

Livelihood status of the fish farmers in some selected areas of Tarakanda upazila of Mymensingh district

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Abstract: This study was conducted using multiple methodological tools including participatory rural appraisal (PRA) tools and mainly questionnaire survey to assess the livelihood status of the fish farmer and socio-economic problems associated with fish farming in some selected areas of Tarakanda *upazila* of Mymensingh district from October 2008 to march 2009. The average pond size was 0.17 ha with seasonal (33.34%) and perennial ponds (66.66%), while 70% ponds were single and 30% multiple ownership. Most of the fish farmers were belonged to the age category of 31 to 40 years and 45% household had family members 4 to 5, represented 57.5% nuclear and 42.5% joint family. Average education level of 8.2 years schooling, while 85% Muslims and 15% Hindus. About 50% of the households were tinshed and reminder 23%, 23% and 4% were katcha, semi pucca and pucca, respectively. The average annual income of the farmers was estimated at BDT 42,500 and 90% of the farmers used their own money for farming, while 10% received loan. About 62.5% of the farmer's were used semi-pucca sanitary and 12.5% used pucca while 25% used katcha sanitary. About 90% farmers used own tube-well while 10% used neighbors tube-well and 95% of the farmers had electricity facilities while 5% farmers did not have electricity facilities. Forty percent of the farmer's received health service from village doctors or kobiraj, 45% have access to *upazila* health complex, 12.5% went to MBBS doctor and 2.5% of the farmers do not take treatment due to lack of money. Lack of scientific knowledge, lack of quality seed and feed, lack of money and lack of marketing facilities for fish culture were the most important constraints.

Key words: Fish farmers, livelihood status, constraints, outcomes

Introduction

Development of aquaculture has generated considerable employment opportunities in Bangladesh through the production and marketing of fish and associated activities. About 400,000 ha of freshwater ponds/ditches and more than 900,000 households are involved in aquaculture (ADB, 2005). In Bangladesh, total aquaculture and fisheries production for the year 2007-2008 was above 2.56 million tones (DoF, 2009) achieving sixth rank among largest aquaculture producing countries in the world (FAO, 2009). According to the report of Bangladesh Bureau of statistics (BBS, 2007) fisheries sector contribute to 4.64% of the total export earning and 4.11% to the gross domestic product (GDP). About 12 million people are directly involved and labor employment has been increasing approximately by 3.5% annually in this sector. Fish alone contributes about 63% of animal protein to the diet of the people of country (DoF, 2007).

Livelihood comprises the capabilities, the assets (natural, physical, human, financial and social capital), the activities and the accesses to these that together determine the living gained by the individual household. A livelihood is a sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in future, while not undermining the natural resource base (Chambers and Conway, 1992). For sustainable rural development and poverty elimination, different approaches had been adopted and the sustainable livelihood approach has been gradually expanded with its own core and principles for poverty focused development activities (DFID, 1998). The sustainable livelihoods framework described attention to five types of capital upon which fish farmer's livelihoods depends: human, natural, financial, physical and social (Scoones, 1998). The approach basically based on the fundamental principle analysis of capital assets in the context of the external environment. A sustainable livelihood is a way of thinking about the objectives, scope and priorities for development, in order to enhance

progress in poverty elimination (Scoones, 1998). Considering the financial hardship and other complexities of the rural fish farmer, it is necessary to assess their livelihood status. Considering the above fact, this study was conducted to determine the livelihood status of the fish farmer as well as socio-economic problems associated with fish farming.

Materials and Methods

This study was conducted to assess the livelihood status of the fish farmer as well as socio-economic problems associated with fish farming in some selected areas of Tarakanda *upazila* of Mymensingh district for a period of six months from October 2008 to march 2009. The study was based on collection of primary and secondary data. The final questionnaire included the questions on the socio-economic characteristics such as age distribution and members of the households, family size, educational status, occupation, income level of fish farmers, fish pond with different of culture system, management practices, training received, religion status, health facilities, sanitary facilities, housing condition, electricity facilities etc. For collection of data, a combination of questionnaire interview, Participatory Rural Appraisal (PRA) tools such as Focus Group Discussion (FGD) and crosscheck interviews were conducted with fish farmer. Necessary relevant information on the socio-economic condition of farmer was collected from regional offices.

All the collected information were accumulated and analyzed by MS-Excel and then presented in textual, tabular and graphical forms to understand the present status of the fish farming technology and the socio-economic condition of the farmer of the studied area.

Results and Discussion

Livelihood status of the fish farmer: A total of 40 people were interviewed from 4 villages in Tarakanda *upazilla*, a wide range indicators were collected in various aspects of livelihood characteristics of the fish farmer. A detailed

analysis were made on the following parameters and presented in this section.

Pond size: The average pond size in the study area was found to be 0.17 ha. The size of pond play an important role as it may reflect the availability of capital, marginal ability and potential to operate the resource efficiency. Saha *et al.* (1995) found that the range of pond size were within 0.05 to 0.15 ha. A suitable pond size is required to minimize the production cost of fish farming.

Type of fish pond: From the survey, it was found that 33.34% ponds were seasonal and the remaining 66.66% ponds were perennial (Table 1). Saha (2004) found that 37% ponds were seasonal and 63% ponds were perennial in Tangail sadar *upazila*. The water level of the perennial ponds declined during dry season and remains suitable for fish culture. On the other hand, seasonal ponds become totally unsuitable for fish culture during dry season.

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Table 1. Distribution of the type of ponds in the study area

Pond type	No. of respondents	Percent (%)
Seasonal	13	33.3
Perennial	27	66.66
Total	40	100

Pond ownership: From the survey, it was found that 70% of the ponds were under single ownership and reminder 30% under multiple ownership (Table 2) which more or less similar with the findings of Ali *et al.* (2008).

Table 2. Ownership of the ponds in the study area

Ownership	No. of respondents	Percent (%)
Single	28	70
Multiple	12	30

Age distribution: The pond fish farmers were classified into five age groups such as, 20-30 years, 31-40 years, 41-50 years, 51-60 years and above 60 years and it was found

that most of the farmers (50%) belong to young age group of 31 to 40 years (Table 3). Rana (1996) in his study in Sirajgong district found that 70% of the fish farmers were in the age group of 18-43 years which was agreed with the present findings. This information implies that the majority of the sample farmers were in active age group of 31-40 years indicating that they provided more physical efforts for fish farming

Table 3. Age distribution of the fish farmers in the study area

Age group (year)	No. of respondents	Percent (%)
20-30	4	10
31-40	20	50
41-50	13	32.5
51-60	2	5
Above 60	1	2.5
Total	40	100

Family status: From the survey it was found that 42.5% family of the fish farmers were joint family and 57.5% family were nuclear family (Table 4). About 64% of the water loading station owners lived in nuclear family and the rest (36%) in joint family (Alam *et al.*, 2009).

Table 4. Family status of the fish farmers in the study area

Family type	No. of respondents	Percent (%)
Joint	17	42.5
Nuclear	23	57.5
Total	40	100

Family size: The family sizes of the fish farmer were divided into four categories according to the number of the family member (Figure 1). The highest percentage was obtained in the 4 to 5 members family (45%) and lowest was in the 2 to 3 members family. About 52% of the fish farmer had 4 to 5 family members and 20% had more than 6 family members in Rajshahi district which was more or less similar with present findings (Ali *et al.*, 2008).

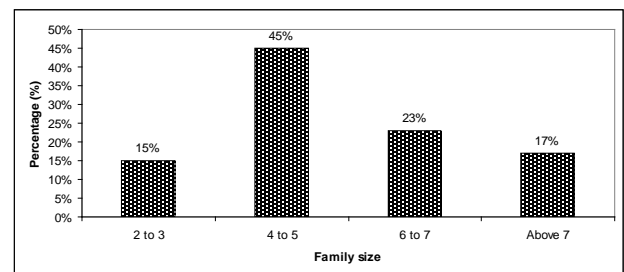


Fig. 1. Family size of the fish farmer in the study area

Educational status: Education has an important impact on modernization of farm business operation and it helps a person to have day-to-day information about the modern techniques together with technological changes in various production processes. Ali *et al.* (2008) found that 50% of the fish farmer had education up to S.S.C. level, while 22% had H.S.C. level of education and only 6% fish

farmer were illiterate. But in the present study, it was found that about 10% of farmers had no education, 37.5% farmers completed their primary education, 17.5% SSC, 25% HSC level and 7.5% bachelor degree (Table 5).

Table 5. Education status of fish farmers in the study area

Level of education	No. of respondents	Percent (%)
No education (illiterate)	4	10
Only signature	1	2.5
Primary	15	37.5
S.S.C	7	17.5
H.S.C	10	25
Bachelor	3	7.5
Total	40	100

Religion status: From the present survey, it was found that 85% of fish farmers were Muslims and remaining 15 % were Hindus (Table 6). Rahman (2003) reported that 74% pond fish farmers were Muslims while 26% were Hindus in Gazipur district.

Table 6. Religion status of fish farmer

Religion	No. of respondents	Percent (%)
Muslim	34	85
Hindu	6	15

Housing conditions: The nature of house was indicated the social status of the people. During the survey attempts were made to find out the condition of living house of the people. From the survey, it was found that 50% households of the fish farmers were tinshed, 23% katcha, 23% semi pucca and only 4% of the households were pucca (Figure 2). Ali *et al.* (2008) found that 54% fish farmer had tinshed, 26% had half building, 14% had building and only 6% had katcha house.

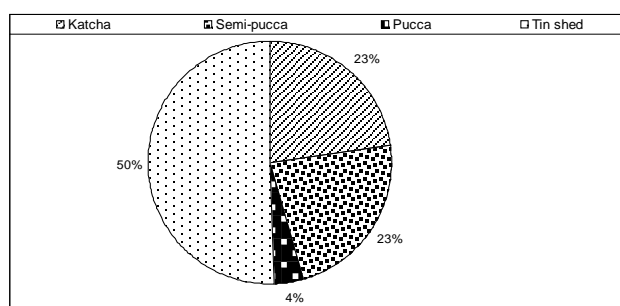


Fig.2. Housing conditions of the fish farmer in the study area

Sanitary facilities: It was observed that farmer's sanitary condition were very poor. From the survey, it was found that 25% of the farmers were used katcha sanitary, 62.5% semi-pucca and 12.5% of the farmers were used pucca sanitation (Table 7). The sanitary conditions of the fish farmer were better than the rice-fish farmers in Mymensingh district where Podder (2005) mentioned in her study that 58% of the rice-

fish farmers have semi-pucca, 10% katcha and 17% have pucca sanitation facilities.

Table 7. Sanitation of fish farmers in the study area

Sanitary facilities	No. of respondents	Percent (%)
Katcha	10	25
Semi-pucca	25	62.5
Pucca	5	12.5

Drinking water facilities: The provision of clean and safe drinking water is considered to be the most valued elements in the society. The study showed that 100% of fish farmer's household used tube-wells for drinking water (Table 8) and among them 90% farmers used their own tube-well and remaining 10% used neighbors tube-well. Similar result also reported by Ali *et al.* (2008) where 88% fish farmers were used their own tube-well in Rajshahi district.

Table 8. Drinking water facilities of fish farmers in the study area

Source of drinking water	No. of respondents	Percent (%)
Own tube-well	36	90
Neighbors tube-well	4	10

Health facilities: The present study showed that 40% of fish farmer's households were dependent on village doctors or kobiraj, 45% have access to *upazila* health complex and 12.5% went to MBBS doctors (Table 9). Podder (2005) found that 57% of the rice-fish farmers were dependent on village doctor while 43% got health service from *upazilla* health complex. The poor health and inadequate nutrition of the children, women and old-aged members of farming communities also inhibits their development. The poor health facilities and inadequate access to safe drinking water make their human assets, and consequently the livelihoods more vulnerable.

Table 9. Health service received by farmers in the study area

Health services	No. of respondents	Percent (%)
Village doctor/Kobiraj	16	40
Upazila health complex	18	45
MBBS doctor	5	12.5
Others	1	2.5

Electricity facilities: In the study area, it was found that 95% of the surveyed fish farmers had electricity facilities, whereas 5% farmer did not have electricity facilities at their residence (Table 10). But Ali *et al.* (2008) observed that 62% fish farmers had electricity facilities in Rajshahi district.

Table 10. Status of electricity facilities of fish farmers in the study area

Electricity facilities	No. of respondents	Percent (%)
Yes	38	95
No	2	5

Used fuel for cooking: From the survey, it was found that most of the households (72.5%) used wood, 15% used paddy straw and remaining of the households used cow-dung (Table 11) which more or less similar to the findings of Ali *et al.* (2008).

Table 11. Use fuel for cooking by the fish farmers in the study area

Cooking fuel	No. of respondents	Percent (%)
Cow-dung	5	12.5
Paddy straw	6	15
Wood	29	72.5
Total	40	100

Main occupation of the fish farmers: The fishpond owners were engaged in various types of occupation (Figure 3). In the present study, the main occupation of the fish farmers was considered from which most of the income was earned. Around 47.5% fish farmer reported agriculture is their primary occupation and 20% stated that fish farming is their primary occupation while 17.5% and 5% were occupied in business and service which more or less similar with the findings of Ali *et al.* (2008).

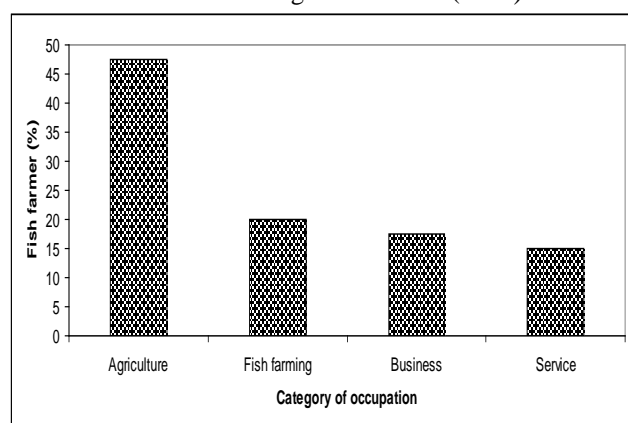


Fig.3. Main occupation of the fish farmers in the study area

Annual household income: The selected fish farmers were grouped into five categories based on the level of their annual income (Table 12). In the study area, the fish farmers are not dependent on fish farming alone, they have various sources of income such as, crop production, business, services and livestock. The average annual income of fish farmers was estimated at BDT 42,500 per farmer which indicating better than national average income at BDT 22,000 (BBS, 2002).

Table 12. Annual income of the fish farmers in the study area

Income level (BDT)	No. of respondents	Percent (%)
24000-48000	3	7.5
48001-72000	7	17.5
72001-96000	10	25
96001-1,20,000	14	35
120,001-240,000	6	15
Total	40	100

Credit facilities: It was found that 90% of the fish farmers used their own money for fish farming, while remaining 10% of the farmers received loan from friends, bank and NGOs (Table 13). Rabbani (2007) found that 60% of the fishermen in Korotoa river took loan from Mohajan, 30% from banks and 10% from friends. As most of the fish farmers were local influential and rich persons, so most of them did not take any loan.

Table 13. Loan received by the farmers for farming in the study area

Received loan	No. of respondents	Percent (%)
Yes	36	90
No	4	10
Total	40	100

Training received: From the survey, it was found that 55% of the fish farmers got technical assistance or advice on aquaculture from friends and neighbors. About 30% of the farmers acquired technical knowledge from other, while 15% of the farmer got technical assistance from DoF and NGOs (Table 14) which similar to the finding of Ali *et al.* (2008).

Table 14. Training received of the fish farmers in the study area

Types of training	No. of respondents	Percent (%)
Friends/neighbors	22	55
Self-study/others	12	30
DoF and NGOs	6	15

Constraints of fish production: In the study area, a number of constrains for fish farming were reported including water pollution, harvesting and marketing problem, high production cost, high feed price, lower market price of fish, lack of technical knowledge, poor quality fish seed, poor quality feed etc. The farmers were requested to state their single most important constrains. From the survey, it was found that 27.78% of the fish farmers identified high production cost was the single most important constrains for fish farming. The proportions of respondents identify lack of scientific knowledge was 14.44%. On the other hand, 17.78%, 14.44%, 12.23%, 13.33% of farmers noted lack of quality seed, lack of quality feed, lack of money and lack of marketing facilities was the most important constrains

respectively. Saha (2004) reported that high price of various inputs; lack of money, lack of technical knowledge; theft and poisoning were the constraints for fish production. Rahman (2003) stated in his report that the major constraints of carp farming were lack of money and production cost.

Livelihood outcomes and improved socio-economic condition: Livelihood outcomes can be thought of as the inverse of poverty. Contributing to the eradication of poverty and food insecurity depends on equitable access to resources, access of disadvantaged groups to sufficient, safe and nutritionally adequate food, (Scoones, 1998). In spite of poor resources livelihood outcomes of fish farming are positive and most of them increased their income, food security and basic needs. The survey suggested that 90% of fish farmers have improved their socioeconomic condition through fish farming. Now they have better food, cloths, housing conditions and children education. However, 10% farmers have not yet improved their status. As an impact of fish farming saving, investment and purchasing capacity have increased and unemployment problem was decreased for both man and women.

The fish farming sector plays a vital role in the uplifting of the socio-economic condition of Tarakanda *upazila* of Mymensingh district as it is opportunity for employment contributing to increase food production, diversifying the economy and poverty alleviation of large number of population. From the results of present study, it can be concluded that fish culture has significant socio-economic benefits for the fish farmers. If the farmers were given appropriate training, financial credit on easy terms and conditions, more profitability would be reflected. Thus it can be concluded that fish culture is a profitable business that can help the farmers to improve their socio-economic conditions.

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