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Livelihood status of fish retailers and marketing system of three fish markets in Dinajpur district, Bangladesh

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Abstract
The experiment was conducted to know livelihood status of the fish retailers concerning the marketing channels, problems and consumers' attitude. Fifteen fish retailers and consumers were purposively selected and interviewed from urban, peri-urban and the rural market each of Dinajpur sadar upazila. Data were collected through rapid rural appraisal (RRA), observation, personal interview and focus group discussion (FGD) on age, religion, education, housing, health status, sanitation, income, loan facilities, fish availability and consumption as well as market infrastructure and facilities. The economic status of urban retailers was healthier than peri-urban and rural area. Common health problems were cough and cold, lesion between fingers, joint pain, etc. Lack of capital, infrastructure and communication, inadequate storage and transport facilities, too many intermediaries and high price of inputs were the major problems faced by the fish retailers which need to be addressed through building proper market infrastructure and training for the retailers.

Keywords: Livelihood, fish marketing system, fish retailers, fish trading, fish consumption

1. Introduction
Bangladesh, a low lying deltaic country, endowed with enormous fishery resources and consequently is the 5th most freshwater fish producing country in the world (FAO, 2016) [1]. The growth of aquaculture in the last five years was 5.9% which contributed around 4.39% of the national GDP (DoF, 2013) [2]. Fish market is an important place for selling and buying fish products. In this regard, fish marketing channel exerts a crucial influence on the price of the products. Fish production can be increased many folds following some technical and scientific methods, but without strong marketing channel it is ultimately fruitless. Several studies have already been carried out to explore the fish marketing channel and the socio-economic condition of the fish retailers (Sen *et al*., 2009) [3], but fish marketing and livelihood information of fish retailers are scanty in Dinajpur district. Therefore, the experiment was conducted with the objective of assessing the marketing channels and livelihood status of the fish retailers in Dinajpur district.

2 Materials and Methods
3.1 Study area
Three fish markets of Dinajpur District were chosen each from urban, peri urban and rural area namely Bahadur, Birgonj and Kaharole Bazar respectively, located in between 25°10' and 26°04' North latitudes and in between 88°23' and 89°18' East longitudes. The various forms of fishes such as live, frozen and freshly caught are transported to the urban, peri urban and rural markets from local as well as distant sources and get into the marketing channels before they are brought to the consumers table. The data were collected from the fish retailers and consumers, fifteen from each market and forty five from each group (Table 1).

3.2 Questionnaire preparation and data analysis
Data were collected through rapid rural appraisal (RRA), observation, personal interview and focus group discussion (FGD) then cross checked with the key informants. A questionnaire was prepared and pre tested in the field and draft questionnaire was finalized with the feedback from the field. Interviews were performed with the fish traders and the consumers after their permission.

Table 1: Selected interviews from fish retailers and consumers

Studied markets	No. of fish traders	No. of consumers
Bahadur Bazar	15	15
Birgonj Bazar	15	15
Kaharole Bazar	15	15
Total	45	45

At first, the participants were explained the objectives of the study and then the question was asked on age, religion, education, housing, sanitation, drinking water, income, loan facilities, health status, fish availability and consumption pattern as well as market infrastructure and facilities. Moreover, FGD was conducted when some information was missing with 5-6 retailers to get an overview of their livelihood, marketing channels and constraints of fish trading. Supporting data were collected from various sources like reviewing books, journals, web articles, MS thesis, published reports and official documents. In addition, crosscheck interviews were conducted with the key informants such as District Fisheries Officer (DFO), Upazila Fisheries Officer (UFO) and relevant NGO workers when collected information was contradictory or confusing. Collected data were analysed using Microsoft excel and Excel Stat software.

4 Results

4.1 Livelihood status of the fish retailers

The data interpretation from the studied markets showed that the average age of the fish retailers was 40 (±2.0) years, whereas, Bahadur Bazar fish retailers has the highest 42 (±8.05) age followed by kaharole and Birgonj Bazar of 38 (±6.19) and 40 (±8.05) years respectively. In addition, the Muslim respondents were slightly higher (51.11%) than that of Hindu respondents (48.89%). By contrast, the Hindus were dominated in Birgonj bazar (73.33%), while the Muslims were dominated in Bahadur Bazar and Kaharole Bazar (Fig 1).

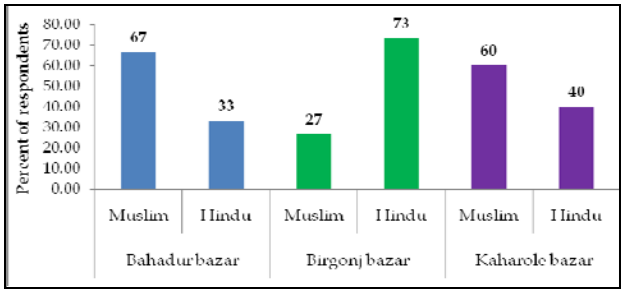

Fig 1: Religious status of the fish retailers in the fish markets of Dinajpur district

Most of the retailers were found illiterate (av.40%). The illiteracy rate was highest in rural markets (Bahadur bazar and Birgonj bazar) than the urban market (Kaharole Bazar), where only 2.22% fish retailers were S.S.C. passed (Fig 2). It was revealed that, fish trading was the primary occupation of all the participants besides other secondary occupation such as poultry rearing (47%), followed by agriculture (40%) and rest 13% pretty business in Kaharole Bazar. On the other hand, driving (40%) was the most popular secondary occupation followed by pretty business (27%), poultry rearing (20%) and rest in agriculture in Bahadur Bazar. The majority of the retailers (36%) lived in kacha house followed by pakka house (31%), semi-pakka (24%) and 4% each lived in tin shade and thatch houses. Besides, three types of sanitary latrine were used by the fish retailers such as Kacha, Semi-pakka and Pakka toilet. The majority (47%) of the urban market retailers used pakka toilets. On the other hand, kacha toilet dominated among the rural and semi pakka with the peri-urban fish retailers. The highest daily income was found (600 BDT) with the urban market fish retailers followed by peri-urban fish retailers (420 BDT), whereas, the lowest daily income was found with the rural market fish (350 BDT) retailers. Moreover, the major portion of the income (65%) was spent for food purchase followed by education and cloths. In addition, the expenditure on housing and utilities, communication and recreation were the same in the urban, peri urban and rural markets fish retailers. The household expenditure of the fish retailers is shown in the Table 2.

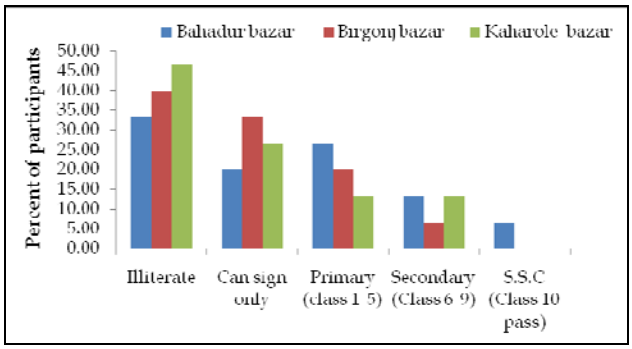

Fig 2: Educational status of the fish retailers in the study area

It was found that 33% retailers managed to save BDT 26,000 to 50,000/year for last five years. Moreover, the higher savings (40%) was with the urban market fish retailers, followed by peri-urban (33%) and the least savings (27%) with the villagefish retailers (Table 3).

Table 2: Household expenditures of the fish retailers in the surveyed market

Expenditure on	Expenditure (% of income/month)		
	Bahadur Bazar (n=15)	Birgonj Bazar (n=15)	Kaharole Bazar (n=15)
Food	63	65	65
Health	6	5	6
Education	14	11	12
Cloths	7	7	7
Housing and utilities	3	3	3
Communication	5	5	5
Recreation (Cinema, TV, Radio, CD)	3	3	3
Total	100	100	100

Conversely, in an average 58% fish retailers took loan for their business and the highest amount of loan was taken by the urban retailers followed by peri urban and village groups. The highest amount of loan was taken from the NGO later from the friends and relatives.

Table 3: Savings of the fish retailers for last 5 years from fish trading

Range of saving (BDT/years)	Bahadur Bazar Value % (n=15)	Birgonj Bazar Value % (n=15)	Kaharole Bazar Value % (n=15)
No savings	20	33	53
10,000-25,000	20	20	13
26,000-50,000	40	33	27
Above 50,000	20	13	7

Besides other common diseases, nearly half of the fish retailers suffered from lesion between fingers (47%) followed by knee pain (27%) as they have to handle the life, wet and iced fish throughout the day and seated for a long time (Fig 3). The majority of the fish retailers (53%) went to upazila health complex for their treatment followed by village doctors (29%).

By contrast, only 18% fish retailers went to MBBS doctor (Fig 4). The fish passes a number of intermediaries, such as: local agent, aratdar and retailers before reach to the table of the consumers. In Dinajpur, four marketing channles were identified (Fig 5). The urban market was found open whole day started in the morning at 8 am and ended at late hours at 10 pm. Whereas, the rural fish market lasted very short time, usually 3-5 hours only. Most of the fish retailers (76%) preserved fish to prevent from spoil, however, few fish retailers (24%) sell fish as fresh. Most of the urban retailers (67%) followed by 47% peri urban and 33% of rural retailers preserved fish with ice. Moreover, few fish retailers in all the three markets keep fishes in water to keep them cool and contamination free. The fish traders identified several constraints which hampered their business and impact on livelihood (Table 4).

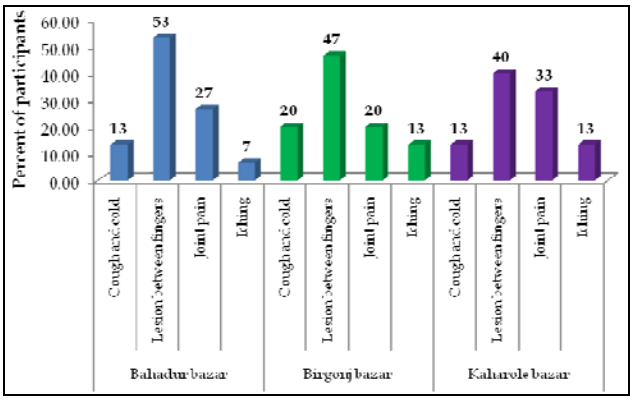

Fig 3: Disease occurrence among the Fish retailers of the study area

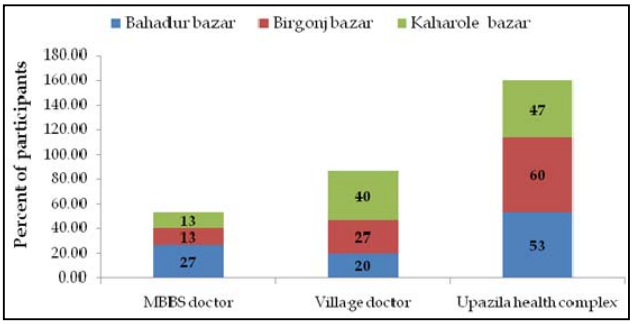

Fig 4: Health facilities of the fish retailers in the study area

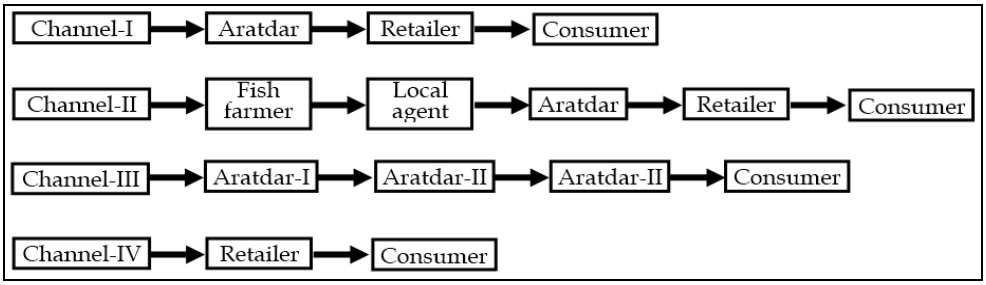

Fig 5: Fish marketing channels in the study area

4.2 Preferences of Consumers

Most of the consumers preferred indigenous fish species, the highest percentage of urban consumers (73%) preffered indigenous fishes followed by village consumers (67%) and peri urban consumers (60%) respectively (Fig 6). By contrast, peri urban consumers liked exotic fishes most followed by village and urban consumers. In addition, the fish consumption was higher (27±6.97 kg) in the surveyed area than the national average (19.35kg), whereas, urban, peri urban and village cunsumers consumed 30±6.60, 26±33 and 25±7.99 kg of fishes respectively in the surveyed area. Furthermore, most of the consumers (80%) mentioned that the taste of fish was very good five years before than the present due to water pollution, indiscriminant use of chemical fertilizers and pesticide in agricultural land for rice as well other crops production.

Table 4: Problems of fish trading faced by the fish traders

Problems of fish trading	Bahadur Bazar (n=15)		Birgonj Bazar (n=15)		Kaharole Bazar (n=15)	
	Value in percentage (%)					
	Yes	No	Yes	No	Yes	No
Lack of capital	80	20	87	13	87	13
Lack of storage facilities	87	13	73	27	80	20
Lack of proper transport	73	27	87	13	67	33
Lack of proper facilities in the market	80	20	60	40	87	13
Dominance of intermediaries	47	53	33	67	47	53
Lack of market information	33	67	27	73	40	60

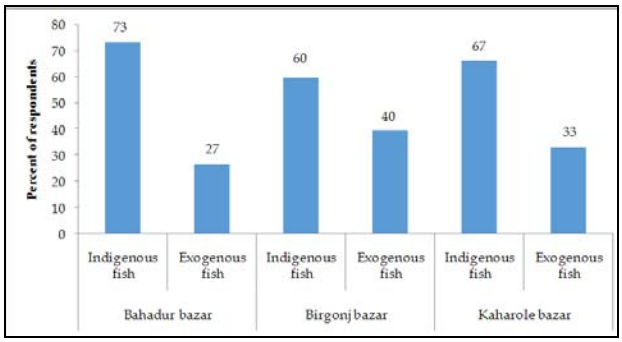

Fig 6: Preference of fish by the consumers in three markets of Dinajpur district

5 Discussion

5.1 Livelihood status of the fish retailers

The average age of the fish retailers were 38-40 years which is more or less similar with the findings of Khayruzzaman (2007) [4]. He has reported that 48% of the participant fish retailers were between the age of 31-40 years in Jamalpur district. Moreover, in the present study, majority (51%) of fish retailers were Muslim likewise Asaduzzaman *et al.* (2010) [5] also found that the Muslims fish retailers (75%) outnumbered Hindus in his study.

Education gives freedom and better understanding of fish trading as well as other businesses. A fair amount of fish retailers (40%) were illiterate, 27% can sign and 20% had primary education only in the present study. Kostori (2012) [6] has reported 20% fishermen of Tarash upazila in Sirajganj were illiterate, 54% can sign only and only 16% had primary education which was better than the present findings. The primary occupation of the participants was fish retailing in the present study. However, 36, 27, 20 and 18% of fish retailers were involved in poultry rearing, agriculture, business, and auto driving respectively as their secondary occupation. Marine *et al.* (2014) [7] have reported that, 80% participants principal occupation was dry fish marketing, whereas, rest of the fish retailers secondary occupation was agriculture or other businesses. In Bahadur Bazar, the highest percentage of fish retailers (47%) lived in pakka house whereas, the lowest percentage of fish retailers (20%) lived in pakka house in Birgonj Bazar. Sanitation condition of the fish retailers was better in Bahadur Bazar but, sanitation condition was poor in Birgonj and Kaharole Bazar. Ali *et al.* (2009) [8] have obtained 54% of the farmers have tin shed house while 26, 14 and 6% of the farmers have half-building, building and kacha houses, respectively. The highest (600 BDT/day) and the lowest (350 BDT/day) daily income was found with the Bahadur Bazar and Kaharole Bazar fish retailer. Similar results were also reported by Hossain *et al.* (2015) [9]. Fifty eight percent fish retailers took loan and remaining run the business by their own. Majority of the retailers took loan from NGO and others lend money from their friends. Alam (2006) [10] found that only 24% of the farmers of Mithapuqur upazila, Rangpur district received loan, while the majority (76%) did not get any financial support from any organization. Alam (2014) [11] found that, 57% of the fish retailers infected with lesion on hands, while, 33 and 23% fish retailers were infected with lesion between fingers and lesion between toes, respectively. The majority of the fish retailers went to upazila health complex for treatment followed by village doctors and very few fish retailers went to MBBS doctors. Halder *et al.* (2011) [12] have mentioned that majority of the fish retailers received health service from village doctors followed by upazila.

5.2 Fish marketing system in surveyed area

Four types of fish marketing chains have been identified in the present study that conforms with Monir *et al.* (2013) [13] who observed four types of fish marketing channels in Nilphamari district of Bangladesh. The identified problems in the fish market and marketing channels are quite similar with Hasan *et al.* (2014) [14]. The fish retailers of Kaharole Bazar spent less time than two other markets because of their secondary occupation. However, the highest number of the fish retailers and consumers found in Bahadur Bazar compared to other markets. Sen *et al.* (2009) [3] have found that, in Iterpool Bazar, retailers were engaged in fish trading from morning 8 am to noon 1 pm, while in Puran Bazar and Municipal market from 6 am to 8 pm and 7 am to 11 am respectively. Available fish species (local name) found in three markets were Indian major carps such as rui, catla, mrigal, silver carp, bighead carp etc. but marine fish such as vetki, kakila, rup chanda etc. were only found in Bahadur Bazar at high price. Siddique (2001) [15] found that, Indian major carps were sold at higher price than exotic carps in Mymensingh markets. Chandra (2009) [16] exposed that, around 139 species of freshwater fishes are available in Mymensingh markets. Fish was transported to the markets by truck, van, cycle, rickshaw and pickup. Similarly, Rokeya *et al.* (1997) [17] found that, in Rajshahi boats, head load, shoulder load, bullock carts, pull carts, rickshaws and motor vehicles and often used train, bus, truck etc were used for fish transportation. Around 76% retailers preserved fish but rest did not preserve. Among which, 49% retailers preserved fish with ice and 27% kept in water. Das *et al.* (2015) [18] reported that, most of the fishermen did not preserve fish (65%) but sometimes they used ice (27%) and 8% used other methods.

5.3 Problems of fish trading faced by the fish traders

A number of constraints were reported by the retailers in three markets, those are lack of capital, storage and transportation facilities, infrastructure, dominance of intermediaries, lack of market information and high price of inputs which are quite similar to the findings of Haque (2006) [19]. Islam *et al.* (2015) [20] found that transport cost was higher, according to the participants (25%) and 20% of respondents identified exploitation by middlemen as the single most constraints of fish marketing.

5.4 Preference and Consumption of fish by the consumers

The result of this study showed that most of the participants' including poor consumers preference was indigenous fish, although it is costly fish due to its better taste than the exogenous fish. Most of the consumers replied that, the taste of fish was good before five years, but presently it has changed because farmers use artificial feeds, hormones, chemical substances, toxic materials etc to grow fish that may have reduced the taste. They also commented that, formalin is used to preserve the fish and hybridization also responsible for changing the taste. Klerck and Sweeney (2007) [21] reported that, when consumers perceive risks associated with the food, they seek information. In the present study, it was found that, an average 30, 26 and 25kg fish/years was consumed per person per week in Bahadur Bazar, Birgonj Bazar and Kaharole Bazar, respectively. Anonymous (2003) [22] reported that average fish consumption increased from 45 g/capita/day to 61 g/capita/day.

6 Conclusion

From overall point of view, it can be said that, the livelihood of the fish retailers was more advanced in Bahadur Bazar than Birgonj Bazar and Kaharole Bazar. In spite of various constraints, most of the fish traders are maintaining their livelihood through fish marketing activities. They have some constraints in fish retailing, if these problems can overcome, their livelihood condition would be improved. Therefore, GO and NGOs should come forward to take proper steps and necessary actions to reduce the constraints of fish trading and to improve their livelihood.

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