

INVESTIGATION OF THE LIVELIHOOD CONDITIONS OF FISH FARMERS IN FENI DISTRICT

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ABSTRACT

The purpose of the study was to evaluate the socioeconomic status and mode of subsistence of fish farmers in the six Upazillas of the Feni area. From June to October 2017, data was gathered from 30 randomly selected fish producers in 6 Upazillas (five from each Upazilla) through personal visits and questionnaires. Excel and SPSS were the statistical tools utilized for data analysis and computation. The majority of the fishing communities were made up of people between the ages of 20 and 45, 93.33% of whom were Muslims. About 16.6% of fishers were primary level, 43.4% secondary level, and 30% Higher Secondary School Certificate passed and above, respectively. Among fish farmers surveyed in the study area, sanitary conditions (46.67%), drinking water (93.33%), and electrical facilities (96.67%) were judged to be at a satisfactory level. In the study area, the average farm size was found 349.52 hectares. The highest income category among fish farmer groups was 50,000–1,20,000 BDT/year, and very few of them took out loans from other institutions. That farmers have improved their socio-economic conditions through pond fish farming, as confirmed by 80% of surveyed fish-farmers. The main obstacles in the research area for fish farming were multiple ownership, lack of technical knowledge and lack of marketing facilities.

Keywords: Fish farm, income, socioeconomic status, livelihood, Feni district

INTRODUCTION

Bangladesh is blessed with an abundance of water resources, including lakes, canals, rivers, estuaries, large floodplains, ponds, and naturally occurring depressions (haors and beels) that span 4.56 million hectares (DoF, 2011). One of Bangladesh's main industries for creating jobs and revenue, the fishing industry is essential to the sociocultural and economic well-being of the country's citizens. 12 million people in our nation depend on the fishing industry for their livelihood, either directly or indirectly through ancillary jobs (DoF, 2013). Aquaculture can play a significant role in the development of underdeveloped rural communities by promoting social well-being and sustainable livelihoods. According to Hannan (1994), Bangladeshi fishermen are viewed as belonging to a lower social class and are typically impoverished. About 12% of Bangladesh's population makes their living either full- or part-time from fisheries and aquaculture-related activities (DoF, 2020). The fishing community lacks personal financial resources and is deprived in terms of social, economic, and educational aspects (Ali *et al.*, 2014). A sustainable livelihood strategy is a manner of thinking about the goals, scope, and priorities for development to accelerate the removal of poverty, according to Carney (1999).

There are six upazillas in Bangladesh's Feni district: Chagnaiya, Daganbhuiyan, Feni Sadar, Parshuram, Sonagazi, and Phulgazi. With 1,196,219 people living in 45 union parishads, 540 mouzas, and 570 settlements, the district spans 928.34 km². The district's abundance of ponds, canals, and floodplains, along with its proximity to the Meghna River estuary, guarantee the district's importance to the nation's overall fisheries and harvest (Karim *et al.*, 2008). It has been demonstrated that pond fish farming is a more profitable enterprise than rice growing. According to Ahamed *et al.* (2017), a large number of farmers in rural areas are turning their rice fields into aquaculture ponds.

Due to the Feni district's shifting pattern from paddy fields to fish farms, the locals' standard of living has improved thanks to this chain industry. The state of the fishing settlements in the Feni district is not well enough known. With this background in mind, the current study was conducted to evaluate the socioeconomic state and way of life of the fishing communities within the study area.

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MATERIALS AND METHOD

Study area

In the Feni district, a sizable population of fish farmers farmed fish in ponds, beel, etc. Thirty fish farmers, five from each of the six upazillas (Sadar, Sonagazi, Parshuram, Chhagalnaiya, Fulgazi, Daganbhuiyn), were chosen at random to evaluate unambiguous data that encompasses the entire district of the research region. The study area comprises six upazillas, with their respective geographic coordinates as follows: Sadar (23°01'0.12" N 91°23'30.12" E), Sonagazi (22°51'0.00" N 91°23'30.12" E), Parshuram (23°13'0.12" N 91°26'30.12" E), Chhagalnaiya (23°02'9.96" N 91°31'9.84" E), Fulgazi (22.8491° N, 91.3916° E), and Daganbhuiyn (22°56'15.00" N 91°18'15.12" E) in Fig. 1.



Fig.1. Map of Feni district; (Source: <https://www.google.com>)

Data collection

Primary data collected directly from the farm owner served as the foundation for the study. A detailed questionnaire was created and tested in a few adjacent fish farms before gathering primary data. To achieve the study's aims, a great deal of effort was put into this test (Hossain *et al.*, 2015). The pre-testing experience was used to inform changes, reorders, and enhancements to the final questionnaire. The age distribution and government items were included in the final questionnaire. permission, size of family, literacy and religious status, sanitary facilities, water consumption, farm size and pond types, fish productivity, income level, loan, and socioeconomic improvement, among other factors. Through questionnaire interviews (random sample technique), Participatory Rural Appraisal (PRA) instruments like Focus Group Discussions (FGD), and Crosscheck Interviews (CI) with key informants, primary data from fishermen were gathered. In 2017, information was gathered between June and October. These data were gathered both during the day and at night. To ensure the accuracy of the information gathered from the respondents, all the data were cross-checked, nevertheless.

Data Analysis

Before any data were ever tabulated, they were all carefully examined and summarized. Following data entry, all the information was gathered, examined, and presented in text, tabular, and graphical formats to help comprehend the current state of the fish farmers' livelihood in the researched area. SPSS, MS-Excel, and general calculating methods were used for this analysis.

RESULTS AND DISCUSSION

Age Distribution

The age group of 20–40 years old was found to be the largest (50%) among the 30 fish farmers in the study area, while the age group of 60 years and beyond was the lowest (10%). The oldest fish farmers are those over 60, and as they become older, they start to lose vitality. Most fish farmers between the ages of 20 and 40 were married, and most of them were the heads of their families (Fig. 2). In addition, they all possess a lot of bravery and enthusiasm and more opportunities to make more money. Similar

to the current data, Ali *et al.* (2009) showed that 50% of the fishermen in the Mymensingh district are between the ages of 31 and 40.

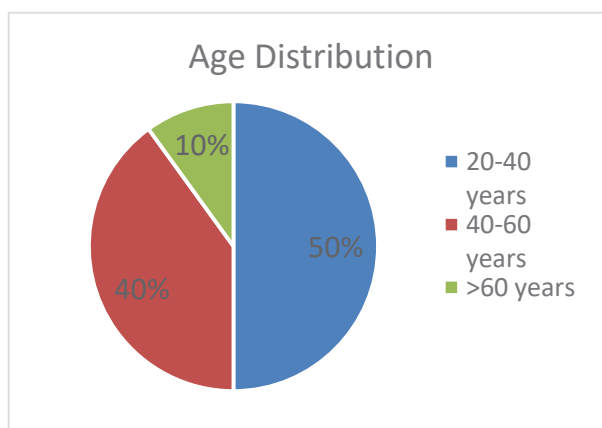


Fig. 2. Age distribution of fish farmer in Feni district

Govt. Approval of the Farm

Govt. approval of a farm denotes the legacy of a farm. It helps govt. to know the total actual productivity of the country and the problems and prospects as well. But in Feni district only 63.33% fish farms are govt. registered and rest 33.67% is not registered. Fulgazi, Parshuram & Sonagazi is in the highest (80%) in registration (Table 1).

Table 1. Govt. approval status of fish farm in Feni district

Govt. approval	Sadar (n=5)	Fulgazi (n=5)	Parshuram (n=5)	Chhagalnaiya (n=5)	Daganbhuiyan (n=5)	Sonagazi (n=5)	Total (n=30)
Yes	2(40%)	4(80%)	4(80%)	2(40%)	3 (60%)	4(80%)	19(63.33%)
No	3(60%)	1(20%)	1(20%)	3 (60%)	2(40%)	1(20%)	11(33.67%)

Size of family

Fish farmers' families were categorized into three sizes: small, medium, and large. According to the study, there were roughly 36.5% of medium-sized fish farmer families (4-5 people), about 27% of tiny fish farmer families (2-4 members), and 36.5% of large fish farmer families (>6 members) (Table 2). The size of the family has a big impact on the family's income and expenses. According to Saha (2004) and Islam *et al.* (2021), the average family size of farmers involved in fish culture was found to be similar, consisting of 5–6 individuals.

Table 2. Family size of the fish farmers in Feni district

Family size	Sadar (n=5)	Fulgazi (n=5)	Parshuram (n=5)	Chhagalnaiya (n=5)	Daganbhuiyan (n=5)	Sonagazi (n=5)	Total (n=30)
2-3	2(40%)	1(20%)	1(20%)	2(40%)	1(20%)	1(20%)	8(27%)
4-5	2(40%)	2(40%)	2(40%)	1(20%)	2(40%)	2(40%)	11(36.5%)
>6	1(20%)	2(40%)	2(40%)	2(40%)	2(40%)	2(40%)	11(36.5%)

Religious status

According to the results of this study, the community of fish farmers was made up of 93.33% Muslims and 6.67% Hindus, respectively. Buddhists and Christians were not present (Table 3). The preponderance of Muslims in the research area suggests that Muslims are progressively entering the field of fish farming by dispelling long-held social superstitions, a finding corroborated by Hossen *et al.* (2020) and Mondal *et al.* (2016).

Table 3. Religious status of Feni district

Religious Status	Sadar (n=5)	Fulgazi (n=5)	Parshuram (n=5)	Chhagalnaiya (n=5)	Daganbhuiyan (n=5)	Sonagazi (n=5)	Total (n=30)
Muslim	5(100%)	4(80%)	5(100%)	4(80%)	5(100%)	5(100%)	28(93.33%)
Hindu	0	1(20%)	0	1(20%)	0	0	2(6.67%)

Housing condition

The type of home reveals a person's social standing. According to the survey, half of the fish farmer's residences were buildings, with 16.67%, 46.67%, and 36.67% being tin sheds (Fig. 3). The current study's percentage of Kacha households was found to be lower than Rahman's (2003) findings, suggesting that fish farmers in the study area are in a better economic situation.

Educational, sanitation, drinking water and electricity facilities

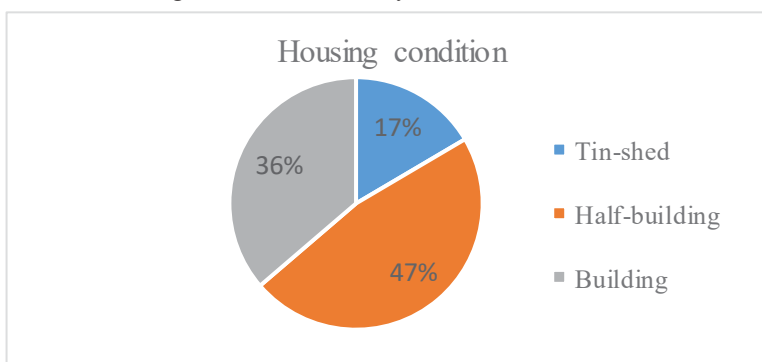


Fig. 3. Housing condition of the fish farmers in Feni district

Status of Education

A person's lifestyle and social standing are mostly determined by their level of education. 83.4% of the 30 fish farmers who were interviewed were literate, and the remaining 16.6% had only completed elementary school, or class 5; a tiny percentage of them could only read in the research region (Table 4). In Mohanpur Upazila, Rajshahi, Zaman *et al.* (2006) performed a survey and found that while 14.4, 8.9, and 6.7% of fish farmers had completed elementary, secondary, or upper secondary education, respectively, 23.3% were illiterate. The greater rate in the studied area could be attributed to differences in geographic location and awareness of schooling.

Table 4. Education, sanitary, drinking water and electricity facilities of the fish farmers in Feni district

Educational level							
Educational level	Sadar (n=5)	Fulgazi (n=5)	Parshuram (n=5)	Chhagalnaiya (n=5)	Daganbhuiyan (n=5)	Sonagazi (n=5)	Total (n=30)
Primary	1(20%)	0	1(20%)	2(40%)	0	1(20%)	5(16.6%)
Secondary	1(20%)	3(60%)	2(40%)	2(40%)	3(60%)	2(40%)	13(43.4%)
Higher Secondary	2(40%)	2(40%)	2(40%)	0	2(40%)	1(20%)	9(30%)
Above	1(20%)	0	0	1(20%)	0	1(20%)	3(10%)
Sanitary condition							
Kacha	0	0	0	0	1	0	1(3.33%)
Half-building	2(40%)	2(40%)	3(60%)	3(60%)	2(40%)	3(60%)	15(50%)
Building	3(60%)	3(60%)	1(20%)	2(40%)	2(40%)	2(40%)	14(46.67%)
Drinking water facilities							
	5(100%)	4(80%)	5(100%)	5(100%)	4(80%)	5(100%)	28.(93.33%)
	0	1(20%)	0	0	1(20%)	0	2(6.67%)
Electricity facilities							
Yes	5(100%)	5(100%)	5(100%)	4(80%)	5(100%)	5(100%)	29(96.97%)
No	0	0	0	1(20%)	0	0	1(3.33%)

The state of sanitation

It was shown that over 46.67% of fish farming families use sterilized restrooms. They are therefore in a hygienic state, which demonstrated that the fish farmers' sanitary conditions were better than those of the nation's fishermen (Table 4). It was discovered that 62% of the farmers used semi-pakka sanitary, 28% used pakka sanitary, and only 10% used kacha sanitary (Ali *et al.*, 2008).

Facilities for drinking water

One of society's most prized commodities is the availability of safe and clean drinking water. About 93.33% of farm owners, according to the survey, get their drinking water from deep tube wells, which is a subject of satisfaction (Table 4), which demonstrated agreement with the findings by Ali *et al.* (2009).

Facilities for electricity

According to Table 4, 96.67% of the fish farmers surveyed in the study area had access to electricity, while 3.33% did not have either at their place of living or on their farm. When Ali *et al.* (2008) did a study on the livelihood of fishermen in the Rajshahi district, they found that the state of the electricity facilities was significantly better than that of the Bagmara Upazilla.

Farm dimensions

349.52 hectares was found to be the average farm size in the study area. There are 60 ha to a maximum of 1300 ha in the farm area. The size of the farm is significant since it might indicate the potential for resource efficiency, marginal ability, and capital availability. According to DoF (2017), the total farm area in Feni was recorded 5103 ha, but the present study was conducted in 30 fish farms which might be the reason behind the lower value.

Number and kind of farming ponds

According to the survey, 70% of the ponds were perennial, and 30% were seasonal (Table 5). The perennial ponds' water level dropped during the dry season, but it is still appropriate for fish culture. Conversely, during the dry season, seasonal ponds are completely unsuited for fish culture. Additionally, it was shown that 53.33% of farms have one to five ponds. The remaining 46.67% fall under the 5–10 pond category (Table 6). The findings of this study are essentially consistent with the farm conditions noted by Alam (2006), which suggested that farms were suitable for management.

Table 5. Pond type in the Feni district

Types of ponds	Sadar (n=5)	Fulgazi (n=5)	Parshuram (n=5)	Chhagalnaiya (n=5)	Daganbhuiyan (n=5)	Sonagazi (n=5)	Total (n=30)
Seasonal	1(20%)	2(40%)	1(20%)	2(40%)	2(40%)	1(20%)	9(30%)
Perennial	4(80%)	3(60%)	4(80%)	3(60%)	3(60%)	4(80%)	21(70%)

Table 6. Farm categories with pond number in Feni district

Number of ponds	Sadar (n=5)	Fulgazi (n=5)	Parshuram (n=5)	Chhagalnaiya (n=5)	Daganbhuiyan (n=5)	Sonagazi (n=5)	Total (n=30)
1-5	3(60%)	2(40%)	3(60%)	3(60%)	2(40%)	3(60%)	16(53.33%)
5-10	2(40%)	3(60%)	2(40%)	2(40%)	3(60%)	2(40%)	14(46.67%)

Annual Fish Production

The observed farm in the Feni district was found to have an average fish production of ponds 14.08 MT/ha, with the maximum production recorded at 18.78MT/ha and the lowest at 6.17 MT/ha. According to DoF (2017), the average annual pond fish production in Feni was recorded 4.18 MT/ha. Present study represented the value of only four months (peak production period) which might be the reason behind the higher value (present study) from yearlong value of reference data.

Fisherman's income

A family's income level defines their socioeconomic standing in a community. Numerous activities can provide revenue, including fishing, farming, providing services, running a business, raising cattle,

raising poultry, and selling their products. The chosen fish producers were divided into five groups according to the amount of money they made each year. The fish farmers with yearly incomes up to 50,000 BDT were included in the first group. The 2nd, 3rd, 4th and 5th categories had income levels of 50,000-120,000 BDT, 120,000-240,000 BDT, 240,000-320,000 BDT and loss up to 1,00,000 BDT respectively. The majority of farmers who responded fell into the second category. The proportion of farmers in the fourth category was the largest at 36%, while the proportion in the first category was the lowest at 2% (Fig. 4). According to Khan *et al.* (1998), family income levels have a significant economic impact on the use of pond fish farming.

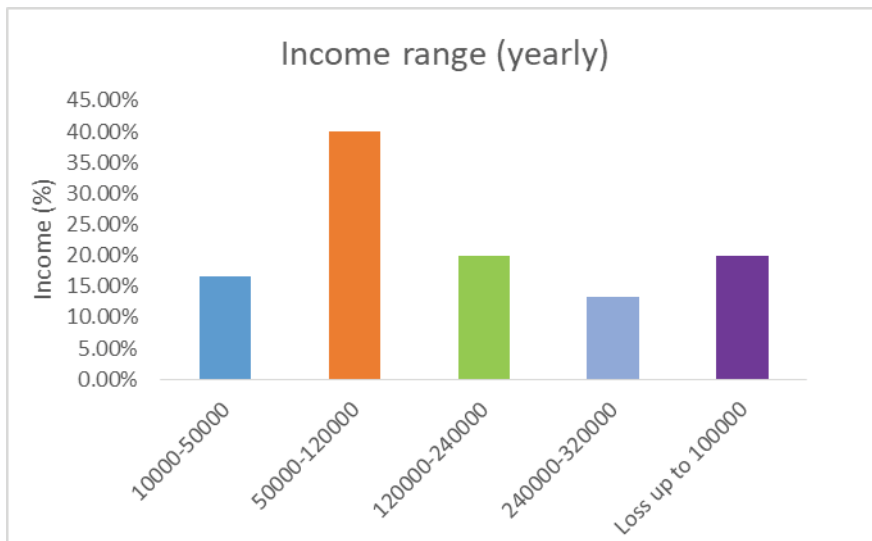


Figure 4. Yearly income of the fish farmers in Feni district

Credit

The majority of fish farmers in Feni did not take out any loans; only 16.67% had taken loan from local depots, NGOs, or banks. The loan amount taken is between 20,000 and 2,00,000 BDT (Fig. 5). According to Hossain *et al.* (1992), lack of funding is the second biggest issue facing fish farmers. Multiple ownership is the biggest issue.

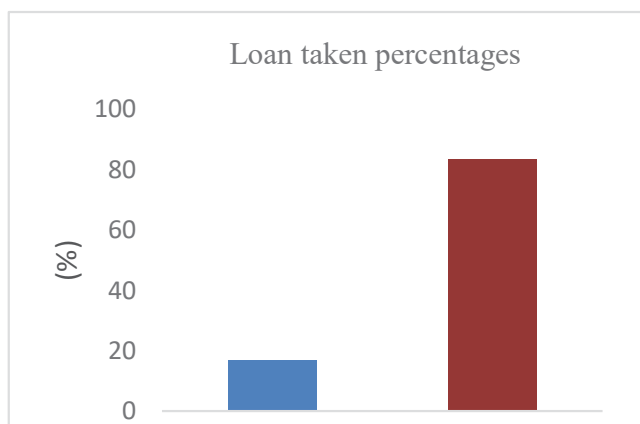


Fig. 5. Status of loan taken from different organizations by fish farmers in Feni district

Socioeconomic development

Pond fish culture has favorable livelihood effects despite limited resources; most of them have enhanced their income, food security, and basic requirements. Eighty percent of fish farmers reported an improvement in their socioeconomic status (Fig. 6). Their housing, food, clothing, and children's education were all superior. However, 20% of farmers still did not have better status.

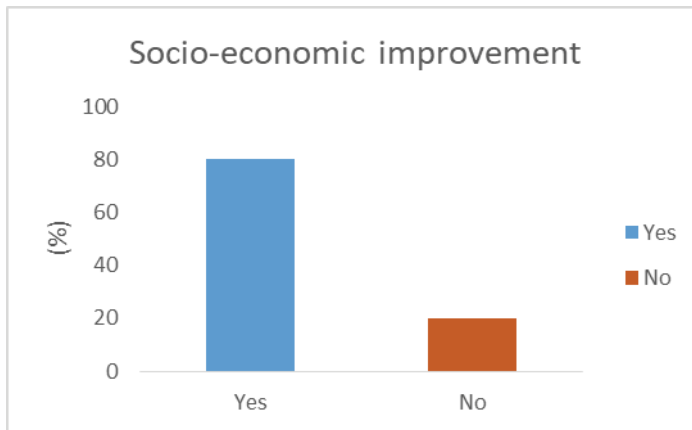


Fig. 6. Status of socio-economic improvement of fish farmers in Feni district

CONCLUSION

The purpose of this study was to learn more about the pond fish farming practices, means of subsistence, and socioeconomic status of rural fish farmers in the Feni district. Data was gathered from 30 randomly chosen fish farmers through personal visits and questionnaire surveys (5 from each Upazilla). The present study shows that farmers have improved their socio-economic conditions through fish farming, as confirmed by 80% of surveyed fish-farmers. Their food, clothing, shelter, and children's education have all improved. However, 20% of farmers still do not have better status since they do not know enough about fish farming. The primary obstacles to fish production in the investigated area included a lack of extension work, multiple ownership, a lack of technical knowledge, a lack of good-quality seed, a high cost of feed, a lack of funds, etc.

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