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Live Fish Marketing and Socio-economic Condition of Fish Producers

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Abstract

An observation was carried out on Parila union under Paba Thana of Rajshahi district with a view to gaining knowledge on live fish marketing system and socio-economic condition of fish producers during December, 2015 to May, 2016. A number of (30) fish producers were selected randomly and questionnaire interview with observation method were employed. In this study it was observed that 90% producers are involved commercially in fish culture. Maximum producers transport their fishes to the capital city (Dhaka) along with other parts of the country by their own supervisions via truck. 500-600 kg fishes are carried per trip in every truck with fresh and clean underground water and commonly truck rent was 12000-13000 taka per trip. Most transported species are *Labeo rohita, Catla catla, Cirrhinus mrigala, Hypopthalmichthys molitrix, Oreochromis nilotricus, Cyprinus carpio var. specularies* and *Ctenopharyngodon idella*. On the way the farmers usually exchange water 2-3 times. In summer season (March to May) the demand and price of live fishes was very high (total amount 64780-181341kg and the price was BDT. 13502470-45062225) but in winter season (December to February) the demand (total sold amount was 21083-40348 kg) and price was very low (total sold price was 3605975-6747747 taka). In Dhaka market the average wholesale price of *Labeo rohita, Catla catla, Cirrhinus mrigala, Hypopthalmicthys molitrix, Oreochromis niloticus, Cyprinus carpiovar. specularies, Ctenopharyngodon idella* were BDT. 270.71±28.19, 342.95±44.61, 163.38±18.49, 166.66±13.5, 176.08±13.40, 162.84±13.56 and 190.42±10.87 a/kg, respectively. In case of fish producer, 60% hold nuclear family whereas 40% hold joint family. Among them 20% fish producers were illiterate, 50% were within Higher School Certificate level and 30% above Higher School Certificate level in educational background. 20% householders housing conditions were kacha, 20% semi-kacha and 60% pacca. 90% health conditions were good and 10% were not good. The fish producers involved in different professions like agriculture (30%), poultry farms (20%), business (20), teaching (10%), social work (10) and others job (10%).

***Key words*:** Live fish, marketing, transportation, socio-economic condition

Introduction

Bangladesh is an agro-based country and fisheries sector plays a vital role in developing socio-economic condition of Bangladesh. There is no doubt about the achievement of fisheries sector in enhancement of the development of the country. The contribution of the fisheries sector is recognized all over the world today. Bangladesh has stood 4th position in capturing of fish of the inland open water body and 5th position in production of fish of the inland close water body (FAO, 2014). The role of this potential sector in national economy is being increased gradually. Fish is also the main source of protein. So, it should be safe for our health. The fish to be transported must be healthy and in good condition. Raw fish will be unsafe and harmful food item for our health due to add some chemical substances or ingredients with fish during production and marketing period. Such as formalin is used to prevent

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decomposition of fish and this chemical makes the fish unsafe and inedible. So, the demand of safe fish is now the highest priority. A new dimension is created through marketing the live fish to Dhaka. "Live fish" means literary living fish swimming in the tank or truck water as like it did in the pond and it is remained in live condition from harvesting period till consumers purchasing period. When fishes are transport in live condition from harvesting ground to fish market is called live fish transportation. Now-a-days Rajshahi is recognized as one of the most important fisheries zone of the country for transporting live fish (carps fish: Rui, Catla, Mrige, etc) to the Dhaka as well as other parts of the country and plays a vital role to provide fresh and formalin free fishes to the consumers. Already this timely measure for live fish transportation is being appreciated and admired from all walks of life. There are various works on fresh fish transportation and marketing by many researchers such as Rahman (2003), Gupta (2004), Akhtar *et al*. (2013), Flowra *et al*. (2013), Ali *et al*. (2014) etc. but works on live fish transportation and marketing on carp is very rare in our country. Therefore, the study is taken to know the live fish marketing system and to know the socio-economic condition of fish producers for developing the better transportation and marketing system with new technology.

Methodology

Study Area and Data Collection

The study was carried out during December, 2015 to May, 2016 in Parila union under Paba Thana of Rajshahi district. Thirty (30) fish producers were selected randomly for the study. Survey method was applied for data collection. According to Dillion and Hardaker (1993), three main methods can be applied in survey method. These are i) Direct observation ii) Interviewing of the respondents and iii) Records kept by respondents. But in this study i) Direct observation and ii) Interviewing of the respondents' methods were applied. A pre-structured questionnaire was used for data collection. Secondary sources such as published materials as well as secondary data from appropriate government were also used for collecting data.

Data Processing and Analysis

The accumulated data were coded, concise and processed for analysis. All inconsistent data was avoided to element the errors and fault. Data entry was made in computers and analysis was completed using the concerned software MS Excel, MS Word.

Results and discussions

Transportation of Fish

In the present study it was found that the most common transported live fish species for marketing were *Labeo rohita*, *Catla catla*, *Cirrhinus mrigala*, *Hypopthalmichthys molitrix*, *Oreochromis niloticus*, *Cyprinus carpio var*. *specularis* and *Ctenopharyngodon idella* that were transported from Parila to Dhaka market along with other parts of the country (Table 1). Chandra *et al*. (2011) also reported that Rui, Catla, Mrigel were imported and exported over the country. Generally, the live fishes were transported in Bogora, Gaibandha, Rangpur, Sirajgonj (Mohisluti), Dhaka (Newmarket, Jatrabari, Mirpur) and Netrokona district but sometimes in Chittagong district. Dhaka market was more preferable to the producers due to more demand.

Table 1 Different information of live fish transportation

Local Name	Scientific Name	Transported place	Distance (Km)	Duration of Transportation (hr)	Mostly common vehicle	Water changing in transportation (Time)
Rui	*Labeo rohita*	Bogra	111	3	Truck	2
Catla	*Catla catla*	Gaibandha	125	3.5	Bus	2
Mrigel	*Cirrhinus mrigala*	Rangpur	167	5.5	Train	3
Silver	*Hypopthalmicthys molitrix*	Sirajgonj	113	4.5	Airplane	2
Tilapia	*Oreochromis niloticus*	Dhaka	194	7.5	Pickup	3
Mirror carp	*Cyprinus carpio var. specularis*	Netrokona	271	9.5	Boat	3
Grass carp	*Ctenopharyngodon idella*	Chittagong	395	13	Van	6

The most common vehicle of live fish transportation was truck from Parila to Dhaka (Table 1). Local transports were van and other motor vehicles and barrels and drams were used as temporary container for conditioning purpose. Schroeder (1982) also reported that the most suitable transport is truck for fish transportation. Rokeya *et al*. (1997) also reported that fish transporter in Rajshahi includes boat, head load, shoulders load, bullock cart, pull cart, rickshaw and motor vehicles and often used train, bus, truck etc. Generally, 500-600 kg fishes were transported for marketing at every truck per trip and this amount of fishes is fluctuated according to temperature. Semi closed system were used for live fish transportation using underground fresh and clean water. Besides this water is changed around 2-3 times (March-May) during transportation period and this activity is also varied on distance and water quality as well as season and hilling treatment were also used to provide oxygen in water. According to DoF (2015), in case of live fish transportation, 500-600 kg fishes are transported per truck and water is changed 1-2 times during transportation period in order to keep fish alive.

Marketing Channel of Live Fish

Marketing channel plays major role in controlling the quality and price of the product. In the present study it was noticed that the fishes were directly sold in Dhaka and other parts of the country. The fishes sold to wholesalers (Paikers) through commission agent (Aratdar) and ultimately retailers purchase fishes from wholesalers and sell to consumers. In the present study three layers of marketing channel was identified in case of live fish marketing in the Dhaka market such as: i) fish farmer-aratdar (commission agent)-paikers (wholesalers)-retailers-consumers, ii) fish farmer- paikers(wholesalers)-retailers-consumers and iii) fish farmer- Paikers-retailers- consumers. Khan (1995) also mentioned that two marketing channel in Netrokona and Mymensingh town was observed, one was fishermen- Aratdars (commission agent) - Paikers (wholesalers)-Retailers- Consumers and the other was fishermen-Paikers -consumers. Mia (1996) also reported that three marketing channel in Mymensingh district, the first one was fishermen-bapary-aratdar-retailer-consumer, the second one was fish farmer- bapary-retailer consumer and the third one was bapary- aratdar –retailer (Fig. 1).

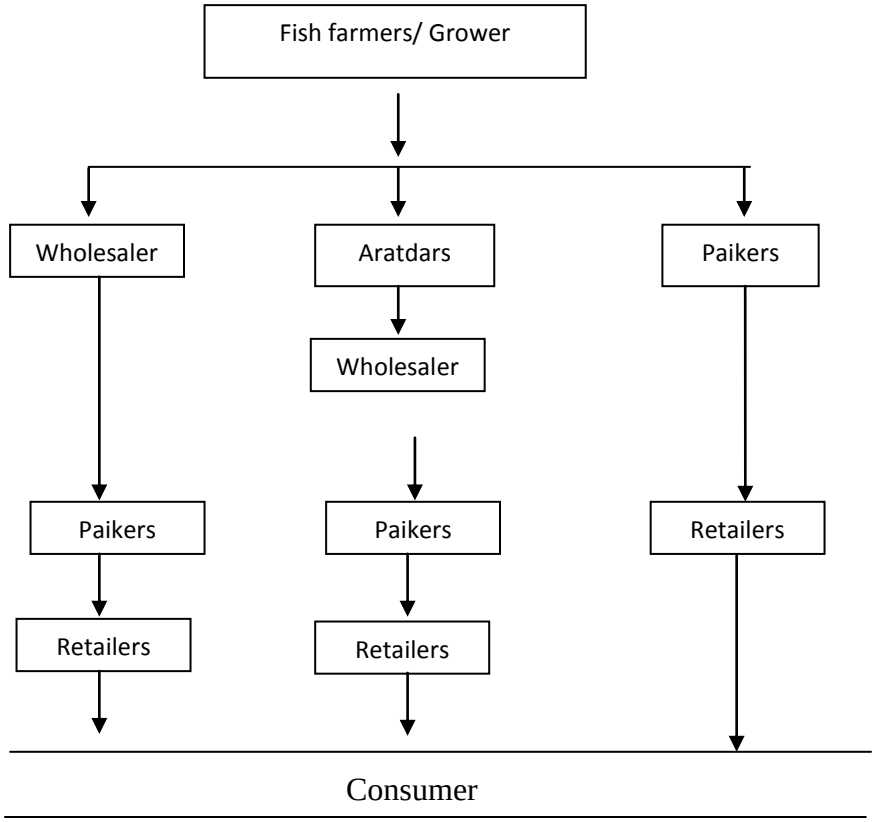

Figure 1 A layout of marketing channel of live fish transportation

Price of Live Fish

In Dhaka market the average price of *Labeo rohita*, *Catla catla*, *Cirrhinus mrigala*, *Hypopthalmicthys molitrix*, *Oreochromis niloticus*, *Cyprinus carpio var. specularis* and *Ctenopharyngodon idella* were BDT. 270.71±28.19, 342.95±44.61, 163.38±18.49, 166.66±13.5, 176.08±13.40, 162.84±13.56 and 190.42±10.87/kg, respectively (Fig. 2). Aktar *et al*. (2013) also reported that the price of fish depends on market structure, species quality, size, weight and season. Akther *et al*. (2014) also found that among the cultured species, Rohu, Catla and Mrigal observed higher prices (Tk.168-230/kg) among the exotic carps (Tk. 140-190/kg).

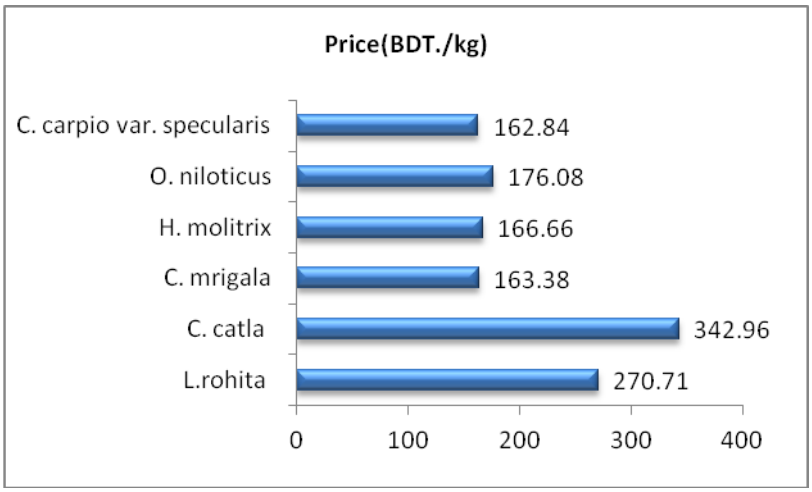

Figure 2 Showing the average selling price of live fishes in Dhaka market

It was noticed that in summer season (March to May) the demand and price of live fishes was very high (total amount 64780-181341kg and the price was BDT. 13502470-45062225) but in winter season (December to February) the demand (total sold amount was 21083-40348 kg) and price was very low (total sold price was BDT. 3605975-6747747) (Table 2).

Cost of Producers

It is found that total cost of fish producers was BDT. 56932457(1035135.582 BDT./ha/year). The highest cost was found in feed purpose (BDT. 23055000) and the lowest cost was in application of lime (BDT. 90000). Other costs of producers are shown in Fig. 3.

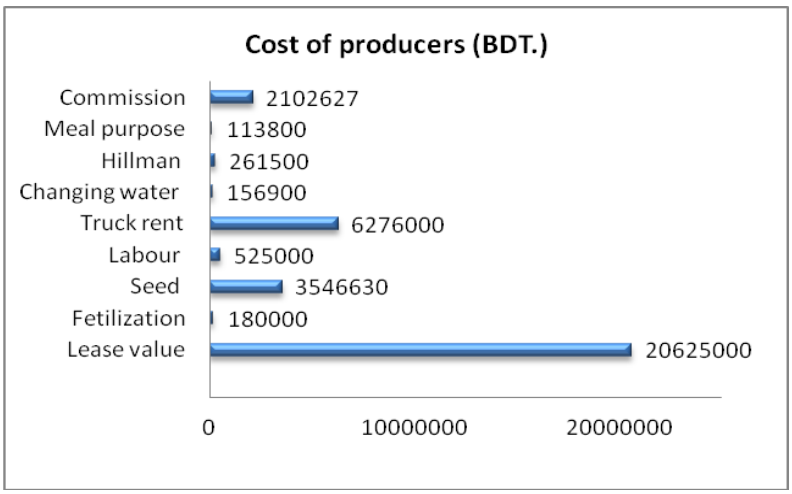

Figure 3 Showing the total cost of live fish producers

Table 2 Total Selling fish weight and total price in Dhaka market in the study period

Fish species	December		January		February		March		April		May	
	Wt. (kg)	Price (BDT.)	Wt. (kg)	Price (BDT.)	Wt. (kg)	Price (BDT.)	Wt. (kg)	Price (BDT.)	Wt. (kg)	Price (BDT.)	Wt. (kg)	Price (BDT.)
Rui	3100	754750	4100	1016750	6400	1656500	13975	3751750	25525	7208750	41560	132915B00
Catla	1625	472500	2225	692500	3380	999250	5905	2061550	9668	3549685	19010	8605125
Mrigel	1250	191000	1495	210725	2817	402762	7200	1126650	13360	2184050	26455	5663950
Silver	940	138000	1315	208500	1782	285900	3875	670270	5130	3734500	10120	1974800
Tilapia	13640	1973800	19575	3182000	25180	3273600	29150	5352000	73380	12998400	75040	13793000
Mirror carp	480	67200	650	99750	642	99825	3695	360800	2725	476600	5265	939900
Grass carp	48	8725	92	18660	147	29910	980	179450	1515	632100	3891	793950
Total	21083	3605975	29452	5428885	40348	6747747	64780	13502470	131303	30784085	181341	45062225

Production and Benefit

Total production of the study period was 468307kg (8514.67kg/ha/year) and sold price was BDT. 105131387(BDT. 19114752.49 /ha/year). The estimated profit was BDT. 48198930 (BDT. 876344.18/ha). The calculated cost benefit ratio was 1:0.84. Total production cost in the present study (BDT. 1035135.582/ha) is found much higher than the findings of Islam *et al.* (2008) who mentioned the production cost of BDT 129,800 per ha in carp grow-out ponds with a cost-benefit ratio of 1:1.54 which is higher than the present findings (1:0.84). Islam and Rashid (2004) reported that most of the farmers adopted improved traditional farming and their average return was 366 BDT/decimal/yr.

Major Constrains

The major constraints of live fish transportation is jam on the highway (70%, others constrains show in Fig. 4). Gupta (2004) also reported a number of constraints for fish marketing in Fulpur upzila of Mymensingh district including higher production cost, higher harvesting and transportation cost, poor road or communication facilities, poor ice supply, higher demand of labor, exploitation by middlemen etc. Rahman (2003) also mentioned the same problems of fish marketing.

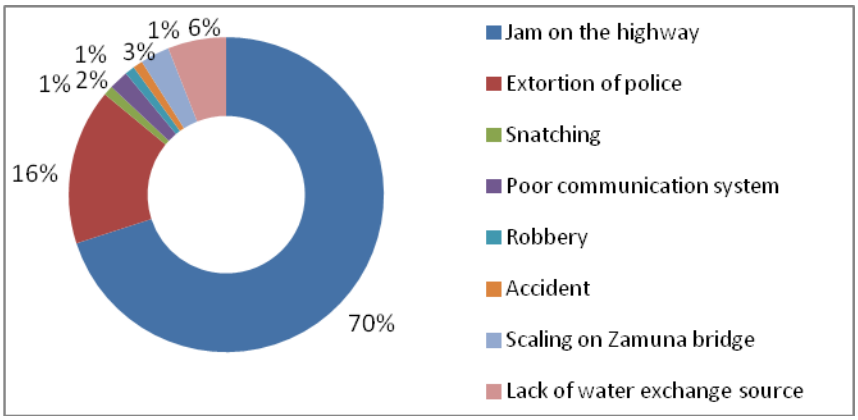

Figure 4 Associated problems of live fish transportation

Socio-Economic Condition of Fish Farmers:

In Parila union in case of fish producers it was observed that most of the family (60%) were nuclear. Four members consisted family was 60%. Education of most of the fish producers (60%) were H.S.C. level in Parila Union. According to Sarwer *et al*, *(*2016) among the fish farmers 15% was illiterate whereas 19, 31, 14, 12 and 9 percent were educated up to primary, secondary and higher secondary and bachelor level, respectively. All the selected fish producers (100%) were Muslims. Maximum (60%) house conditions were pacca. Health conditions of 90% fish farmers were good. Most (70%) of the fish farmers transport and marketing live fish from up to 6 years and 30% fish farmers has involved in fish trading from 2-4 years. Besides fish culture, fish farmers are involved in another profession such as agriculture, poultry, business, teaching, social work and job, respectively (Fig. 5)

(Table-3). Rahaman *et al*. (2016) according to the study, about 60% farmers were involved in agriculture, 12.5% farmers involved for vegetable growing, 12.5% farmers involved in poultry rearing and 5% farmers involved in livestock farming.

Table 3 Socio-economic status of the live fish producers in the study period

Socio-economic status		Number	Percentage (%)
Family Type	Nuclear	18	60
	Joint	12	40
Family size	4	18	60
	5-7	6	20
	8	6	20
Educational level	Illiterate	6	20
	H.S.C level	15	50
	Above H.S.C	9	30
Religion	Muslim	30	100
	Hindus	0	0
Housing condition	Kacha	6	20
	Semi-Kacha	6	20
	Pacca	6	60
Health condition	Good	27	90
	Not good	3	10
Major Profession	Fish farming	27	90
	Fish transportation	3	10
Involving time in live fish transportation	upto 6 year	21	70
	<2-4	9	30

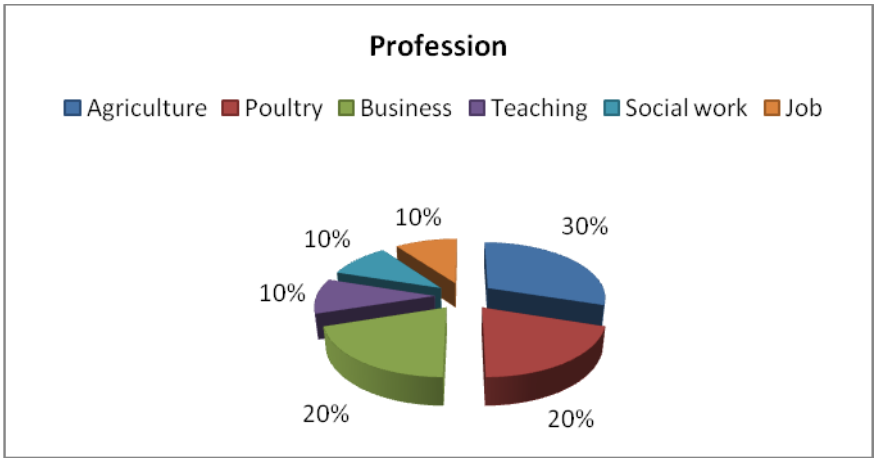

Figure 5 Other profession besides fish culture

Conclusion

It was concluded that to get rid from the odd situation, the local farmers have started selling or transporting live fishes via truck under their own supervisions. Generally, carp fishes are being transported with a view to selling in Dhaka market. By this, producers of Parila union are getting more profit and improve their livelihood. The transporting of live fish has created a new dimension in fisheries sector. The farmers face manifold problems including harassment, Jam, Extortions, Snatching or robbery etc. at different points during transportation and ultimately incur loss. As a whole, the fish-laden trucks should be given priority and the policy planners should come forward to facilitate the process. It is possible to export these live fish in the international market too. So, sincere guidance and active co-operation are needed to transport live fish in the international market by the government. In a nutshell if modern technological assistance and others convenience is provided to the farmers in order to transport live fish, it will bestow better contribution to supply secured protein and improve socio-economical conditions of the country.

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