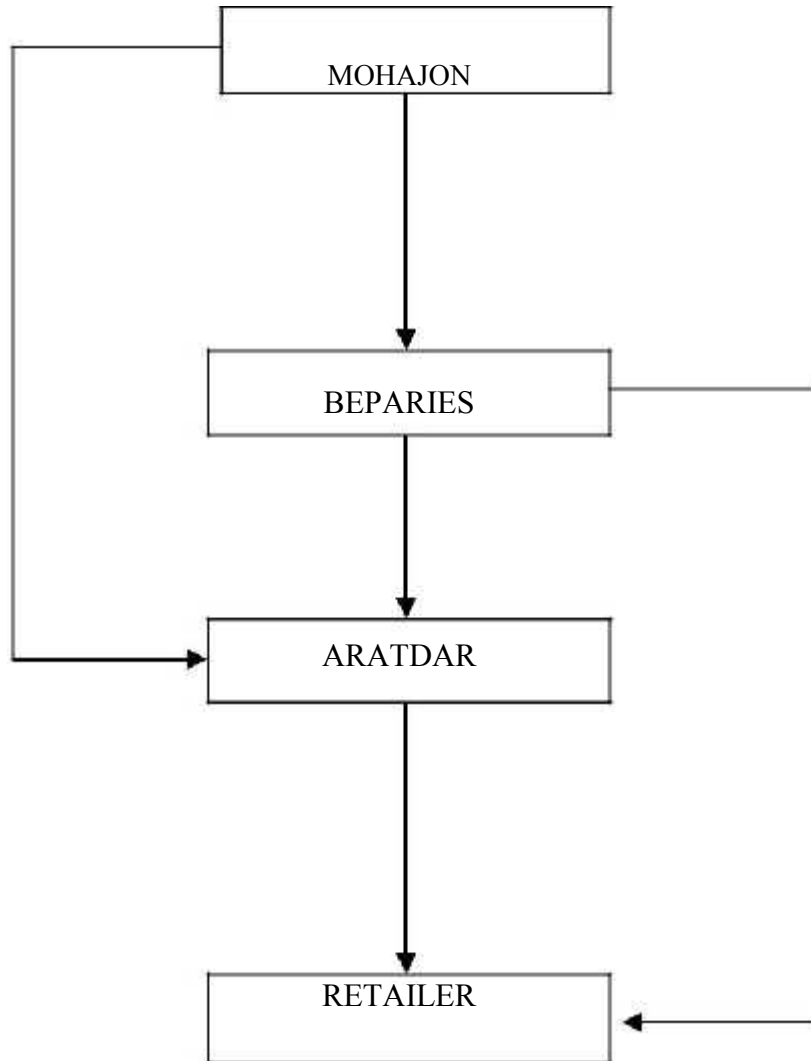
Figure 14: Marketing Channel of Ilish in Jessore District
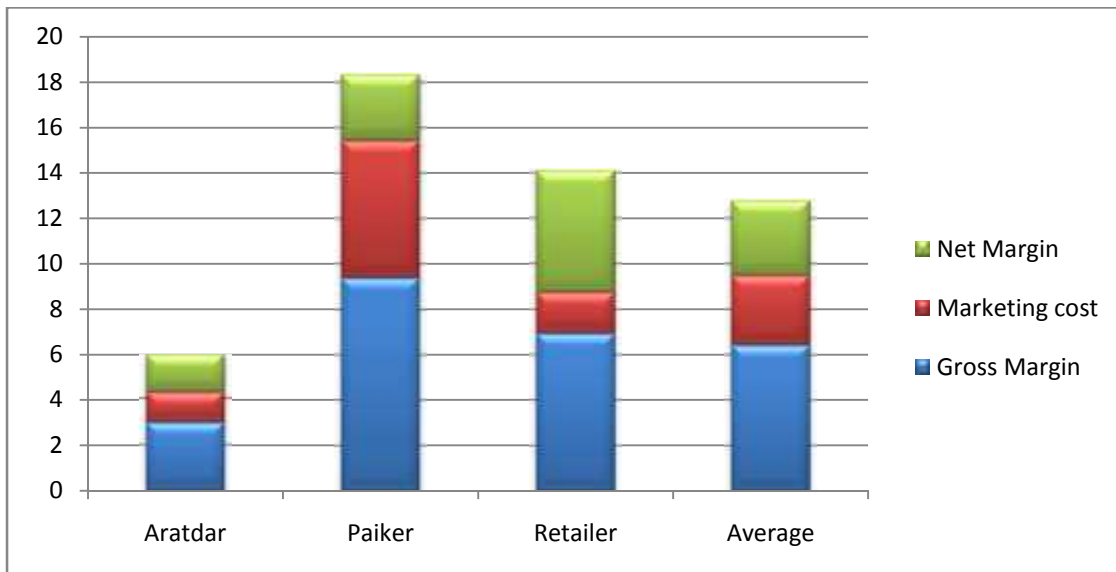
Figure 15: Gross margin, Marketing cost and Net profit for intermediaries in peak period
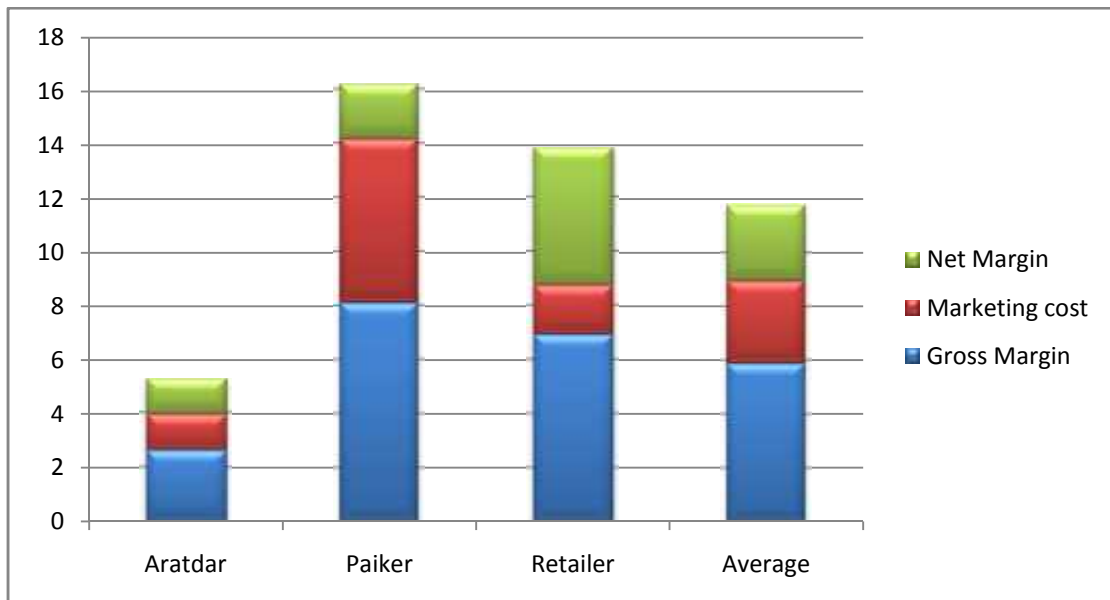
Figure 16: Gross margin, Marketing cost and Net profit for intermediaries in Lean period

3.8 Sanitation

Sanitation refers to a procedure, which was used to reduce bacterial load from utensils. Fish was a food of excellent nutritional value providing high quality of proteins, fats and a wide variety of vitamins and minerals. Its protein is easily digestible and contains more essential amino acids and essential fatty acids than in cereals and legumes. People in developed countries are much more dependent on fish as part of their daily diet. It revealed the importance of fish as food material.

In the study area overall drainage facilities was not so good. Some markets had not drainage facilities, as for example Pouroshova Market, Mintucollege Market, Sankipara Bazar, Kachijhuli Market, Keotkhali Bazar. However, Mechhua Bazar, KR market, Notun Bazar, Ses more fish market has drainage facilities but not so good. Sources of fish in Jessore fish market coming from various places likes Sadarupazilla- Trisal, Sutiakhaly, Bhaluka, Muktagacha (Satatorasi bazaar) Phulpur, Fulbaria, Churkhai, Netrokona- Gouripur, Mohanganj, Purbadhala, Khaliajuri, Durgapur, Kendua, kolmakanda, Barhatta, Atpara, Jaria, Kishoreganj- Bhairab (Kuliarchar), Tarail, Khulna- Satkhira, Dhaka- Jatrabari, Gajipur, Jamalpur, Jhinidah, Chittagong, Jessor, Bogra and even other countries such as India, Myanmar etc. during transportation of fish generally icing was done to prevent spoilage.

In Arat levels fish were not preserved properly with ice so there was an opportunity of quality loss, which influence spoilage of fish at shorter time. Sometime ice was not used at proper time or without ice. When fish is transported from one place to another it was observed that, icing was not done properly. In the study area it was noticed that, some fish market has not any platform facilities as for example Keotkhali market, Shankipara market, Railway Bazar, Pouroshova market, Kachijhuli market etc. Only two markets had ice factory for supply of ice, these are Notun Bazar and Mechhua Bazar. In others markets ice was supply from that market.

In many times spoilage fish was in the fish market. Particularly small fish like Punti, Tengra, Mola, Chapila were discolored, stinking at the off time of market. They were normally sold in lower price. Poor people used to purchase those fish. The quality of those fish was deteriated, as they were not kept in ice before coming to the market. Most of the Bazar of Jessore was not properly cleaned. Sometime marketing started by 6.30 am and continued up to 12.0 pm.

3.9 Obstacles of Fish Marketing

During the survey fish traders stated a number of fish marketing problems. It included higher transport costs, poor road communication facilities, inadequate drainage system, poor supply of ice, poor water supply, unhygienic condition, poor sanitary facilities, lack of capital, higher demand of labors, exploited by middlemen, lack of storage facilities, lack of marketing facilities, lack of market information etc. According to retailers, political disturbances sometimes affect fish transport as well as marketing. As a result, perishable fishes get damage and the traders are to sell these at a cheaper price;

sometimes they even fail to get any return, due to decomposition of fishes. Fish traders were asked to mention to top most problems as they fell regarding fish marketing. Where, 20% of the respondents identified unhygienic market place 25% poor supply of ice, 15% lack of capital, 15% exploited by middlemen, 25% mentioned inadequate drainage system, were the most important problems for fish marketing.

3.10 Livelihood status of fish retailers

The aim of this study was to determine the socio-economic status of retailers. Especially, emphasized was given on such variable namely age, religion, education, family size, housing condition, sanitary facilities, health facilities, electricity facilities, and other socio economic issues.

3.10.1 Educational status

The level of education of the fish retailers in the study area are shown in the figure. The figure reveals that the highest percentage of fish retailers was primary educated and only 18.33% are secondary educated. Educationalstatusof traders is given in figure 17.
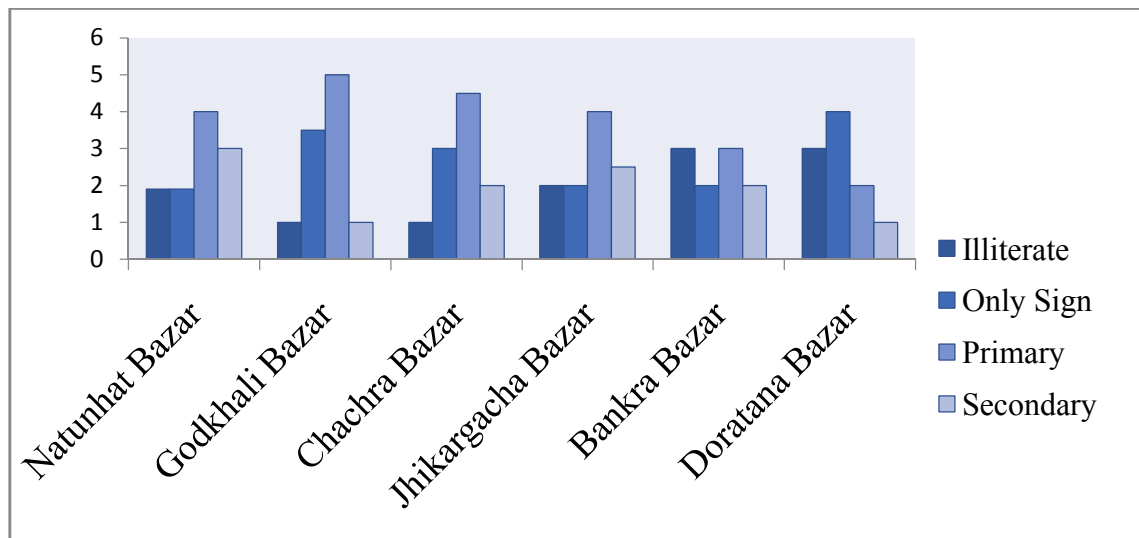
Figure 17: Educational status of retailers

3.10.2 Family size

The family size of the surveyed fish retailers was divided into three categories according to the number of the family members - <5, 5-10 and >10. The highest percentage in the group of <5 was found in the studied areas whereas lowest percentage in the group of >10 was found. Family sizes of retailers are given below in figure 18.
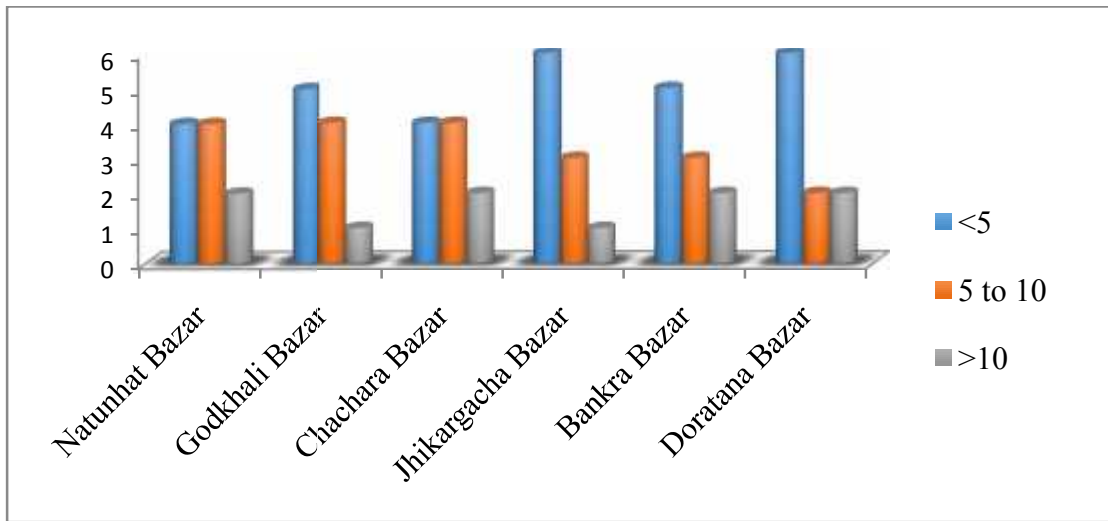
Figure18: Family size of retailers

3.10.3 Religion

From the study it was found that maximum fish retailers in the Dinajpursadar fish markets were Muslims (68.33%) and the rest them were Hindus (31.67%). It was also found that the highest percentage Muslim fish retailers were found in Khanpur bazaar and the highest percentage Hindus fish retailers were found in Chalk bazaar fish market. Religion statuses of retailers are given below in figure 19.
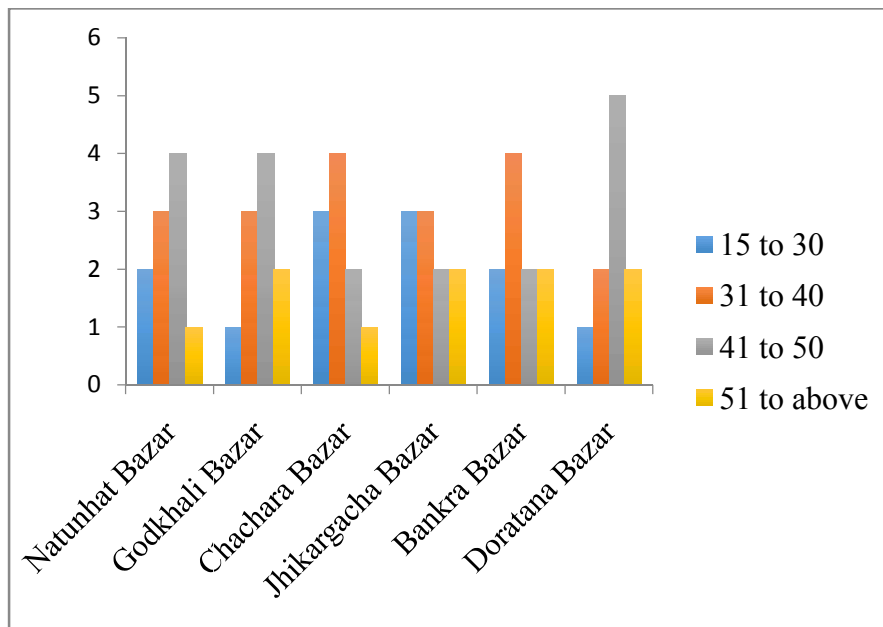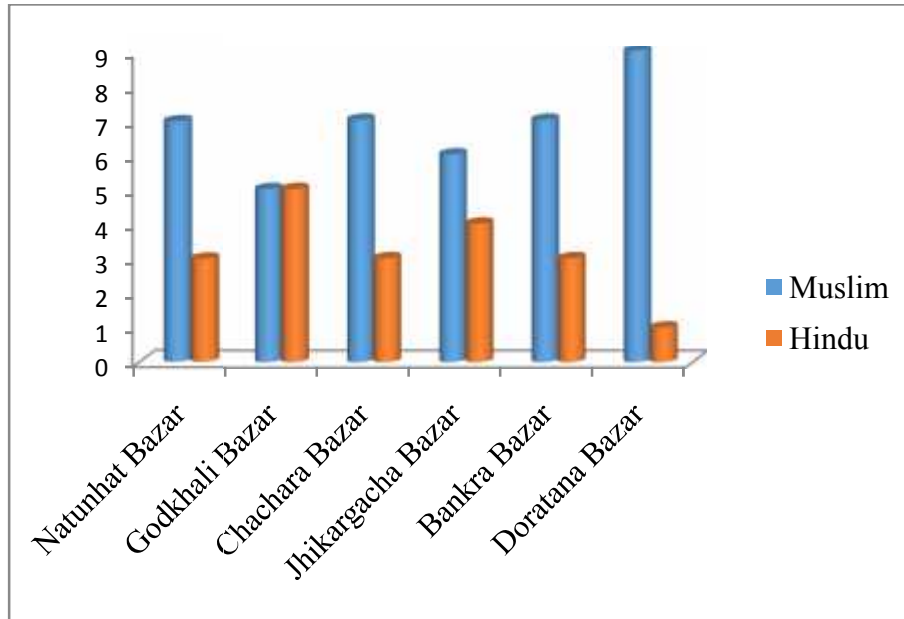
Figure19: Religion status of retailers

3.10.4: Housing condition

Fish retailers in Dinajpursadar were found to live in different types of houses which were grouped into Kacha (43.33%), Semi-pacca (26.67%), Pacca (30%). The highest percentages of kacha house were found in the study areas. Housing condition of retailers are given below.
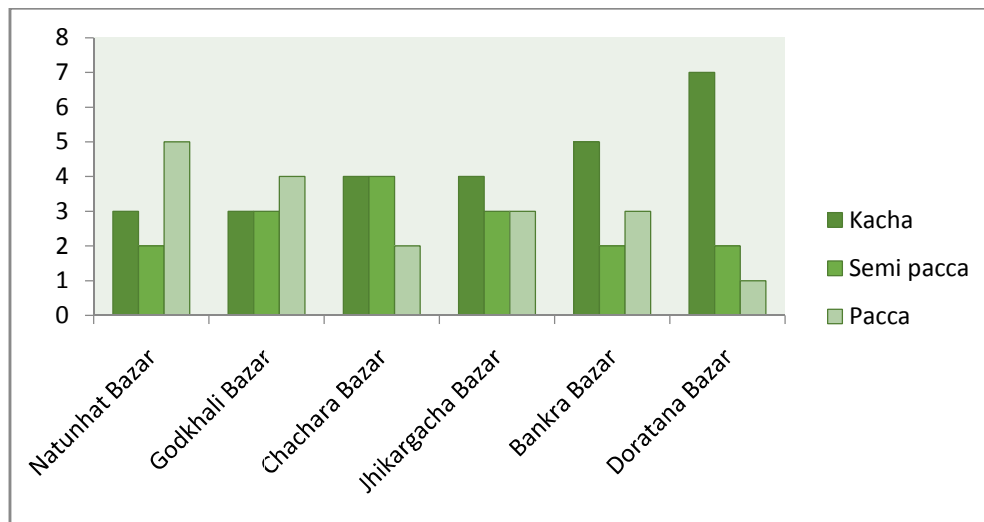
Figure 20: Housing condition of retailers

3.10.5 Drinking water facilities

Among the fish retailer, 80% use tube-well water for drinking water and the remaining 20% used river, pond and canal water. It was found that highest percentage (90%) of respondent use tube well water in Pulhat and Khanpur bazaar. Drinking water facilities of retailers are given below.
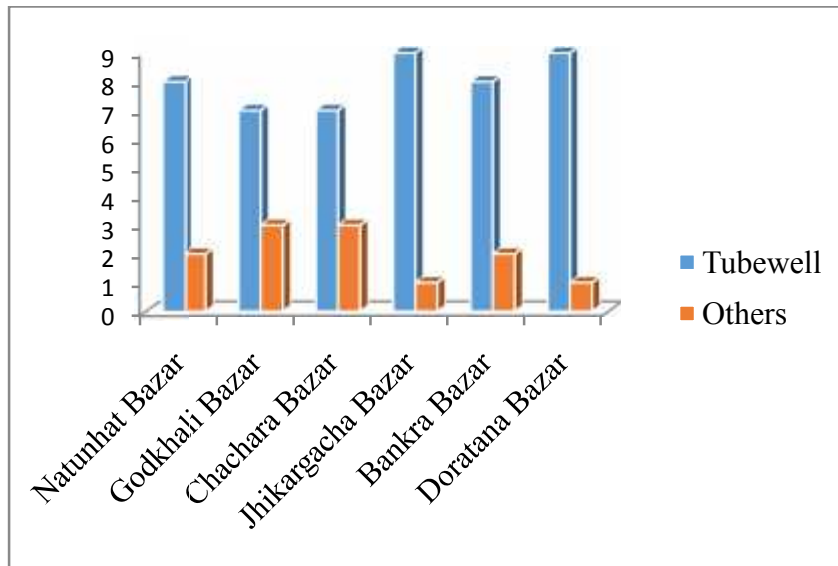
Figure 21: Drinking water facilities of retailers

3.10.6 Electricity facilities of fish retailers

From the study, it was found that 78.33% of the surveyed fish retailers have electricity facilities, whereas 21.67% live without electricity facilities (Table 6). Maximum fish retailers in Bahadur bazaar (90%), Pulhat bazaar (90%) has this facility, whereas Khanpur bazaar (60%) fish retailers lower electricity facilities.
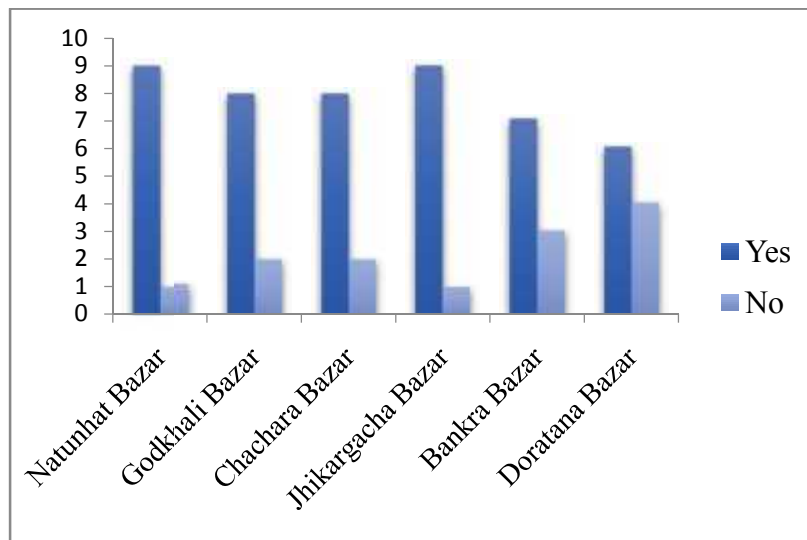
Figure22: Electricity facilities of retailers

3.10.6 Annual household income

The selected fish retailers were grouped into four categories to the level of their annual income. The first category included the fish retailers having annual income> Tk. 10,000. The 2nd, 3rd and 4th categories had income levels of Tk. 10,000-50,000; Tk. 51,000-1, 00,000 and >1, 00,000 respectively (Table 4.13). The study revealed that 56.67% had below 2nd category and 43.33% had below 3rd category. It was also found that, annual income of maximum fish retailers was found between Tk. 10,000-50,000 in Jessore markets.
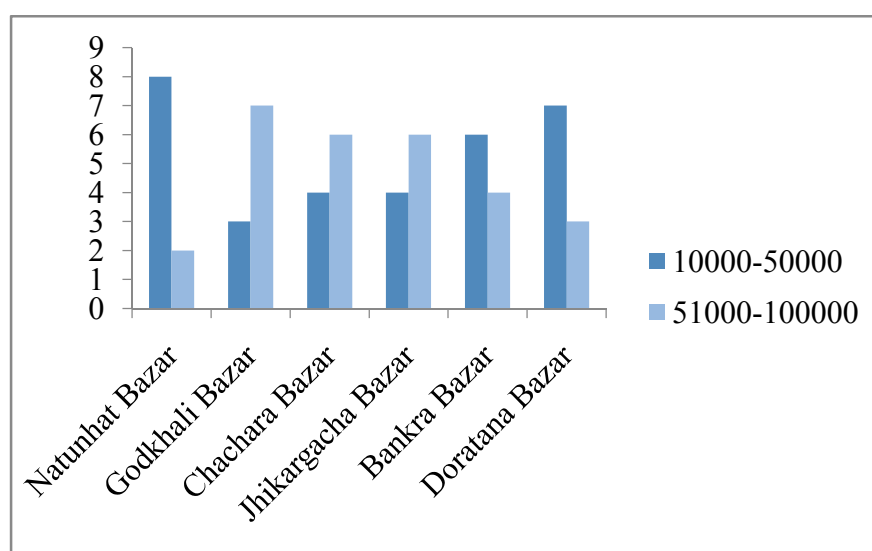
Figure 23: Annual household income of retailers

DISCUSSION

Fish marketing plays an important role in the economy of Bangladesh. Fish and fishery products provide a very important sub-sector, especially as a source of animal protein. Fisheries subsector contributes 60 per cent of animal protein in the daily diet of the people of Bangladesh. A large number of people are involved in the production and marketing of fish. It is generally estimated that 1.2 million people directly and about 12 million people indirectly i.e. About 10 per cent people of the country directly or indirectly depend on fisheries sub-sector for their livelihood (DoF, 1997). The contribution of the sector to gross domestic product, foreign exchange earnings and employment is also significant. It accounts for 4.92 per cent of GDP and 5.71 percent of export earning of the country (DoF, 2005).

In Bangladesh, fish marketing is almost exclusively a preserve of the private sector where the livelihoods of a large number of people are associated with fish production and marketing systems. However, the most serious marketing difficulties seem to occur in remote countries, with lack of ice, transport and poor road facilities and where the farmers are in particularly weak position in relation to intermediaries (DFID, 1997). In the study area, marketing channel which consist of Beparies, Aratdar, Paiker, Retailer and Consumer. The market chain from farmers to consumers encompasses mainly primary, secondary and retail markets, involving local agents, suppliers, wholesalers and retailers. Beparies bought fish from primary producer in primary markets that are located in rural areas in Jessore district and or other district. Beparies sell their fish to Paiker and Retailer through Aratdar.

The Aratdar is a commission agent who helps the Beparies to sell their products and usually charges a fixed commission from Beparies. Sometime Farmer sells directly to Paiker and Retailer by the help of Aratdar. They provide short period storage facilities and also perform the function of grading. They make cash payment to Beparies and supply fish to retailers. Paiker collect fish from Arat and some cases from farmers. They transport their fish to others markets and sold to retailer. Retailers were the last traders of fish marketing channel. They had fixed place to sit on the market place. Function Performed in Fish Marketing are Transportation, Grading, Storage, Buying and Selling of Fish, Financing. The source of finance of Aratdar, Paiker and Retailers were own fund, relatives and others. Most of the intermediaries graded fish for easy sale and highprice. In the study area at the Aratcentre, fish was graded both on the basis of size

and quality. But grading on the basis of size which varied widely was practiced to some extent.

At the Bepari level grading was done for big fish but not for small fish. In the study areas at the Aratdar level as well as at retail level fishes were graded on the basis of size, quality and species. Storage facilities at various levels of fish trading were quite unsatisfactory. Due to lack of proper facilities in fish markets, a considerable portion of fish was wasted in the process of marketing. Wastage found only at retailer level. The total marketing cost of producers of study area was Tk. 89.3 per kg. The highest cost item of producers of study area was transportation, which accounted for 40 percent of total cost, loading and unloading of fish (20%), market toll (15%), personal expenses (10%) and grading (8%). Producers do not bear any storage cost. The total marketing cost of Aratdar was estimated at Tk. 1.323 per kg of fish. The highest cost item was wages and salary of employee which comprising 37.80 percent of the total marketing cost. Others cost includes personal expenses cost which accounted for 23.06 percent of the total marketing cost, market toll (15.69%), telephone bill (11.72%), rent and electricity (7.94%) and security (3.79%). The marketing cost of piker was calculated at TK. 6.050 per kg of fish. Aratdars commission was the highest cost item comprising 48.83 percent of the total marketing cost. Others cost includes transportation cost, personal expenses (9%), wastage (7%), wage and salary (3.57%), telephone bill (3%), market toll (2.54%), packaging materials (2%), loading and unloading (2.57%), and grading (1.09%).

Retailer was estimated at Tk. 1.529 per kg of fish. Wastage was the highest cost item comprising 22 percent of the total marketing cost. The second highest cost component was the personal expenses, which accounted for 20 percent of total marketing cost. The other cost items in descending order were transportation (14%), icing (16.68%), market tolls and packaging materials (8%) and rent and electricity (7%). The total marketing cost was estimated at Tk. 9.96 per kg of fish. The marketing cost of Aratdar, paiker and Retailer was Tk. 1.32, Tk. 6.05 and Tk. 1.82 per kg respectively. In peak period, net margin of Aratdar, Paiker and Retailer are Tk. 1.627, Tk. 2.909, Tk. 5.347 per kg respectively while in lean period net margin Aratdar, Paiker and Retailer are Tk. 1.305, Tk. 2.045, and Tk. 5.085 per kg respectively. In both period, the retailer earned the highest amount of profit because of their lower marketing cost and assuming more risk compared with other intermediaries. All intermediaries earned higher margin in leanperiod than peak period because availability of fish is not well and in this case

demand of fish is comparatively high and consumer pays higher price for purchasing fish in this period. Within the survey markets most of the consumer's preference it seemed that small fishes received moderate preference while exotic fishes were among the least preferred of fishes. It was found that while consumers purchased fish from the market then the consumers preference were ranked to Taste > Price > Nutrition. It was observed that about 92% of the consumer preferred exotic carp than the Indian carp for its taste. Though the price of Hilsha was high, consumers preferred it very much. Among the freshwater fishes, 21 species were more available in the winter season, 18 species in summer season and 13 species were available all the year round. According to Ali *et al.,* (2004) it was also noted that the availability of fish in the winter season is comparatively in higher. In the winter season fish supply generally higher than summer season due to more supply of fish and provides low price of fish. Whereas in the summer season fish supply is generally lower and provides more prices of fish compare to winter season.

Fish was one of the most perishable food materials and needs care from the time it was caught until it is served or processed, as it could be easily undergone in deteriorative changes by autolysis, bacterial action and oxidative rancidity. The handling of fresh fish during this time interval determines to what extent deterioration take place from three sources –enzymatic, oxidation and bacterial. Contamination from any sources will affect fish quality. The intermediaries in the study areas faced many problems in the marketing of fish. They reported that the marketing problems such as price fluctuation and low price, lack of storage facility, lack of physical facility and lack of adequate market information. Though, every year we earn a lot of foreign currency from this sector but our Government does not take more necessary measure to improve this sector. However, some necessary measure had been taken by the Government such as infrastructure facilities, storage facilities, communication facilities etc. So Governments of our countries should take necessary measure to improve this sector as well as to develop our national economy.

CONCLUSION

The fisheries sector is very important in the economy of Bangladesh. It is one of the major components of agricultural activities and plays a dominant role in providing nutrition employment and foreign exchange earnings in the economy of Bangladesh (Task force Report, 1991, p-137). The survey was conducted during October, 2016 to December 2016.

In Jessore there are about 20 fish markets. Among them data was collected from 16 fish markets of which Notun Bazar and Mechhua Bazar were most important. The study area included Mechhua Bazar, Natun Bazar, Sankipara Bazar Charpara and Kathgula Bazar Railway market, Bow Bazar, Gudara-ghat, Kashor, Pourasova market, Keshtapur, Kachijhuli fish market and K.R. market, Shesmor, and Keyotkhali fish market. In the present study those traders were selected who deal with fresh water fish in Jessore town fish market. Data were collected from 35 fish traders at 16 fish markets. An interview schedule was prepared to collect data from traders. The main target group was Beparies, Aratdar and Retailer. The market chain from farmers to consumers encompassed mainly primary, secondary and retail markets, involving local agents, suppliers, wholesalers and retailers. From different parts of Jessore, particularly from different Upazilla fish are transported to Jessore town. In the study area, the producer and intermediaries used different modes of transportation such as van, train, truck etc to transfer products from the producing areas to fish market in Jessore.

In the study area at the Arat level and retail level fishes were graded on the basis of size and species. Because of size and species of fish has an effect on price. The sources of finances for Aratdars, Paikers and Retailers in the study area were own fund, relatives and others. The total marketing cost of Aratdar was estimated at Tk. 1.323, Paiker TK. 6.050 and Retailer Tk.1.829 per kg of fish. The higher marketing cost was Paikars. Because of their cost items included higher amount of Aratdars commission. But in case of others intermediaries Aratdars commission absence.

In the peak period, the average gross profit and net profit of Aratdar were estimated at Tk 2.95 and Tk.1.63; Paikars were estimated at Tk. 9.37 and Tk. 3.32 per kg of fishrespectively. The average gross margin of retailer was estimated at Tk. 7.06 and Tk. 5.23 per kg of fish respectively. In the peak period, it was observed that Net margin for

aratdar was Tk. 1.627, for paiker TK. 2.909 and for retailer TK. 5.347, Whereas in the lean period net margin for aratdar were Tk. 1.627, paiker Tk. 2.909 and for retailers Tk. 5. 347.

In the study area overall drainage facilities was not so good. Some markets had not drainage facilities, as for example Pouroshova Market. Mintu College Market, Sankipara Bazar, Kachijhuli Market, Keotkhali Bazar. However, Mechhua Bazar, KR Market, Natun Bazar, Ses more fish market has drainage facilities but not so good. When fish is transported from one place to another it was observed that, icing was not done properly.

On the basis of these findings it can concluded that marketing of fish in the study areas was profitable. Fish is not only the sources of protein but also the sources of income for all types of fish traders who involved in fish marketing system. Moreover, a large number of people were involved in the production and marketing of fish. So, the producers and intermediaries could be more benefited financially, if efficient marketing was done. To improve and developed the marketing channel, physical marketing facilities should be increased and unnecessary and unexploited middlemen should be eliminated from the marketing channel. Further investigation is estimated on fish marketing for the importance of marketing system for proper management and sanitation.

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APPENDICES

Questionnaire on fish marketing system and obstacles in Jessore district

Date:

IDENTIFICATION OF THE RESPONDENT

1. Name of the Respondent   :

2. Address   : Village: Thana:

3. Age   :

4. Sex   :

5. Educational status   : Illiterate/ Primary level/ S.S.C./ H.S.C./ Degree/ Others

6. Main occupation   :

7. Secondary occupation   :

8. Total annual income   :

IDENTIFICATION OF FISH MARKETING INFORMATION IN JESSORE DISTRICTS:

1) When did you Fish Trading?

…………………………………………………………………………………………

2) What did you do before fish trading?

……………………………………………………...

3) What is the Trading Season, marketing day per week, number of fish traders and selling time?

a) Selling time……………………………………………………………………….

b) Marketing day per week

……………………………………………………………………………..……

c) Numbers of traders involved……………….

4) Source of fish:

…………………………………………………………………………………

5) Where does fish come from?

....

6) What species?

....

7) Who supply fish to you?

....

8) What type of transport is used for fish carrying?

....

9) What is average selling price?...Tk./kg or quintal?

Rui…………………. Tk./kg or quintal. Catla………………. Tk./kg or quintal

Mrigal…………. …..Tk./kg or quintal Silver……………….. Tk./kg or quintal

Grass carp…………. Tk./kg or quintal Mirror carp.…………. Tk./kg or quintal

Pangus……………… Tk./kg or quintal Punti…………. ………Tk./kg or quintal

Magur……………… .Tk./kg or quintal Shing…………… ....Tk./kg or quintal

Koi……………........Tk./kg or quintal Tengra………………....Tk./kg or quintal

Chanda……………….Tk./kg or quintal Chapila……………….Tk./kg or quintal

Illish………………….Tk./kg or quintal Sarpunti………………Tk./kg or quintal

Veda………………… Tk./kg or quintal Baim………………….Tk./kg or quintal

10) How much is sold? ....

11) How much is your income?

....

12) What is your comment of supply and demand in this season?

....

Obstacles in relevant to fish marketing system in Jessore district

(13) Distance between market and the source of fish--

      (a) 0-2 km

      (b) 2-4 km

      (c) 4-6 km

      (d) 6-10 km

(14) Having any fish processing centre in this market?

      (a) Yes

      (b) No

(15) Do you face any comission problem?

      (c) Yes

      (d) No

(16) What is the primary market level problem?

      (a) Lack of bargaining power

      (b) Lack of market information

      (c) Barriers to entry in the market

(17) Transport system--

    (a) Highly modified

    (b) Medium

    (c) Low

(18) Laking of buyers?

    (a) Yes

    (b) No

(19) Having insurance schemes to cover the loss of selling fish?

    (a) Yes

    (b) No

(20) Having any unexpected syndicate?

    (a) Yes

    (b) No

(21) Physical facilities and infrastructure

Electricity	Yes	No
Water supply	Yes	No
Ice	Yes	No
Shelter	Yes	No
Parking	Yes	No
Sanitation	Yes	No
Institution	Yes	No

(22) Directly fisherman present here as seller?

    (c) Yes

    (d) No

If yes which type of problem he creates?

    (a) He meets buyers one at a time and at different times

    (b) He cannot keep fish for a long time because the product is highly

  perishable

    (c) He has no specific place to sit in the market to sell his fish.

(23) Availability of price tagging?

      (a) Yes

      (b) No

(24) Availability of sorting and grading?

      (a) Yes

      (b) No

(25) Drainage facilities--

      (a) Yes

      (b) No

If yes which type of preservation?

      (a) Icing

      (b) Salting

      (c) Chilling

(26) Do you use gloves at the time of handling?

      (a) Yes

      (b) No

(27) Do you face instant price hiking in the market?

      (a) Yes

      (b) No

(28) Political problem

      (a) Yes

      (b) Not

(29) Lack of management

      (a) Yes

      (b) Not

(30) Do you know about effective marketing system?

      (a)Yes

      (b) No