



Investigation on fish marketing system in Rangpur town of Bangladesh

MD. JAHIDUL ISLAM, ARSHAD HOSSAIN AND IFTEKHAR AHMED FAGUN*

Department of Aquatic Resource Management, Sylhet Agricultural University, Sylhet

*Corresponding author's Email: iftekharfagun@gmail.com

Abstract. The present study was conducted on the fish marketing system of Rangpur town to determine specific marketing channels, fish trading, marketing costs, and margins at various levels. The overall marketing cost of fish for aratdar was estimated to be Tk. 0.727, paiker, Tk. 6.396, and retailer, Tk. 4.024 per kg of fish. The total cost of the fish for the various middlemen was Tk. 12.888. Aratdar commission, transportation, personal expenditures, waste, icing, wages and salary, market toll, rent and power, packing materials, loading and unloading, phone bill, grading, and security were all cost items. Paiker has the greatest marketing expenses (Tk. 6.396) due to greater aratdari commission and transportation costs. Paikers' average net profit was Tk. 8.604 during the peak period and Tk. 9.604 during the lean period, Aratdars' average net profit was Tk. 3.516 during the peak period and Tk. 4.498 during the lean period, and Retailers' average net profit was Tk. 16.690 during the peak period and Tk. 17.809 during the lean period per kg of fish. Traders and customers faced a variety of issues, including a lack of input on time, a lack of money, a high interest rate on credit, a shortage of fisheries equipment, price volatility, a low price, political instability, a lack of physical facilities, insufficient storage space, and so on. The study will serve as a foundation for future research into the development of the fish marketing system in this area.

Keywords: Fish Marketing System, Fish Market.

Introduction

Fisheries is acknowledged as an essential component of Bangladesh's agro-based production system. It is also acknowledged as a viable area for creating self-employment options and earning revenue for jobless adolescents and others. An excellent marketing strategy is required to make fish accessible to customers at the appropriate time and in the right location (Bahadur *et al.* 2004). To transfer fish from farmers to consumers, a variety of middlemen are engaged in the fish marketing chain (Alam *et al.* 2010). The act of purchasing or selling fish or fisheries products is known as fish marketing. Preserving, shipping, and marketing are three critical links in the fish production and consumption chain that connects the producer, broker, wholesaler, retailer, and consumer (Acharjee *et al.* 2006). Fish harvesting and marketing become successful only when fisheries products are provided in good condition and at a reasonable price.

Fish marketing is almost completely a private sector operation, with a complex network of village markets (Hat), township markets (Bazar), assembly facilities, and large metropolitan wholesale and retail marketplaces (Yousuf 2004). However, the most serious marketing difficulties seem to occur in remote areas, with lack of ice, transport and poor road facilities and where the farmers are in particularly weak position in relation to intermediaries (Rahman *et al.* 2009). From purchasers who may be hat dealers or agents of larger bazaar fish merchants (Bepari/Mahajan) to wholesale market commission agents (Aratdar/Paikar) who essentially manage the whole system, there is a comparable network of individuals. The fishermen are forced to sell their catches to the trader/middleman (Aratdar/Paikar) at a price set by the latter (Katiha *et al.* 1996). The intermediary is more than simply a fish dealer. He is often the owner of capital such as a boat, net, and so on, which he rents to fishermen. He may be a fisherman himself, owning and managing a boat and equipment, hiring fishermen on a set pay as hired

laborers, and reaping unearned revenue while depriving true fishermen of the benefit of their labor and produce. The fishermen are mostly exploited as a result of the fish trade's monopoly structure.

Rangpur is a district in Bangladesh's northwestern region. Fish from various locations arrive in town on a daily basis through various transportation methods for consumption by town residents and others. In the town of Rangpur, both inland and marine fish species abound. The availability of species upon landing and in markets provides a general idea of the fish fauna accessible in this location. It also helps in displaying the true image of a region's species abundance and, as a result, aids in evaluating the marketing system for these fish in Rangpur. The present study was therefore done to ascertain the existing fish marketing system, estimate marketing costs and margins of fish at various levels, assess price volatility of fish during lean and peak periods, and identify challenges encountered by traders in fish marketing.

Materials and Methods

Study area: Rangpur town markets were chosen as the research site. There were around 17 fish markets in Rangpur Town. Data was acquired from 12 fish marketplaces, the most notable of which were Pouro Bazar and Terminal Bazar. Pouro Bazar, Terminal Bazar, Modern mor Bazar, C.o Bazar and Chalk Bazar, Railway Market, Mahiganj Bazar, Sathmatha, Nuddhiganj, Purboget, Burirhat, Cantonment Bazar and Hajir Hat, Keranir Hat, Nozirer Hat, and Kamarpara Fish Market were all part of the research area.

Data collection: This study's empirical data was collected using a questionnaire interview. Before constructing the final questionnaire, a draft questionnaire was created with the study's aims in mind. The draft questionnaire was pre-tested with some limited respondents. During pre-testing, special care was taken to include any new information that was not intended to be questioned and put in the draft. The questionnaire was then updated, amended, and reorganized based on the results of the pretest. The final questionnaire was then created in logical order so that the target population may respond chronologically. In the current research, freshwater fish traders from the Rangpur town fish market were chosen. The traders who dealt with fish were divided into three groups: Bepari, Aratdar, and Retailer. Data were gathered from 36 fish traders at 12 fish markets over the course of a year. In a week, two days were chosen to gather data.

Data analysis: Following data collection from the study area, all data were organized in a sequential format and recorded in a computer. Data were analyzed based on the information gathered from the questionnaire. A variety of tabular methods were used to handle all of the data, as well as statistical techniques such as averages and %ages. Finally, data were analyzed by Microsoft Office Excel 2010 as well as Origin V9 and Minitab V17.

Results and Discussion

There were three kinds of fish traders in Rangpur town: Bepari, Aratdar, and Retailer.

Bepari: Beparies were professional fish traders, purchasing fish from farmers and selling to retailers through Aratdars or commission agents. Typically, they buy fish from farmers and

carried to the Arat center to sale. Beparies who bought fish from the fisheries ghat/landing center and sold it via the aratdar had to pay the aratdar a 3-4 % fee for selling the items.

Aratdar: The aratdar is a commission agent who has a set establishment and assists beparies in selling their products for a predetermined fee of Tk.30 to 40 per thousand sales revenue. An aratdar attempted to sell fish at greater rates since a commission was paid on sales proceeds. They supplied short-term storage facilities as well as grading operations. They paid beparies in cash and, in most instances, supplied fish to shops on credit. Aratdars did not split any bepari or retailer costs. They recruit workers and pay employees to execute different tasks such as loading, unloading, weighing, grading, and so forth. They often handle a greater amount of fish than the Beparies. The Aratdars often loaned money to beparies on the condition that they sell fish via them. A bepari may accept money from more than one aratdar, in which case he divides his items and sells them via other Aratdars.

Retailer: Retailers the last link in the fish marketing chain. They had a reserved spot in the market. Rangpur's retailers purchased fish from the Beparies and Aratdars. The majority of the shops in Rangpur's fish market purchased their fish from Pouro Bazar. Pouro Bazar's Aratdar sold their fish to retailers. Retailers were responsible for acquiring supplies and displaying them in the same forms to customers at opportune times.

Sources of freshwater fish in the markets: Fish are delivered to Rangpur town from several parts of Rangpur, mainly from District, Thana, and Upazilla. Joldhaka, Mahiganj, Shothibari, Hazirhat, Pat Bazar, Vurarghat, Dinajpur, Nilphamari, Soiyadpur, Gobindaganj, Gaibandha, Polashbari, Pirgacha, Pirganj, Dhaperhat, Mithapukur, and Nubdhiganj are among them. They also come from other districts like as Khulna-Rajshahi, Pabna, Sirajganj, Singra, Atrai, Nawgaon, Joypurhat, Natore, Mymensing, Satkhira, Gajipur, Jamalpur Chittagong, Jessore, and Bogra, as well as other countries such as India and Myanmar. These fishes are collected from Rivers, Beels and Haors.

Availability of fish species: Fresh water fish species available in Rangpur town are Tara baim, Guchi Baim, Baim, Sal baim, Muni/ Rishi, Khalisha/Khailsha, Lal Khalisha, Koi, Ek Thuita, Bele, Dahuk, Chewa, Bheda, Poa Chanda, Lomba Chanda, Ranga chanda, Kuicha, Shol, Gajar/ Gajal, Taki, Lata, Telo taki / Cheng, Ragha, Kaikka, Shing, Magur, Pangas, Gharua, Kajuli, Banspata, Bacha, Ghaura, Batasi, Pabda, Boal, Madhupabda, Boali pabda, Tengra, Golsha, Bujuri-tengra, Ayre, Rita, Gutum, Puiya, Rani, Rui, Catla, Mrigal, Kalibaus, Bhangon, Bhangna, Bata, Sarpunti, Chola punti, Ghora chela, Tit punti, Jat punti, Mola, punti, Bashpata, Mola, Dhela, Khoira, Tatkini, Dankina, Fulchela, Chela Eleng, Elong, Chebli, Teri punti, Ghonia, Chital, Foli, Phasa, Chapila, Choukka, Ilish, Chandana ilish, 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 fish species available in Rangpur town are Bhetki, Tuna, Loitta/Nehari, Poa, Vola/Lal poa, Lakhua, Bhangon, Chhuri, Rup chanda, Foli, Chanda, Colombo, Boudulali, and Surma.

Financing: In the marketing system financing is one of the most important functions like other

functions. For run business smoothly the availability of finance at proper time is very much important (Table I). Function performed in fish marketing are transportation, grading, storage, buying and selling of fish, financing (Sen 2008). The source of finance of Aratdar, Paiker and Retailers were own fund, relatives and others.

Table I. Source of finance for Aratdar, Paiker and Retailers

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

Marketing cost of stakeholders: The cost of marketing is the cost of performing out the different marketing tasks (Biswas 1990). The cost of fish fluctuates at various phases of the marketing process in fish marketing. Because of the participation of multiple middlemen, this may vary from producer to customer. Marketing costs have been compared below based on data obtained.

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 (Table II). The overall marketing cost of the study area's producers was Tk. 1.86 per kg. Transportation was the most expensive component for producers in the study region, accounting for 44.60 % of total cost. The second-highest expenditure was incurred as a result of fish grading (26.8%). In descending order, the remaining cost components of study area producers were market toll (1.8 %), personal expenditures (8.95 %), and loading and unloading (17.85 %).

Marketing cost of Aratdar: The Aratdars are 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 cost (Table II). Aratdar's overall marketing cost was estimated to be Tk. 0.72 per kg of fish. Employee wages and salaries were the most expensive component, accounting for 34.39 % of total marketing costs. The second most expensive component was personal expenditures, which accounted for 25.86% of the overall marketing cost. In descending order, the other cost components were market toll (17.2%), telephone bill (8.67%), rent and energy (11.00%), and security (2.89 %).

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 II). The total marketing cost of Paiker was calculated at TK. 6.396 per kg of fish. Aratdars commission was the highest cost item comprising 46.20 % of the total marketing cost. The second highest cost item was transportation cost, which was 12.54 % of total marketing cost. The other cost items in descending order were personal expenses (9.38%), wastage (6.25%), wage and salary (5.86%), telephone bill (2.88%), market toll (3.91%), packaging materials (1.95%), loading and unloading (3.13%) and grading (1.56%).

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 (Table II). The total marketing cost of Retailer was estimated at Tk. 4.024 per kg of fish. Wastage was the highest cost item comprising 33.05 % of the total marketing cost. The second highest cost component was the personal expenses, which accounted for 19.88 % of total marketing cost. The other cost items in descending order were transportation (16.58%), icing (4.97%), market tolls (5.72%), packaging materials (13.17%) and rent and electricity (6.64%). 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 was found only at retailer level.

Marketing margin of stakeholders: 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 of various intermediaries: 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. As Aratdar did not perform buying and selling function, they sold the products on behalf of producers for which they received commission (3%), which was considered as gross margin.

Table II. Marketing cost of fish for producers and different intermediaries (Tk/kg)

Cost items	Producer	Aratdar	Paiker	Retailer	Total	Percentage (%)
Aratdars commission	....	....	2.95	....	2.95	22.93
Transportation	0.83	...	0.80	0.66	2.30	17.90
Personal expenses	0.16	0.18	0.60	0.80	1.75	13.62
Wastage	...	...	0.40	1.33	1.73	13.40
Icing	...	....	0.40	0.20	0.60	4.70
Wages and Salary	...	0.25	0.37	....	0.62	4.85
Market toll	0.03	0.12	0.25	0.23	0.63	4.95
Rent and electricity	...	0.08	...	0.26	0.34	2.70
Packaging materials	...	...	...	0.53	0.53	4.10
Loading and unloading	0.33	....	0.20	...	0.53	4.10
Telephone bill	....	0.06	0.18	....	0.247	1.92
Grading	0.50	....	0.10	....	0.60	4.70
Security	...	0.02	...	....	0.02	0.16
Total	1.86	0.72	6.39	4.02	12.88	100

Marketing margin of Paiker: In the peak period, the average gross margin and net margin of

Paiker were estimated at Tk.15 and Tk.8.604 per kg of fish respectively. The net margins for Rohu, Catla, Mrigal, Silver carp, Pangus, Shorputi and Carpio were Tk. 18.604, Tk. 13.604, Tk. 3.604, Tk. 3.604, Tk. 3.604, Tk. 8.604 and Tk. 8.604 respectively in peak period. In the lean period, the average gross margin and net margin of Paiker were estimated at Tk. 16 and Tk. 9.604 per kg of fish respectively. The net margins for Rohu, Catla, Mrigal, Silver carp, Pangus, and Shorputi were Tk. 19.604, Tk. 14.604, Tk. 4.604, Tk. 4.604, Tk. 4.604 and Tk. 9.604 respectively in lean period. Paiker earned the highest and lowest net margin or profit from Rohu and Catla fish respectively in both periods (Table III). Paikars marketing cost are same in both periods, but fish prices are fluctuating within two periods. Fish prize is higher in lean period than peak period. For this reason, Paiker earned higher net margin in lean period than peak period in the study area.

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 % in the study area. 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 4.24 and 3.52 per kg of fish respectively. The net profits for Rohu, Catla, Mrigal, Silver carp, Pangus, Shorputi and Carpio were Tk. 4.67, Tk. 5.12, Tk. 3.77, Tk. 2.27, Tk. 1.67, Tk. 3.47 and Tk. 3.62 respectively in peak period. In the lean period, the average gross profits and net profit of Aratdar were estimated at Tk. 5.22 and Tk.4.49 per kg of fish respectively. The net profits for Rohu, Catla, Mrigal, Silver carp, Pangus, and Shorputi were Tk.5.67, Tk.6.12, Tk.4.77, Tk.3.27, Tk.2.67 and Tk.4.47 per kg respectively in lean period. Aratdar earned the highest and lowest profit from Rohu and Catla fish respectively in both periods (Table IV). Aratdar earned the higher profit in lean period than peak period for all fishes; Fish prices are higher in lean period than peak period.

Marketing margin of Retailer: In the peak period, the average gross margin and net margin of Retailer was estimated at Tk. 20.71 and Tk. 16.69 per kg of fish respectively. The net margin for Rohu, Catla, Mrigal, Silvercarp, Pangus, Shorputi and Carpio were Tk. 20.97, Tk. 25.97, Tk. 10.97, Tk. 10.97, Tk. 15.97, Tk. 15.97 and Tk. 15.97 respectively in peak period. In the lean period, the average gross margin and net margin of Retailer were estimate at Tk. 21.83 and Tk. 17.81 per kg of fish respectively. The net margins for Rohu, Catla, Mrigal, Silver carp, Pangus and Shorputi were Tk. 21.97, Tk. 26.97, Tk. 11.97, Tk. 11.97, Tk. 16.97 and Tk. 16.97 respectively in lean period. Retailer earned the highest and lowest net margin or profit from Rohu and Catla 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 (Table V). 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. 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.

Table III. Profits of Paiker for different types of fishes

Fish species	Peak period (Tk. Per kg)			Lean period (Tk. Per kg)		
	Gross profit	Marketing cost	Net profit	Gross profit	Marketing cost	Net profit
Rohu	20	6.39	18.60	21	6.39	19.60
Catla	25	6.39	13.60	26	6.39	14.60
Mrigal	10	6.39	3.60	11	6.39	4.60
Silver carp	10	6.39	3.60	11	6.39	4.60
Pangus	10	6.39	3.60	11	6.39	4.60
Shorputi	15	6.39	8.60	16	6.39	9.60
Carpio	15	6.39	8.60			
Total	105	44.77	60.22	96	44.77	57.62
Average	15	6.39	8.60	16	6.39	9.60

Table IV. Profits of Aratdar for different fishes

Fish Species	Peak period (Tk. Per kg of fish)			Lean period (Tk. Per kg of fish)		
	Gross profit	Marketing cost	Net Profit	Gross Profit	Marketing cost	Net Profit
Rohu	5.40	0.72	4.67	6.40	0.72	5.67
Catla	5.85	0.72	5.12	6.85	0.72	6.12
Mrigal	4.50	0.72	3.77	5.50	0.72	4.77
Silver carp	3.00	0.72	2.27	4.00	0.72	3.27
Pangus	2.40	0.72	1.67	3.40	0.72	2.67
Shorputi	4.20	0.72	3.47	5.20	0.72	4.47
Carpio	4.35	0.72	3.62			
Total	29.70	5.08	24.61	31.35	4.36	26.98
Average	4.243	0.72	3.51	5.22	0.72	4.49

Table V. Profits of Retailer for different types of fishes

Fish Species	Peak period (Tk. Per kg of fish)			Lean period (Tk. Per kg of fish)		
	Gross profit	Marketing cost	Net profit	Gross profit	Marketing cost	Net profit
Rohu	25.00	4.02	20.97	26.00	4.02	21.97
Catla	30.00	4.02	25.97	31.00	4.02	26.97
Mrigal	15.00	4.02	10.97	16.00	4.02	11.97
Silver carp	15.00	4.02	10.97	16.00	4.02	11.97
Pangus	20.00	4.02	15.97	21.00	4.02	16.97
Shorputi	20.00	4.02	15.97	21.00	4.02	16.97
Carpio	20.00	4.02	15.97			
Total	145.00	28.16	116.83	131.00	24.14	106.85
Average	20.71	4.02	16.69	21.83	4.02	17.81

Total marketing cost and margin for intermediaries: The highest marketing cost (Tk. 6.396) 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 (Table VI).

Table VI. Total marketing cost and margin for intermediaries

Intermediaries	Peak period (Tk. per kg of fish)			Lean period (Tk. Per kg of fish)		
	Gross margin	Marketing cost	Net margin	Gross margin	Marketing cost	Net margin
Aratdar	4.24	0.72	3.51	5.22	0.72	4.49
Paiker	15.00	6.39	8.60	16.00	6.39	9.60
Retailer	20.71	4.02	16.69	21.83	4.02	17.80
Average	13.39	3.71	9.60	14.35	3.71	10.63

Fish is 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. 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. It is possible to infer that fish selling in the studied regions was profitable. Furthermore, there were a great number of persons engaged in the production and sale of fish. As a result, if marketing was done more efficiently, producers and middlemen would profit monetarily more. To strengthen and grow the marketing channel, physical marketing facilities should be expanded, and unneeded and underutilized intermediaries should be removed.

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