

Article

A study on fish market and marketing system in Gazipur district, Bangladesh

Suman Lal Debnath¹, Md. Fakhrul Islam^{2*}, Syed Ariful Haque³, Partha Sarathi das⁴, Md. Idris Miah¹ and. Md. Jasim Uddin¹

¹Department of Fisheries Management, Bangladesh Agricultural University, Mymensingh. Bangladesh

²Department of Fisheries Management, Sheikh Fajilatunnesa Mujib Fisheries College, Melandah, Jamalpur. Bangladesh

³Department of Fisheries Technology, Sheikh Fajilatunnesa Mujib Fisheries College, Melandah, Jamalpur, Bangladesh

⁴Department of Aquaculture, Sheikh Fajilatunnesa Mujib Fisheries College, Melandah, Jamalpur, Bangladesh

*Corresponding Author: Md. Fakhrul Islam, Assistant Professor, Department of Fisheries Management, Sheikh Fajilatunnesa Mujib Fisheries College, Melandah, Jamalpur, Bangladesh. Phone: +8801717255447; E-mail: fakhrul022@gmail.com

Received: 03 April 2019/Accepted: 24 April 2019/ Published: 30 April 2019

Abstract: Marketing of fish and fishery products in the three markets of Gazipur district were studied during the period from November 2014 to April 2015. Data were collected from three different markets. A total of 45 traders (retailers), 15 from each market were interviewed at the market center. A survey questionnaire was developed, pre-tested and finally used for collection of data. Data were collected from the three different fish markets through questionnaire interviews and focus group discussions. Three types of marketing channel were found to be operated in the selected markets. The market chain from fishermen to consumer passes through a number of intermediaries: local traders, agents/suppliers, retailers and consumers. The shorter marketing chain which included the fish farmers, retailers and consumers was found to be more beneficial to the fish producers. There are some fish species available in three different markets, such as Indian major carps i.e. rui, catla, mrigal and Exotic fish i.e. silver carp, grass and common carp, tilapia, pangas etc. The price of fish depended on size, weight, season, availability, species quality and size of fishes. Different types of dried and salted fish were available in the markets. A number of constraints for fish marketing were reported by the retailers, the constraints were lack of storage facilities, poor supply of ice, exploitation by middlemen, lack of money and lack of infrastructure.

Keywords: fish market; fish marketing system; Gazipur; Bangladesh

1. Introduction

Bangladesh is a land of rivers which considered as the largest riverine land in the world. There are many water-bodies found in our country which are important for the fisheries resources such as rivers, haors, baors, beels, ponds, floodplain, marsh and also different low lying land. Fish is the major protein source in our country which contributes 63% of animal protein. About 14 million people of our country are directly or indirectly dependent on the fisheries sector for their livelihood. Fish alone supplies about 60 percent of animal protein and about 16.5 million people are directly or indirectly involved in fisheries. Fisheries contribute 4.39% of the total gross domestic product (GDP), 22.76% of the total agricultural production and 2.46% of the foreign exchange earnings (DoF, 2014).

Fish production is an integral part of the marketing process as fish and fishery products are highly traded commodities. Fish market is such kind of place where people gather for selling and buying of fishes. Fish market is also be defined that a periodical gathering of people for buying and selling of fish or fisheries product. Fish marketing system is the system through which fishes reach to consumers from producers (farmers). Fish consumers are to depend on an effective fish marketing system. 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 communities, with lack of transport, ice, and poor road facilities and where the farmers are in particularly weak position in relation to intermediaries (DFID, 1997). Domestic markets and distribution of fish are dominated by a large number of intermediaries. All fish traded internally and for export pass through private channels. Fish distribution usually involves four levels such as the primary market, the secondary market, the higher secondary market and city or terminal markets. To develop fisheries sector, is important to know the fish marketing system. Without developing fish marketing system, the fish farming communities and fishermen will be unable to derive their benefit from aquaculture and open water fisheries. The objectives of this study are as follows:

- a) To study the existing fish marketing systems in Gazipur District.
- b) To know pricing mechanism of fish at different levels.
- c) To identify marketing problems that have negative impacts on poor fishermen, traders and other associated groups and recommendation for improvement of the marketing system.

2. Materials and Methods

2.1. Study area

Three fish markets were selected as study area named Joydebpur fish market, Kapasia fish market and Awrakhali fish markets which were situated Gazipur sadar Upazila, Kapasia Upazila and Kaligonj Upazila respectively. There were many fish markets in this area. Among them above three fish markets were selected as study area. Before selection as study area a discussion was made with retailers, aratders, local leaders, Upazila Fisheries Officer (UFO) and NGO workers based on market history number of fish retailers, duration of marketing season and time. These kinds of areas are advanced in the field of education, culture and many other sides. People are culturing different kind of fish species mainly two types such as Indian major carps and exotic fish. Indian major carps like Rui, Catla, Mrigal etc. and exotic fish like Pangas, Grass carp and Silver carp.

2.2. Methodology

The data were collected for a period of six month from November 2014 to April 2015. Two days were selected to collect data in a month. Data collection methods can be divided into 3 steps. These are questionnaire interview with fish traders, focus group discussion with intermediaries and cross-check interview with key informants (Figure 1).

2.3. Questionnaire interviews with fish traders (retailers)

For questionnaire survey, fish traders were selected through simple random sampling method. Interviews were conducted at the market center during marketing time. Traders took part in interview together with their fish selling activities as a result there was a scope to observe the marketing activities. Time required for each interview was about an hour.

2.4. Focus group discussion with intermediaries

Focus Group Discussion (FGD) was conducted with intermediaries: Joydebpur fish market, Kapasia fish market, Awrakhali fish market areas to get an overview of availability of fishes and fish distribution and marketing systems, constraints of fish marketing etc. A total of 12 FGD sessions (4 in each markets) were conducted where each group size of FGD was 5 to 10 intermediaries.

2.5. Crosscheck interviews with key informants

Cross-check interviews were conducted with key informants such as teachers, local leaders, Upazila Fisheries Officer (UFO) and relevant NGO workers. Key informants are especially knowledgeable on particular topic and are expected to be able to answer questions in relatively important way about the knowledge and behavior of others, and especially about the operations of the broader system.

2.6. Data processing and analysis

After collection of data from the field, these were verified to eliminate errors and inconsistencies. Some of the collected data were in local units due to respondent's familiarity with those units. Data of local units were converted into international units before transferring to the computer. Preliminary data sheets were compared with the original questionnaire and result sheets to ensure the accuracy of the data entry. Data were processed and finally analyzed using Microsoft Excel Software.

3. Results

A large number of people are concerned with fish production, distribution and marketing systems in the three different fish markets of three Upazila of Gazipur District. The main aim of this study is to describe the present status of fish marketing system of fish and fishery products in Gazipur District. This description is based on secondary data and primary data collected in three different markets in Gazipur District.

3.1. Fish distribution and marketing system

A number of middlemen are involved between farmers and consumers in fish marketing system in Gazipur District. A marketing system includes all activities involved in the flow of goods from the points of initial production to the ultimate consumer. It includes the exchange activities associated with transferring property rights to commodities, physically purchasing and allocating resources, handling, products, disseminating information to participants and institutional arrangements for controlling these activities. The market chain from farmer to consumer passes through a number of intermediaries, such as: local fish traders (paikers), wholesalers and retailers.

Channel I: Fish farmers → Paikers → Wholesalers → Retailers → Consumers

Channel II: Fish farmers → Wholesalers → Retailers → Consumers

Channel III: Fish farmers → Retailers → Consumers

This is the common channel for fish marketing system. Here we had seen that in the channel was the maximum used channel. About 75% of fishes were come by this system. Fish farmers sold their fish to the local paikers, and then the paikers sold to the wholesalers, next came to the retailers and at last the consumers took the taste of fish.

Farmers partially sold their fish directly to the wholesalers (about 20%); the wholesalers sold it to the retailers. In a very rare case, farmers carried the fishes to the markets and sold them to the retailers (about 5%). (Figure.2).

During the time of survey it was observed that the supplies of Indian major carps were good and their demands were high in the three markets. A strong network has developed with brokers and traders, intervening between farmers at one end and the consumers at the others end. There are 80 to 100 retailers were found to selling fish in the Joydebpur fish market, 60 to 80 retailers were found to selling fish in the Kapasia fish market and 50 to 60 retailers were found to selling fish in the Awrakhali fish market. It was found that some laborers who worked with traders (retailers). From the survey, it was found that about 70% retailers used their own money for fish trading while the rest (30%) received loans from friends and relatives without paying any interest. During the survey it was also found that some of the local agents do not invest any capital rather they act as a commission agent at 2-5% commission for sending the fish to the markets.

It was reported that the retailers of Gazipur District typically operate with capital of around TK. 2,000 to 30,000 per day whereas the wholesalers possess more capital (around TK. 50,000 to 10, 00,000 per day) than retailers and have the means to control agents and retailers.

3.2. Price of fish

A total of 45 retailers were interviewed for market survey stated that price of fish depend on market structure, species and size of fishes. They also noted that price varies according to freshness, supply and demand of fish. There are generally seasonal variations in prices with the highest in summer (March to May) and the lowest in winter (November to January). Table 1, Shows that Indian major carps were sold at higher price than exotic fish. Consumers or local traders are not willing to pay high prices for exotic fish due to less demand or taste of the fish. Market price for Rui varied between TK. 180 to 190 (average TK.185) per kg of fish. The highest average price was noted for Rui (TK. 235/kg) followed by Catla (TK. 215/kg) and Mrigal (TK. 195/kg).

Among the exotic fish the highest price was found for common carp (TK. 150 per kg) and the lowest for pangas (TK. 90 per kg).The price of the silver and pangas were moderately same. The price variation of silver carp and grass carp was very low, average price for silver carp (TK. 95per kg)and the average price for grass carp (TK. 100 per kg).

Different kind of fishes like hilsa, shrimp, prawn, tengra, air, shing etc. were also sold in these markets. This kinds of fishes also have good economic importance. Among them hilsa (<25cm) average price was 140TK./kg and the big size(26-40cm) was about 650-700TK./kg.

3.3. Dry fish species

Different types of fish were found in these fish markets. They were salted and dry fish. Mainly two types of fish such as freshwater (inland and brackish) and marine water species were dried (Tables 2 and 3).

3.4. Season and time of fish trading

Fishes are marketed year round. But during rainy season the availability of captured fishes is very high and before winter and during winter the availability of cultured fish is higher than captured fish. It was found that Joydebpur fish market activities ran from 7am to 10pm every day, Kapasia fish market activities ran from 7am to 8pm every day and Awrakhali fish market from 6am to 1pm.

3.5. Amount of fish sold

According to the study, it was found that daily supply of fishes in the Joydebpur fish market was an average 4-5 ton, compared with Kapasia fish market 2-3 ton per day and Awrakhali fish market 0.5-1.5 ton per day.

3.6. Income of wholesalers and retailers

The result of the study showed that average daily income of wholesaler in Joydebpur fish market was TK. 1250, while in Kapasia fish market at TK. 800 and Awrakhali fish market TK.530. Wholesalers engage themselves a short period (3 to 4 hours) for fish selling as middlemen and earn a considerable amount of money in comparison with retailers. The average gross profit of the retailers of the Joydebpur fish market was estimated 750 TK./day and Kapasia fish market about 550TK./day, while retailers of Awrakhali fish market about 450TK./day. It is true that the wholesalers are influential persons in the fish markets and they have a strong relationship with other intermediaries.

3.7. Constraints of fish marketing

Different problems were identified in the fish markets during the survey. It was concluded that higher production costs, higher harvesting and transport costs, poor road communication facilities, poor supply of ice, higher demand of laborers, exploitation by middlemen, lack of capital, inadequate drainage system, poor water supply, poor sanitary facilities, unhygienic condition were the main constrains. According to traders, 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.

In the present study the highest proportion of respondents (28.88%) reported exploitation by middleman and 26.67% of respondents identified as lack of storage facilities as the main constraint of fish marketing. 20% respondent identified getting lower price as a result of poor ice supply. 15.55% identified lack of infrastructure and 8.88% identified lack of money.

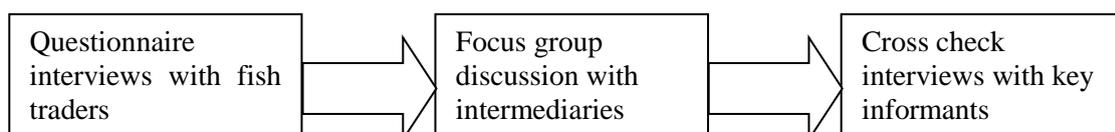


Figure 1. Steps of data collection methods.

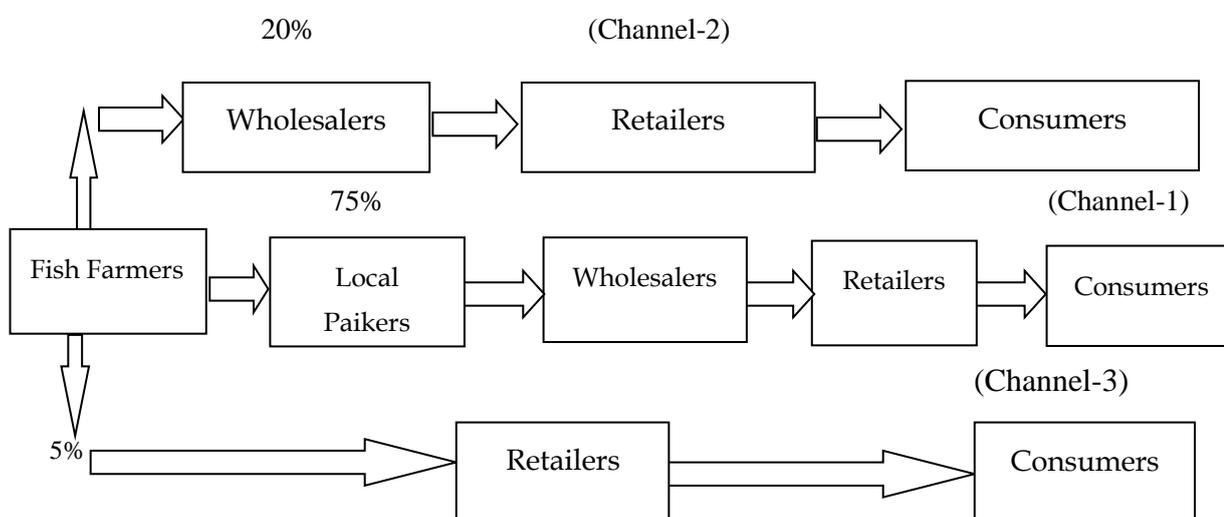


Figure 2. Fish marketing chain from farmers to consumers in Gazipur District (based on survey).

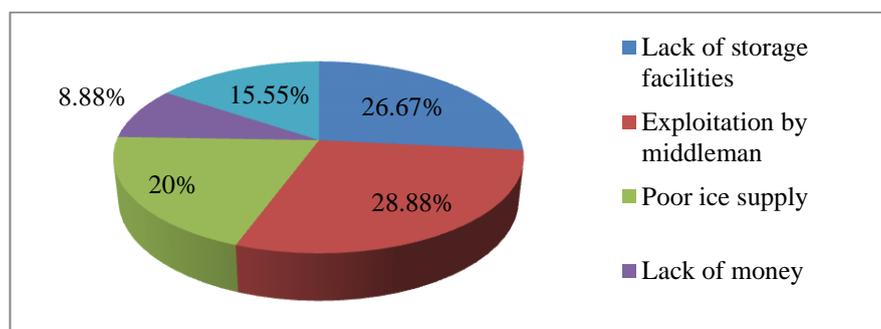


Figure 3. Constraints of the fish markets in study area.

Table 1. Average retail price (TK. /kg) of fishes in different markets.

Fish species		Size of fish (kg)	Joydebpur fish market (TK. /kg)	Kapasias fish market (TK. /kg)	Awrahali fish market (TK. /kg)
Indian major carp	Rui	<1	185	190	180
		1-2	235	240	235
	Catla	<1	170	170	165
		1-2	225	215	220
	Mrigal	<1	150	150	160
		1-2	190	195	200
Exotic fish	Pangas	<1	90	85	95
		1-2	130	130	125
	Silver carp	<1	90	100	95
		1-2	135	140	140
	Grass carp	<1	95	100	110
		1-2	140	135	140
	Common carp	<1	150	145	145
		1-2	190	180	185
	Tilapia	<1	85	90	95
		1-2	120	125	120

Table 2. List of dry fish species (freshwater species) observed in the fish markets in Gazipur District.

Family	Local name	Species
1. Gobiidae	Bele, baila	<i>Glossogobius giuris</i>
2. Nandidae	Meni, Bheda	<i>Nandus nandus</i>
3. Siluridae	Boal	<i>Wallago attu</i>
	Madhupabda	<i>Ompok pabda</i>
4. Channidae	Shol	<i>Channa striatus</i>
	Taki	<i>Channa punctatus</i>
5. Ambassidae	Chanda	<i>Chanda nama</i>
6. Engraulidae	Phasa	<i>Setipinna phasa</i>
7. Bagridae	Air	<i>Sperata aor</i>
	Tengra	<i>Mystus vittatus</i>
8. Cyprinidae	Chela	<i>Salmostroma argentae</i>
	Darkina	<i>Esomus danricus</i>
	Mola	<i>Amblypharyngodon mola</i>
	Sarpunti	<i>Puntius sarana</i>
	Jatpunti	<i>Puntius sophore</i>
	Titpunti	<i>Puntius ticto</i>
9. Penaeidae	Horinachingri	<i>Metapenaeus monoceros</i>
10. Clupeidae	Katchki	<i>Corica soborna</i>

Table 3. List of marine dry fish species observed in the fish markets in Gazipur District.

Family	Local name	Species
1. Clupidae	Choukka	<i>Pellona ditchela</i>
	Chandana ilish	<i>Hilsa toli</i>
2. Centropomidae	Bhetki	<i>Latescal carifer</i>
3. Stromatidae	Rup chanda	<i>Pampus chinensis</i>
4. Polynamidae	Lakhua	<i>Leptomelanosoma indicus</i>

4. Discussion

This study was conducted to understand the present situation of the fish market and marketing system of Gazipur District. The results of the present study were discussed in relation to other available works on fish availability and marketing attributes of the fish.

Fish farming is regarded as industry in many countries of the world but the fish farmers in our country do not communicate directly with the consumers. Different kinds of marketing system were found from the producers to final consumer varies significantly. This chain passes through a number of intermediaries such as local fish traders, beparies, aratders, wholesalers and retailers.

It was found that Joydebpur fish market activities ran from 7am to 10pm every day, Kapasia fish market activities ran from 7am to 8pm every day and Awrakhali fish market from 6am to 1pm. There are also found that the retailers of Gazipur District typically operate with capital of around TK. 2,000 to 30,000 per day whereas the wholesalers possess more capital (around TK. 50,000 to 10, 00,000 per day) than retailers and have the means to control agents and retailers.

The price of fish depends on market structure, species, quality, size and weight. Survey of three fish markets showed that the price per kilogram of carp increases with size for Indian major carps i.e., Rui, Catla, and Mrigal and exotic carps silver, grass and common carp. There are generally seasonal variations in prices with the highest in summer (March to May) and the lowest in winter (November to January).

In the survey area there found that Fish farmers usually culture both Indian major carps and exotic fish in the Gazipur District. The price of the Indian major carps was more than the exotic fish. Indian major carps such as, Rui (*Labeo rohita*), Catla (*Gibelion catla*) and Mrigal (*Cirrhinus mrigala*), and exotic fish such as, silver carp (*Hypophthalmichthys molitrix*), grass carp (*Ctenopharyngodon idella*) and common carp (*Cyprinus carpio*), rajputi (*Barbodes gonionotus*), pangas (*Pangasius pangasius*) are very familiar among the fanners due to known culture technology, good climate, higher growth rate and good market price.

Basic infrastructures including clean water supply, sanitary facilities, adequate drainage system, icing, flooring etc. should be ensured for promotion of fish marketing system. From the survey found that fish traders have very limited knowledge of hygienic and sanitation. It is also indispensable that the fish markets are kept clean. Proper management with regards to day-to-day maintenance of the market-premises from a sanitary and hygienic point of view has to be ensured.

5. Conclusions

A number of constraints for fish marketing were reported by the retailers. The constraints were lack of storage facilities, poor supply of ice, exploitation by middlemen, lack of money and lack of infrastructure. On the basis of findings of the study the following recommendations have been made for the improvement of existing marketing of fishes:

- Introduction of modern wholesaling and retailing facilities with maintaining the quality of products;
- Introduction of fish quality control measures;
- Establishment of ice factories in every fish market areas ;
- An efficient market developing system should be developed;
- Improvements of hygienic and sanitary facilities of fish trading centers and fish markets ;
- Provision of governmental, institutional and banking assistance ;
- Training of fish market operators on fish preservation, handling, icing, curing and hygiene;
- Institutional credit can be provided on easy term for the retailers at their crisis moment.

Conflict of interest

None to declare.

References

- Biswas H, 2001. Dried marine fish marketing in greater Chittagong District. MS Thesis submitted to the Department of Co-operative and Marketing, Bangladesh Agricultural University, Bangladesh.
- Chaston I, 1987. Marketing in fisheries and aquaculture. Fishing News Books Ltd, Farnham Survey, England. pp.144.
- DFID (Department for International Development), 1997. DFID fisheries Bangladesh, issue 2-17 1997. Department For International Development (DFID) of Bangladesh, Dhaka-1212. pp. 38.
- DoF (Department of Fisheries), 2014. Matsha pakkha sankalon. Department of Fisheries, Ramna, Dhaka, Bangladesh. pp. 124.
- DoF (Department of Fisheries), 2014. Saranica, Matsapakkahshankalon 2003, Department of Fisheries, Ministry of Fishery and Livestock, the People's Republic of Bangladesh. pp. 50.
- Hoshen M, 2013. A study of Fish market and marketing system of Khulna Upazila. MS Thesis submitted to the Department of Fisheries Management, Bangladesh Agricultural University, Mymensingh.
- Quddus MA, 1991. Seasonal price movements of commercially important fishes in selected markets of Mymensingh District. Bangladesh Journal of Fisheries, 14: 63-68.
- Rahman AKA, 2005. Freshwater Fishes of Bangladesh, second edition. Zoological Society of Bangladesh, University of Dhaka, Dhaka, Bangladesh. 47: 263.
- Rahman MM, 2003. Status of fish marketing in Gazipur, Bangladesh MS Thesis submitted to the Department of Fisheries Management, Bangladesh Agricultural University, Mymensingh.
- Siddique MA, 2001. A study on socio-economic status of fishermen and fish marketing system in Mymensingh District, Bangladesh. MS Thesis submitted to the Department of Fisheries Management, Bangladesh Agricultural University, Mymensingh.