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## Status and economics of fish markets in Rajshahi City Corporation of Rajshahi, Bangladesh

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### PEER REVIEW

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#### Comments

Topic of the paper is important for the better understanding of fish markets not only in Bangladesh but also in adjacent areas sharing same characteristics. The findings of the research would help the relevant researchers, policymakers, GOs and NGOs.

Details on Page 305

### ABSTRACT

**Objective:** To understand the existing fish distribution and marketing systems, assess marketing costs and margins and identify constraints of fish marketing systems.

**Methods:** Data were collected from three different markets by fishermen, commission agents, wholesalers, retailers, day laborers *etc.* through questionnaire interviews and participatory approach during June to September, 2013.

**Results:** Four types of marketing channel were identified from farmers to consumers in all the three fish markets through a number of intermediaries. The daily supply of total fish in Binodpur Market, Talaimari Market and Shaheb Market was estimated 0.8-1 ton, 0.2-0.3 ton and 8-8.1 ton, respectively. Virtually, most of the fish (75%) is imported from outside; the local supply amount is only 25%. The total marketing cost of wholesalers and retailers of the three markets were \$ 8.58 and \$ 6.47 per day, respectively. The average marketing margin of the wholesalers and retailers of the three markets were \$ 0.18 and \$ 0.25 per kg respectively. Income of fisherman, wholesaler, retailer and day laborer was estimated at \$ 350, \$ 9.75, \$ 6.48, and \$ 1.69, respectively.

**Conclusions:** Traders have broadly improved their food consumption, standards of living, purchasing power, choice and ability as an economic sector.

### KEYWORDS

Fish marketing system, Marketing cost, Marketing margin, Fish wholesalers, Retailers, Constraints

## 1. Introduction

Fish is an essential staple food for the people of Bangladesh and plays an important role in the economy of the country. More than 60% of animal protein supply comes from fish[1]. A wide variety of indigenous and exotic fish including carps, catfish and innumerable smaller fishes are available. The contribution of the sector to GDP, foreign exchange earnings and employment is also significant. It accounts for 4.39 percent of GDP and 2.46 percent of export earnings of the country. Fish market is a place where people gather to buy or sell fishes. Fish

marketing system can also be defined as the way through which fishes reach in consumers from producers. The consumers ultimately are to depend on an effective fish marketing system through which fishes will be available to them. High rate of population growth resulted in growing gap between supply and demand of fish and fisheries product of Bangladesh.

Government of Bangladesh as well as many local and international Non Government Organizations (NGOs) are working in fisheries sector of Bangladesh, have been taken many steps and programmes to increase fish production. However, very few steps have been

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taken by any organization either government or NGOs to improve the fish marketing system, which is a major part of fisheries sector. 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 distribution 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[2]. The fish market in our country is virtually a cluster of disorganized activities and always remains in the control of influential persons of the surroundings area, depending on a wide range of social, economic and political factors[3]. The marketing system and structure is one of the main circumstances of socio-economic condition of the local people and production system of any area[4]. According to Olukosi *et al.*[5], marketing channel is the path of a commodity from its raw to finished form. During the period of research, the authors such as Quddus, Mia and Rahman identified several fish marketing channels[6-8]. Different studies were conducted on fish marketing system in different times in different regions by Ahmed[9], Quddus[6], Rokeya *et al.*[10], Flowra *et al.*[11], Siddique[12], Ahmed and Rahman[13], Rashid[3], Alam *et al.*[4], Rahman *et al.*[14], Flowra *et al.* and Omar *et al.*[15,16]. Therefore, the present study was undertaken to understand the existing fish distribution and marketing systems, assess marketing costs and margins and identify constraints of fish marketing systems.

## 2. Materials and methods

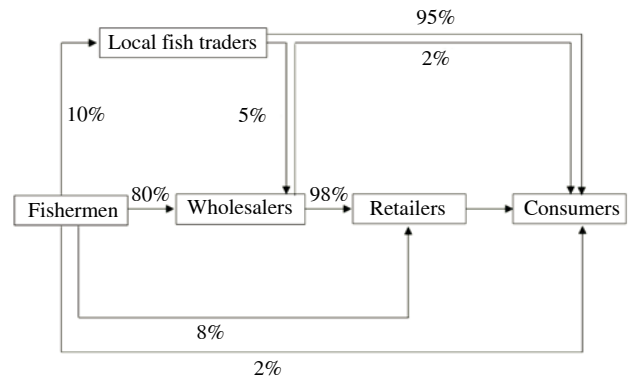
The study was carried out for 3 months from June to September 2013 by using survey method of each market, namely, Binodpur Market, Talaimari Market and Saheb Market. They are particularly important for freshwater fish in the Rajshahi City Corporation, Rajshahi, Bangladesh. The survey data were collected from the middleman of between the fishermen to consumers. The data for this study were collected by questionnaire interviews through stratified random sampling method. Thirty percent sampling data was taken from each stakeholder group (wholesaler 6%, retailer 58% and others 36%) for interview. The questionnaires were changed, modified and rearranged according to the experience gathered in pre-testing of questionnaire for collecting the information. Tabular technique was applied for the analysis of data by using simple statistical tools like average and percentage by Microsoft Excel.

## 3. Results

### 3.1. Fish marketing systems

In fish marketing system, there were several middlemen involved in Rajshahi area. The market chain from farmers or fishermen to consumers passed through a number of intermediaries, local fish traders, agents, wholesalers and retailers (Figure 1). With a few exceptions, fish farmers or fishermen never directly communicated with consumers, marketing communication being made through middlemen. The middlemen usually bought the fish from the fishermen and farmers but did not seem to have formal agreements with particular producers. The wholesalers of Rajshahi bought fishes from Paikers of Charghat or other places.

The fishes were carried by buses, trucks, pickup, van, Losimon (local transport) and sold them to wholesalers with the help of commission agents. In this case commission, agents got about 10% commissions for their services. Wholesalers sold their fishes to the retailer through open auction. Retailers sold their fishes to the local consumers.



**Figure 1.** Fish marketing chain from fishermen to consumers in Rajshahi.

In Saheb Bazar, traders generally operated a capital of around \$ 62.74-250.94 per day. The wholesalers possessed more capital (around \$ 125.47 to 1254.71 per day) than retailers and this meant to control agents and retailers. Few of the wholesalers (15%) also operated as retailers and had stall in markets. But in Binodpur Bazar, traders (retailers) generally operated a capital of around \$ 62.74-87.83 per day while the wholesalers possessed more capital (around \$ 752.82-878.29 per day) than retailers. But in Talaimari Bazar, retailers operated \$ 125.47-188.21 per day (32%) and received loans. Among the rest, 80% retailers obtained loans from money lenders and 20% from banks. The average rate of interest was estimated at 10% per month for moneylenders while in case of bank loans, interest rate was 23% per year.

### 3.2. Fish availability in three markets

Virtually, most of the fish (70%) was imported from outside like some Ghats and some famous fish ports; the local supply amount was only 30%. The markets share of main group of fishes in three different markets varied according to the demand and availability in that area. In Binodpur Market, carps (Indian and exotic) (26.39%), cat fish (20.79%), small fish (14.03%), hilsa (19.80%), shrimp (8.49%) and others (10.48%) were included for wholesaler and retailer comprised carps (Indian and exotic) (30.06%), catfish (19.63%), small fish (15.36%), hilsa (17.55%), shrimp (7.72%) and others (9.66%). On the other hand, at Talaimari Bazar carps (31.39%), cat fish (16.99%), small fish (13.31%), hilsa (19.44%), shrimp (8.42%) and others (10.44%) were composed. In Saheb Bazar, carps comprised (36.058%), cat fish (14.01%), small fish (10.49%), hilsa (21.13%), shrimp (10.37%), others (7.90%) for wholesaler and retailer comprised carps (Indian and exotic) (28.62%), cat fish (12.47%), small fish (11.407%), hilsa (28.57%), shrimp (9.807%) and others (9.11%).

It was found that a fish trader of Binodpur fish market sold an average 30-40 kg fish daily, compared with Talaimari Market 20-25 kg per day and Saheb Market 74.4-93 kg. There were around 30, 10

and 95 numbers of retailers involved in Binadpur, Talaimari and Saheb Bazar Market, respectively. The daily supply of total fish in Binodpur Market, Talaimari Market and Shaheb Market was 0.8-1 ton, 0.2-0.3 ton and 8-8.1 ton, respectively, which indicated that the amount of fish sold by a retailer at Shaheb Market was more than eight times than Binodpur Market and the amount of fish sold in Binodpur Market was more than four times than Talaimari Market.

### 3.3. Price of fish

There were different groups of fishes such as carps, catfish, small fish, shrimp, hilsa and some other fishes available in the three markets. The prices of fish were mostly dependent on the supply and demand of fish. The price per kilogram of most of the fishes was comparatively higher in the Binadpur Market than the Talaimari and Saheb Market. Traders also noted that price per kilogram varied according to daily demand and there were seasonal variations in prices with the highest in summer (March to May) and the lowest in winter (November to January), during the fish harvesting season. Table 1 shows price of different groups of fishes in three different markets.

**Table 1**  
Prices of different groups of fishes in different markets (\$).

Major Fish	Binadpur Market	Talaimari Market	Saheb Market	
Indian major carps	Rui	3.14	3.01	3.26
	Katla	4.39	4.02	4.02
	Mrigel	2.01	2.26	2.26
Exotic carps	Silver carp	2.26	2.10	1.88
	Grass carp	1.38	2.76	2.26
	Common carp	2.38	2.26	2.26
	Mirror carp	2.26	2.26	2.10
	Bighead carp	-	-	1.88
Cat fishes	Tengra	-	7.53	8.03
	Pangus	1.51	1.26	1.13
	Shing	8.79	9.41	9.41
	Magur	8.79	8.79	9.04
	Boal	-	-	10.04
	Pabda	-	-	7.53
	Small fishes	Puti	1.76	2.01
Other fish	Koi	3.14	2.51	3.01
	Chapila	3.51	4.02	4.02
	Batasi	-	-	7.53
	Guchi	-	-	4.02
	Baim	-	-	4.02
	Taki	3.26	3.01	3.14
	Shol	-	-	3.51
	Hilsa	8.79	10.04	8.79
Shrimp	7.53	8.79	8.79	

### 3.4. Marketing costs of three markets

The total marketing costs of Binadpur Market, Talaimari and Saheb Market were \$ 5.34, \$ 2.30 and \$ 7.42 respectively. The marketing cost of wholesalers at Saheb Market (\$ 4.93) was a bit higher than that of Binadpur Market (\$ 3.65). On the other hand, the marketing cost of retailers at Saheb Market market (\$ 2.49) was slightly higher than that of Binadpur Market (\$ 1.68). This depended on distance of transportation, marketing facilities and some other factors (Table 2). Traders also noted that price varied

according to daily demand and there are seasonal variations in prices with the highest in summer (March to May) and the lowest in winter (November to January), during the fish harvesting season.

**Table 2**  
Comparative marketing costs (\$/day) of fish in three different markets.

Markets	Wholesalers	Retailers	Total
Binadpur Market	3.65	1.68	5.34
Talaimari Market	-	2.30	2.30
Saheb Market	4.93	2.49	7.42
Average	8.58	6.47	15.05

### 3.5. Marketing margin of three markets

The average marketing margin of wholesalers and retailers in three markets were \$ 0.18 and \$ 0.25 (Table 3). The marketing margin or profit of wholesalers and retailers were comparative higher in Binadpur Market than Talaimari and Saheb Markets.

**Table 3**  
Comparative marketing margin of fish in three different markets (\$/kg).

Markets	Wholesalers	Retailers	Total
Binadpur Market	0.21	0.24	0.45
Talaimari Market	-	0.27	0.27
Saheb Market	0.15	0.24	0.39
Average	0.18	0.25	0.43

### 3.6. Constraints of fish marketing

Traders were asked to find out their single most important constraint, regarding fish marketing. Here, 21.56% respondents identified unhygienic market place, 37.25% respondent identified higher transport cost, and 17.64% informed lack of capital, 7.84% explained exploitation by middlemen and 15.68% mentioned poor ice supply was the most important constraint for fish marketing (Table 4).

**Table 4**  
Most important problems for fish marketing [n (%)].

Key problem	Binadpur Market	Talaimari Market	Saheb Market	Total
Unhygienic market place	3 (30)	1 (16.66)	7 (22.58)	11 (21.56)
Higher transport cost	2 (20)	2 (33.33)	15 (48.39)	19 (37.25)
Lack of capital	2 (20)	1 (16.66)	2 (6.45)	5 (17.64)
Poor ice supply	1 (10)	1 (16.66)	2 (6.45)	4 (7.84)
Exploitation by middlemen	2 (20)	1 (16.66)	5 (16.13)	8 (15.68)

## 4. Discussion

The fish market chain from farmers to consumers passes through a number of intermediaries: local fish traders, agents, wholesalers and retailers in Rajshahi. Usually farmers never directly communicate with consumers. Agents or suppliers of Rajshahi also carry fish from fish landing centers to the wholesalers in markets and typically earn 5%-10% commission for their services. Sometimes, suppliers take small amount of *dadon* credit from wholesalers to ensure the supply of fish from farmers. According to Food and Agriculture Organization, fish farmers sold 87.5% of their fishes to paikers, 12.1% to aratdars through retailers and rest 0.4% were kept for own consumption[17]. But in this study, fishermen sold 80% of fishes to wholesalers, local fish traders to 10%, wholesalers to retailers 98% and to consumers 2%. Traders of Rajshahi typically operate with capital of around \$ 62.76-251.03 per day. The wholesalers possess more capital (around

\$ 464.42-1 255.15 per day) than retailers and have the means to control agents and retailers to earn more profit. However, it was mentioned that profit of aratdars was the highest (12.34%) and followed by retailers (9.70%) and baperies (6.63%) in Rajshahi[18].

According to the market survey, the daily supply of fish in Binodpur, Talaimari and Saheb Markets was estimated at 0.8-1 ton, 0.2-0.3 ton and 8-8.1 ton, respectively. However, the supply of fish is higher than that found by Rahman *et al.* and Asaduzzaman *et al.*[14,19]. Most of the fishes (80%) are imported from outside mainly from Char areas or other fish landing center. It was estimated that about half of the fish (48%) supplied in markets was of Indian and exotic carps. Besides the carps, some others fish *e.g.*, hilsa, catfish, small indigenous fish, shrimp *etc.* are found in the markets.

There is a difference of price between carp produced in Bangladesh and India or Myanmar, as Bangladeshi carp is preferred and fetch a higher price than carp from other countries. Bangladeshi carp is considered to be fresher than from India and Myanmar. Moreover, captured carps in Bangladesh are more expansive than cultured carp. Among the cultured species, rohu, catla and mrigal fetch higher prices than the exotic carps. The reason for the low prices of exotic carps can be explained by the demand and taste that consumers or local traders are not willing to pay high prices. Among the Indian major carps, rohu was found to be the most valuable while among exotic carps, grass carp was found to be the most valuable. According to Rahman *et al.*[20], the price is also influenced by supply and there are generally seasonal variations in prices with the highest in summer (March to May) and lowest in winter (November to January). But in our study, on three fish markets, the price of carp depends on market structure, species, quality, size and weight. Traders also noted that price varied according to daily demand. The average net profit of a fish trader in Binodpur Market was estimated at \$ 5.65 per day, while traders in Talaimari Market earned \$ 7.53 per day and Saheb market earned \$ 6.28 per day. According to Rahman *et al.*[20], margin could be high if the marketing cost or profits are high.

Marketing costs are high if marketing functions are not performed efficiently due to functional difficulties such as poor roads and inadequate storage leading to losses, poor handling *etc.* Profits may be high if there are high risks of losses and huge capital investment. According to Ebewore[21], price transmission involves the transfer of price from the producer to the consumer. Subsidy is a price intervention policy or an austerity measure in which financial assistance are granted by a government for the purpose of promoting public welfare. The average marketing cost at Rajshahi town markets for wholesalers and retailers was \$ 4.29 and \$ 2.16 per day, respectively. However, the marketing cost is higher than that found by Rahman *et al.*[20], Alam *et al.*[4], Asaduzzaman *et al.*[19], Rahman *et al.*[14], Flowra *et al.*[15] and Omar *et al.*[16]. According to government of Bangladesh[22], marketing margin of retailers is the highest (\$ 15.35 per maund) followed by letter of credit paikers is \$ 11.32, aratdars is \$ 0.32 and bepari is \$ 2.87 of fish. But in this study, the marketing margin or profit per kg of fish was calculated at \$ 0.21 and 0.24 for wholesalers and retailers respectively at Binodpur Market. In Talaimari Market, the marketing margin was calculated at \$ 0.27 for retailers. On the

other hand, at Saheb Bazaar the marketing margin or profit per kg was calculated at \$ 0.15 and \$ 0.24 for wholesalers and retailers respectively. However, the marketing margins are lower than that found by Rahman *et al.*[20], Alam *et al.*[4], Asaduzzaman *et al.*[19], Rahman *et al.*[14], Flowra *et al.*[15] and Omar *et al.*[16].

In Rajshahi, many constraints for fish marketing were reported by traders, including higher transport cost, poor road and transport facilities, poor supply of ice, exploitation by middlemen, inadequate drainage system, poor water supply, poor sanitary facilities and unhygienic condition *etc.* According to the traders, political disturbances may also affect fish transporting as well as marketing. As a result, the perishable products of fish get damage and the traders sell these at cheap prices. Sometimes, they even fail to get any revenue due to decomposition. Ahmed and Sturrock reported that facilities at fish markets were minimal with poor hygiene and sanitation and there were no standard practice handling, washing, storing, grading cleaning and icing of fish[23]. In our study, unhygienic market place is 21.56%, poor ice supply is 7.84% and exploitation by middle men is 15.68%. In spite of socio-economic constraints, most of the households of traders (84.31%) have improved their status through fish marketing activities.

The cost of marketing of fish included all costs of performing various marketing functions at different stages of marketing by intermediaries. In fish marketing system of Rajshahi, a number of middlemen were involved actively for selling of fish. The market chain from fishermen to consumers passes through a number of intermediaries. Commission agents do not buy fish, but they sell them on behalf of the fishermen and earn 5%-10% commission from fishermen. Local traders are generally dependent on local fish farmers who are nearer to them and they sell fish in the local markets. Fish farming is regarded as an industry but due to poor condition of fish marketing system, the fish farmers hardly get any chance to communicate directly with the consumers. Again, there are also a lot of constraints or limitations in the form of poor sanitary conditions, inadequate infrastructure, lengthy marketing channel, higher transport cost, unstable production and price, political disturbance *etc.* which hampered the real marketing system. As such, special care should be taken in handling, packaging and transportation of fish before placing fresh fish for sale to the consumers. In spite of many problems, this area is still regarded as an important and one of the biggest fish market place in Rajshahi division and government get huge amount of taxes from this. So, government intervention and public-private relationship is necessary for commercial implementation and improvement of the existing system of fish marketing in Rajshahi.

### Conflict of interest statement

We declare that we have no conflict of interest.

### Comments

#### Background

Topic of the paper is to identify the processes related to the fish markets in Bangladesh. Fish marketing in that area is almost

exclusive owned by the private sector and the livelihoods of a large number of people are associated with fish distribution and marketing systems. Thus, better understanding of related processes is important.

### Research frontiers

The paper deals with the fish marketing systems in Rajshahi area (Bangladesh) that was based on existing marketing systems and economic features of marketing activities. This topic is quite interesting for that area. Fish is an essential staple food for the people of Bangladesh and plays an important role in the economy of the country due to the fact that more than 60% of animal protein supply comes from fish.

### Innovations and breakthroughs

Paper deals with the existing fish distribution and marketing systems to assess marketing costs and margins at three different markets. Hence, the goal of the paper was to identify constraints of fish marketing systems.

### Applications

Processes regarding fish distribution and marketing systems that were identified in 3 investigated markets can be applied to other markets within the region.

### Peer review

Topic of the paper is important for the better understanding of fish markets not only in Bangladesh but also in adjacent areas sharing same characteristics. The findings of the research would help the relevant researchers, policymakers, GOs and NGOs.

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