

MARKETING STATUS OF INDIGENOUS SMALL FISH SPECIES IN THE NORTHWESTERN BANGLADESH

SALEHA JASMINE

Department of Fisheries, Faculty of Agriculture, University of Rajshahi, Rajshahi, Bangladesh

ABSTRACT

This study was carried out in five fish markets of Rajshahi city during December 2006 to November 2007. The main objectives of this study were to investigate the marketing channel, marketing cost and marketing margin associated with indigenous small fish marketing in Rajshahi city, northwestern Bangladesh in order to provide vital information for efficient fish marketing system. Primary data were collected from 50 fish traders and 50 consumers through previously prepared questionnaires and the secondary source of information consist of published material such as journals, textbooks, newspaper etc. A total of 24 indigenous small fish were recorded in the markets during the study. The results of this study revealed 6 fish marketing channels in fresh fish marketing.

The highest and lowest average fish prices were recorded as BDT 67.2 ± 9.5 for *Amblypharyngodon mola* and BDT 352.4 ± 39.8 for *Ompok pabda*. In addition, average marketing cost was found as 8.69% of the final retail price. Furthermore, during the present study marketing margins for all intermediaries were found to fluctuate between 3.12% for *Glossogobius giuris* and 35.78% for *Anabas testudineus*. This study would provide important information for sustainable and effective marketing system of indigenous small fish species in the study area.

KEYWORDS: Indigenous Small Fish, Marketing, Rajshahi City, Marketing Channel, Marketing Cost, Market Margin

INTRODUCTION

Fish and fisheries have been an integral part of the life of the people of Bangladesh from time immemorial, and play a major role in employment, nutrition, foreign exchange earnings and other aspects of the economy. Fish and fisheries products are the third important foreign exchange earners for Bangladesh and contribute ~3.7% of the national GDP, 22.2% of agricultural GDP and 3.0% of the country's total export earning per annum (DOF 2010). Fish is the greatest source of animal protein providing 60% of the total animal protein intake and fisheries sector has been playing an active role in alleviating protein shortage, providing jobs for unemployed youth, earning foreign currencies and socioeconomic development in Bangladesh (FRSS 2012). About 12 million people are directly or indirectly involved in this sector. Labor employment in this sector is increasing approximately by 3.5% annually (DOF 2010). In 2001-2002, the production was 1.89 million MT, whereas it was increased up to 3.06 million MT in 2010-11 (FRSS 2012). Total fish production was gradually grown up during the last 10 years in Bangladesh. About 97% of this production is marketed internally for domestic consumption while the remaining 3% exported to the foreign (Rahman et al. 2009).

Fish passes through various market participants and exchange points before they reach the ultimate consumers. 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 (Alam et al. 2010; Rahman et al. 2012). This is a chain of various systems involved in marketing from production sector to consumer sector with intra-linkage and inter-linkage. At all stages in the marketing chain, fish has to be packed and un-packed, loaded and un-loaded to meet consumers demand. Every handling cost will not amount much but the sum total of all loading can be significant, depending on the length of chain (Ali et al. 2008).

Thereby, a greater difference in price paid between urban consumers at the end of the chain and farm gate price at the beginning of the chain resulted that can lead to a greater or wider market margin between the producer and the final consumer. However, when the market margin is high, it may be used to argue that producers or consumers are being exploited. Nonetheless, high margin cannot often be completely justified lest the costs involved are totally understood and reasonable (Ali et al. 2008). Fish supply and marketing suffer from various obstacles ranging from shortage of supply, price fluctuation due to drying up of the source, spoilage in transit etc. (Tomek and Robinson 1981). Despite these, the people involved in the marketing of the fish appear to be on the increase because of increase in the population and therefore, the demand tends to be high and increase in concentration implies more scope for the middlemen to exploit either the consumers by charging high or the producer by paying them lower price (Tomek and Robinson, 1981). Moreover, market margin is an important indicator of market performance (Olukosi and Isitor 1990). Nonetheless, out of the 260 freshwater fish species in Bangladesh, over 140 species have been classified as indigenous small fish.

These fish species are relatively lower priced but contain higher nutritional value and are available in almost all the waterbodies of the country. Thereby, these indigenous small fish play an important role in alleviating malnutrition problem that specially existing among the poorer people of Bangladesh. However, though marketing system of indigenous small fish is not well documented in Bangladesh, poor marketing facilities are common phenomena. Therefore, the middlemen usually get the chance to interfere in the marketing system of indigenous small fish. This in turn not only affects the final fish price but also deteriorate the product quality by lengthening the period of marketing. Subsequently, this present study was conducted in order to provide information about the marketing channel, marketing cost and market margin of indigenous small fish marketing in Rajshahi city, northwestern Bangladesh.

METHODS

The present study was conducted in Rajshahi city over a period of 12 months from December 2006 to November 2007. Data and information for the present study was collected from five fish markets including Katakhalī bazar fish market, Binodpur bazar fish market, Shaheb Bazar fish market, Laxmipur bazar fish market and Shalbagan bazar fish market. Both primary and secondary data were used during the study. Primary data were collected from 50 fish traders and 50 consumers using previously structured questionnaires. Secondary source of information consist of published material such as journals, textbooks, newspaper etc. Primary data included socio-economic variables such as price, cost, revenue, sales and problems associated with fish marketing.

Marketing margin is the difference between the price paid by consumer and that received by the producers and was calculated using the following formula-

$$\text{Marketing margin (\%)} = (\text{Selling price} - \text{Purchase price}) / \text{Selling price} \times 100$$

RESULTS AND DISCUSSIONS

Structure of Fish Markets

Shaheb bazar was the largest in terms of area with 43 decimal followed by Katakhalī bazar, Laxmipur bazar, Shalbagan bazar and Binodpur bazar fish markets. Highest 52 retail shops and 11 *arat* were present in Shaheb bazar fish market followed by Katakhalī bazar, Shalbagan bazar, Laxmipur bazar and Binodpur bazar fish markets. However, *arat* was absent in Binodpur bazar and Laxmipur bazar fish markets. Communication system was found to be good for all the fish markets. Platform was in good condition only in Shaheb bazar fish market; however, it was either absent or not in good condition for rest of the fish markets. Drainage system was cemented in Shaheb bazar fish market though it seemed not adequate and clean while it was either in poor condition or absent in the other fish markets. Detailed general

information about the studied fish markets are provided in the Table 1.

Table 1: General Information about the Studied Fish Markets in Rajshahi City, Northwestern Bangladesh

Market Characteristics	Shaheb Bazar	Binodpur Bazar	Laxmipur Bazar	Shalbagan Bazar	Katakhali Bazar
Area (decimal)	43	5	15	10	17
No. of retail shop	52	12	22	33	46
No. of arat	11	0	0	5	7
Communication system	Good	Good	Good	Good	Good
Platform	Cemented	Absent	Cemented but not in good condition	Absent	Commented but very poor
Roof (shade)	Cemented	Plastic paper	Tin shade	Plastic paper, Tin, bamboo slits	Tin shade
Drainage	Cemented	Very poor	Poor	Absent	Poor
Electricity supply	Present	Absent	Present	Absent	Present
Water supply	Present (Tap)	Present (tubewell)	Present (tubewell)	Absent	Absent
Ice facility	Available	Absent	Absent	Absent	Available
Sanitation	Present but not satisfactory	Very poor	Poor	Very poor	Very poor
Daily price board	Present; but no so well decorated	Absent	Absent	Absent	Absent

Availability of Indigenous Small Fish

Indigenous small fishes were available throughout the year in the studied fish markets in various quantities from different water resources. A total of 23 species of indigenous small fish were recorded in the fish markets of Rajshahi city during the present study (Table 2). Rivers, *beels*, swamps, ponds, flood plains, canals etc. were found to be the sources of the available fishes.

Table 2: Local Name, Scientific Name and Source of Available Indigenous Small Fish Species in Rajshahi City

Sl No.	Common/ Local Name	Scientific Name	Source
01.	Mola	<i>Amblypharyngodon mola</i>	Rivers, ponds, canals and ditches
02.	Baspatha	<i>Ailia coila</i>	Rivers
03.	Peuli	<i>Aspidoparia morar</i>	Padma River
04.	Koi	<i>Anabas testudineus</i>	<i>Beels</i> , ditches, ponds, canals
05.	Chanda	<i>Chanda nama</i>	<i>Beels</i> , ponds, rivers, flood plains
06.	Kechki	<i>Corica soborna</i>	Padma River
07.	Guchi	<i>Mastacembelus pancalus</i>	<i>Beels</i> and flood plains
08.	Gutum	<i>Lepidocephalus guntea</i>	Swamps, <i>beels</i>
09.	Kholisha	<i>Colisa fasciatus</i>	Ponds, ditches, flood plains
10.	Shingi	<i>Heteropneustes fossilis</i>	<i>Beels</i> , ponds, ditches, flood plains
11.	Magur	<i>Clarias batrachus</i>	Ponds, ditches, swamps
12.	Taki	<i>Channa punctatus</i>	Ponds, ditches, <i>beels</i> and swamps
13.	Chang	<i>Channa orientalis</i>	Ponds, ditches, <i>beels</i> , swamps
14.	Gulsha	<i>Mystus cavasius</i>	Rivers, <i>beels</i> , canals and flood plains
15.	Tengra	<i>Mystus vittatus</i>	Rivers, <i>beels</i> , canals and flood plains
16.	Puti	<i>Puntius sophore</i>	Ponds, <i>beels</i> , flood plains, canals
17.	Sar puti	<i>Puntius sarana</i>	<i>Beels</i> , Flood plains
18.	Darkina	<i>Rasbora rasbora</i>	Ponds, <i>beels</i> , flood plains, canals
19.	Phasa	<i>Setipinna phasa</i>	Padma River
20.	Chapila	<i>Gudusia chapra</i>	Padma River
21.	Pabda	<i>Ompok pabda</i>	Rivers, canals, <i>beels</i> , flood plains
22.	Kakila	<i>Xenentodon cancila</i>	Rivers, <i>khals</i> , ponds, <i>beels</i> , flood plains
23.	Bele	<i>Glossogobius giuris</i>	Ponds, rivers, canals, <i>beels</i>

Marketing Channels

The sequence of stages involved in transferring produce from the farm to the consumer is known as marketing channels (Shepherd, 1996). Usually, the producers/fishermen sold their catch through intermediaries predominantly when

the consumer markets were in distant places from the production areas (Rahman et al. 2012). A total of 6 marketing channels were found in the flow of indigenous small fish in Rajshahi city's fish marketing system.

Channel 1: Fishermen – Consumer.

Channel 2: Fishermen/Producer - Wholesaler – Retailer – Consumer.

Channel 3: Fishermen/Producer – *Aratdar* (Commission agent) – Retailer – Consumer.

Channel 4: Fishermen/Producer - *Aratdar* (Commission agent) – Wholesaler – Retailer – Consumer.

Channel 5: Fishermen/Producer – Wholesaler – *Aratdar* (Commission agent) – Retailer – Consumer.

Channel 6: Fishermen/Producer – *Bepari* - *Aratdar* (Commission agent) – Retailer – Consumer.

Retail Price of Indigenous Small Fish

Considering all the months and markets, the retail price of indigenous small fish during the study ranged from BDT 67.2±9.5 for *Amblypharyngodon mola* to BDT 352.4±39.8 for *Ompok pabda* (Table 3). Nonetheless, price of fish varied significantly between markets and months which might be due to the seasonal availability, freshness, size and consumer preference of fish and the involvement of market intermediaries (Rahman et al. 2012).

Table 3: Average Retail Price (Mean±SD) of Indigenous Small Fish Species in Different Fish Markets of Rajshahi City, Northwestern Bangladesh

Sl. No.	Scientific Name	Retail Price (Tk./kg)				
		Shaheb Bazar	Binodpur	Laxmipur	Shalbagan	Katakhali
01.	<i>Amblypharyngodon mola</i>	67.2±9.5	76.17±17.9	71.0±7.5	72.0±9.0	72.7±13.8
02.	Mixed	76.00±7.90	72.50±13.2	69.0±7.30	67.70±6.80	68.0±13.0
03.	<i>Ailia coila</i>	125.3±30.3	127.5±22.1	121.2±16.5	115.0±10.8	124.5±20.0
04.	<i>Aspidoparia morar</i>	132.0±21.3	145.0±26.4	137.5±22.1	128.0±21.7	126.2±19.1
05.	<i>Anabas testudineus</i>	305.0±49.5	297.5±47.8	297.0±63.0	275.0±25.1	272.5±27.2
06.	<i>Chanda nama</i>	58.2±9.20	66.7±11.3	68.5±12.4	67.0±10.3	74.50±17.0
07.	<i>Corica soborna</i>	90.0±7.20	85.0±13.0	88.50±14.9	87.0±14.0	81.5±11.2
08.	<i>Mastacembelus pancalus</i>	120.0±57.2	126.0±23.2	119.5±29.1	119.0±30.0	108.7±26.5
09.	<i>Colisa fasciatus</i>	106.0±25.8	99.00±12.0	96.50±25.2	94.00±5.8	96.2±21.5
10.	<i>Lepidocephalus guntea</i>	98.5±17.00	101.0±13.9	101.0±13.8	97.50±11.6	96.1±11.6
11.	<i>Heteropneustes fossilis</i>	132.5±53.7	135.2±57.27	133.0±34.6	122.5±26.0	102.5±30.7
12.	<i>Clarias batrachus</i>	250.5±38.9	240.0±37.8	232.0±32.2	213.7±26.7	215.0±19.0
13.	<i>Channa punctatus</i>	92.0±9.5	82.50±9.5	81.50±8.6	77.50±36.7	77.70±24.7
14.	<i>Channa orientalis</i>	95.0±5.5	79.5±9.00	73.7±93.7	73.7±13.7	71.2±6.5
15.	<i>Mystus cavasius</i>	160.0±10.0	141.5±12.6	133.7±18.0	122.5±14.0	118.7±25.2
16.	<i>Mystus vittatus</i>	110.0±11.5	97.5±34.7	89.5±33.2	88.7±20.9	87.0±20.1
17.	<i>Puntius sophore</i>	72.5±15.0	74.5±10.2	70.00±10.8	68.70±11.0	68.7±11.8
18.	<i>Puntius sarana</i>	85.0±1.00	83.0±5.30	83.40±11.2	86.2±16.0	86.2±18.5
19.	<i>Rasbora rasbora</i>	80.0±0.90	88.6±11.1	80.2±12.7	77.7±15.0	74.2±9.72
20.	<i>Setipinna phasa</i>	110.0±27.0	107.0±15.0	107.0±19.0	91.2±16.2	91.2±9.70
21.	<i>Gudusia chapra</i>	145.0±12.0	126.0±11.7	121.0±12.3	130.0±13.2	120.7±24.2
22.	<i>Ompok pabda</i>	352.4±39.8	330.0±43.9	320.0±42.5	250.0±40.6	233.0±34.2
23.	<i>Xenentodon cancila</i>	70.0±7.0	73.2±8.9	73.2±8.9	71.0±15.3	71.0±11.2
24.	<i>Glossogobius giuris</i>	120.11±10.13	126.32±11.05	115.95±8.13	129.11±13.24	132.23±16.17

1 BDT = 0.013 USD

Marketing Cost and Marketing Margin

A total of 11 different types of marketing costs were involved in the indigenous small fish marketing (Figure 1). Highest 28.21% of the total marketing costs was for transportation followed by fish container cost (18.32%) and wastage cost (11.72%). The marketing cost ranged from 4.9% in *P. sophore* to 12% for *A. testudineus* with an average marketing cost of 8.69% of the final retail price. However, the marketing cost is higher than that recorded by Rahman et al. (2012)

during fresh fish marketing in Rajshahi city as 6.27% of the final retail price. Nonetheless, marketing costs found during this study is lower than that found by Rahman et al. (2009) in Khulna, Bangladesh as 20-25% and in Swarighat, Dhaka, Bangladesh as 15-20% (Alam et al. 2010).

On the other hand, marketing margin of the intermediaries varied widely between markets and species of fish. During the present study marketing margins for all intermediaries were found to fluctuate between 3.12% for *G. giuris* and 35.78% for *A. testudineus* (Table 4). Wide variation in marketing margin between species and markets might be associated with difference in marketing costs, freshness, seasonal availability, type of consumers etc. Nonetheless, the market margins for all intermediaries varied from 23.37% for cat fish to 48.57% for prawn species with an average of 40.75% in a study conducted Rahman et al. (2012) in Rajshahi city. In addition, the result of the present study is different to that of Rahman et al. (2009) and Alam et al. (2010) who reported the intermediary's share of 35-40% and 40-45% in Khulna and Swarighat, Dhaka, Bangladesh, respectively. These dissimilarities in marketing margins may be owing to a number of reasons including marketing costs, area of marketing, species of fish, time of the year etc. Moreover, the study period of these investigations were not same. However, considering the marketing cost it can be said that the intermediaries are making profit in the marketing of indigenous small fish species in Rajshahi city, northwestern Bangladesh (Rahman et al. 2012).

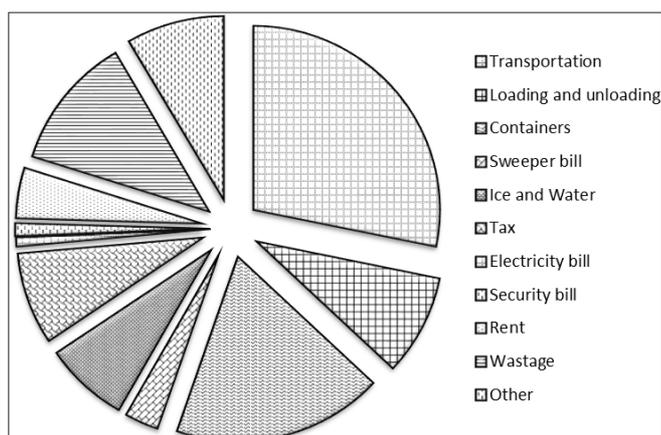


Figure 1: Percentage of Different Marketing Cost Incurred on the Middlemen in Indigenous Small Fish Marketing of Rajshahi City, Northwestern Bangladesh

Table 4: Marketing Margin of Market Intermediaries in Indigenous Small Fish Marketing in Rajshahi City, Northwestern Bangladesh

Sl. No.	Scientific Name	Marketing Margin (%)				
		Shaheb Bazar	Binodpur	Laxmipur	Shalbagan	Katakhali
01.	<i>Amblypharyngodon mola</i>	23.26	25.15	27.11	30.25	19.7
02.	Mixed	12.35	14.2	12.4	15.68	11.26
03.	<i>Ailia coila</i>	13.5	14.25	13.86	13.55	15.89
04.	<i>Aspidoparia morar</i>	29.8	27.7	27	18.75	17.54
05.	<i>Anabas testudineus</i>	35.78	29.45	24.58	22.63	15.47
06.	<i>Chanda nama</i>	3.56	4.6	6.5	6.78	7.06
07.	<i>Corica soborna</i>	14.63	15.25	14.96	15.8	14.62
08.	<i>Mastacembelus pancalus</i>	22.46	17.21	10.25	11.59	13.5
09.	<i>Colisa fasciatus</i>	15.5	11.47	9.5	12.75	13.0
10.	<i>Lepidocephalus guntea</i>	7.9	9.45	12.33	13.47	12.56
11.	<i>Heteropneustes fossilis</i>	29.45	27.44	24.1	20.8	14.25
12.	<i>Clarias batrachus</i>	18.59	19.2	9.52	21.7	12.5
13.	<i>Channa punctatus</i>	22.56	8.79	10.16	11.32	11.89
14.	<i>Channa orientalis</i>	28.78	12.3	11.5	15.5	8.5
15.	<i>Mystus cavasius</i>	24.6	22.15	20.15	19.45	11.75
16.	<i>Mystus vittatus</i>	27.86	9.25	8.45	11.5	16.45
17.	<i>Puntius sophore</i>	22.56	16.84	8.56	9.25	8.5

Table 4: Contd.,

18.	<i>Puntius sarana</i>	21.36	18.4	16.8	19.74	14.1
19.	<i>Rasbora rasbora</i>	16.55	17.52	26.87	22.56	11.56
20.	<i>Setipinna phasa</i>	28.5	15.0	25.25	30.0	14.29
21.	<i>Gudusia chapra</i>	26.0	23.5	19.75	31.25	15.5
22.	<i>Ompok pabda</i>	26.0	25.76	28.96	19.56	21.78
23.	<i>Xenentodon cancila</i>	21.26	17.98	25.6	22.63	18.5
24.	<i>Glossogobius giuris</i>	11.56	5.79	5.94	4.58	3.12

CONCLUSIONS

A number of indigenous small fish species are available in the markets of Rajshahi city, northwestern Bangladesh. However, the prices are high which can be substantially lowered by reducing the number of intermediaries and intermediaries' share in marketing margin that is prevailing in the marketing of indigenous small fish through appropriate initiatives. This study would provide important information for sustainable and effective marketing system of indigenous small fish species in the study area.

ACKNOWLEDGEMENTS

The author would like to express gratitude to (i) local fishermen/fish producers, middlemen, consumers (Rajshahi, Bangladesh) for their assistance during data collection, and (ii) Global Fisheries Research Foundation (GFRF) for providing technical support during the preparation of this article.

REFERENCES

1. Alam, J. M., Yasmin, R., Rahman, A., Nahar, N., Pinky, N.I., and Hasan, M. (2010). *A Study on Fish Marketing System in Swarighat, Dhaka, Bangladesh. Nature and Science* 8(12): 96-103.
2. Ali, E. A., Gaya, H. I. M. and Jampada, T. N. (2008). *Economic analysis of fresh fish marketing In maiduguri gamboru market and kachallari alau dam landing site of Northeastern, Nigeria. Journal of Agriculture and Social Sciences* 4: 23-6.
3. Department of Fisheries (DOF) (2010). *Matshya saptah sankalon* (In Bengali), Department of Fisheries, Dhaka, Bangladesh. pp. 99.
4. Fisheries Resource Survey System (FRSS) (2012). *Fisheries Statistical Yearbook of Bangladesh*. Fisheries Resources Survey System (FRSS), Department of Fisheries, Bangladesh. Volume 28: 46 p.
5. Olukosi, J. O. and Isitor, S. U. (1990). *Introduction to Agricultural Marketing and Prices; Principles and Application*. Living books series GU publications, Abuja, Nigeria.
6. Rahman, M. M., Hossain, M. A., Fatematuzzhura, Tasnoova, S., Ahamed, F., Hossain, M. Y., Subba, B. R. and Ohtomi, J. (2012). *Fresh fish marketing status in the northwestern Bangladesh: Recommendations for sustainable management. Our Nature*: 10: 128-136.
7. Rahman, M. M., Hossain, M. M., Rahman, S. M. and Alam, M. H. (2009). *Fish Marketing System in Khulna, Bangladesh. Journal of Innovation and Development Strategy* 3(5): 27-31.
8. Shepherd, W. A. (1996). *A guide to marketing costs and how to calculate them*. Marketing and Rural Finance Service, Agricultural Services Division. FAO. Rome.
9. Tomek, W. G. and Robinson, K. L. (1981). *Agricultural Products Prices*, 2nd edition. Ithaca, New York, U.S.A Cornell University Press.