



Research Article

LIVELIHOOD STATUS AND ASSESSMENT OF FISHING COMMUNITY IN ADJACENT AREA OF TURAG-BURIGANGA RIVER, DHAKA, BANGLADESH

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ABSTRACT

The study was conducted to assess the livelihood status of traditional fishing community in adjacent area of Turag and Buriganga River from January to June, 2013. Data were collected and examined through the use of well-structured questionnaire survey from the selected areas named Dhour, Birulia, Sadullapur and Basilla fisherman community. A total of 50 house heads were interviewed. Most of the fishermen belonged to the age group of 31 to 40 years (48%). About 12% of the fishermen can sign only, while 66%, 16% and 6% of the fisherman were illiterate, primary and secondary level of education respectively. About 54% of the fisherman received health service from village doctors, 28% from upazilla health complex and remaining 18% from MBBS doctor. About 44% of the fisherman used green toilet facilities (kacha), 22% semi brick built (semipaka), 12% brick built toilet facilities (paka) and 22% of the fishers had no sanitary toilet facilities. Illiteracy and river pollution were the major constraints.

Keywords: Community, Fisherman, Income, Environment, Education.

INTRODUCTION

Bangladesh is criss-crossed by hundreds of rivers and blessed by rich marine and fresh water resources (Rahman, 1994). It is often called the 'land of rivers' (Bundell and Maybin, 1996), and rivers are a prominent and important feature of its landscape. Bangladesh is endowed with about 230 rivers and it is estimated that the total length of rivers, streams and canals altogether cover more than 24,000 km (Rashid, 1991). Riverine fishing areas comprise nearly one fifth of the entire fishing area of 4.9 million ha of the country (Huq *et al.*, 1986). Riverine capture fisheries in the form of common property and open access resources constitute a vital component of the agro-ecosystem of Bangladesh (Sadeque, 1990). About 12 million people directly or indirectly depend on fisheries sector for their livelihood (DoF 2005). Fisherman is one of the most vulnerable communities in Bangladesh. They are poor by any standard and over the years economic condition of the fishermen has further deteriorated Fisheries sector contributes about 2.46% of the total export earning, 4.39% to GDP and 22.76% to agricultural sector. Annual fish production was 3.26 million metric tons in the fiscal year 2011-2012 (DoF 2013). Alam and Bashar (1995) estimated their income is about 70% lower than the per capita income

of the country as a whole. Now a day, some rivers have become biologically and hydrologically dead because of the indiscriminate dumping of domestic and industrial wastes, encroachment by unscrupulous people (Ahmed and Reazuddin 2000). The water of Buriganga, Turag, Dhaleshwari, and Balu River flowing around the greater Dhaka city has been completely polluted. The Department of Environment (DoE) has identified 249 factories along the river Buriganga (Sarker, 2005). These wastes contaminate the river water affecting its aquatic life. The production of fish or catch per unit effort decline day by day, even there is no fish in the river Buriganga and Turag in the certain months of the year due to pollution of the river water.

But the little is known about the poverty level of fisherman who is dependent on this river for their livelihood specially when there is no fish in the river. There has been no work done in the study area on the livelihood of the fisherman. On the other hand livelihood diversification is also affected by each household's participation in strategies to manage natural resources, make community and natural resource access rules, and build capacity (Agarwal, 2001; Agrawal and Gupta, 2005; Bhandari and Grant, 2007; Rew and Rew, 2003). The

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Rajbongshi caste, a lower class Hindu sect is one of the traditional fishing communities of Bangladesh. The fishermen of this community are socially, economically and educationally disadvantaged and lack their own financial resources. The gradually declining riverine fish production in recent years has added to their adversities. Considering the above fact, the present study was carried out to assess the livelihood status and constraint faced by the fishermen in the traditional fishing community living on the River Turag and Buriganga, Bangladesh.

MATERIALS AND METHODS

Study area: The survey was conducted in four fishing villages near Turag - Buriganga River. Dhour fishing village situated under the Turag Thana, Birulia fishing village and Sadullapur fishing village under the Savar Thana, Dhaka. This three fishing villages are situated at adjacent area of Turag River. Another Basilla fishing village is under the Hajaribag Thana on the south and its total area is 3.58 km² which is situated near the Buriganga River (Figure 1).

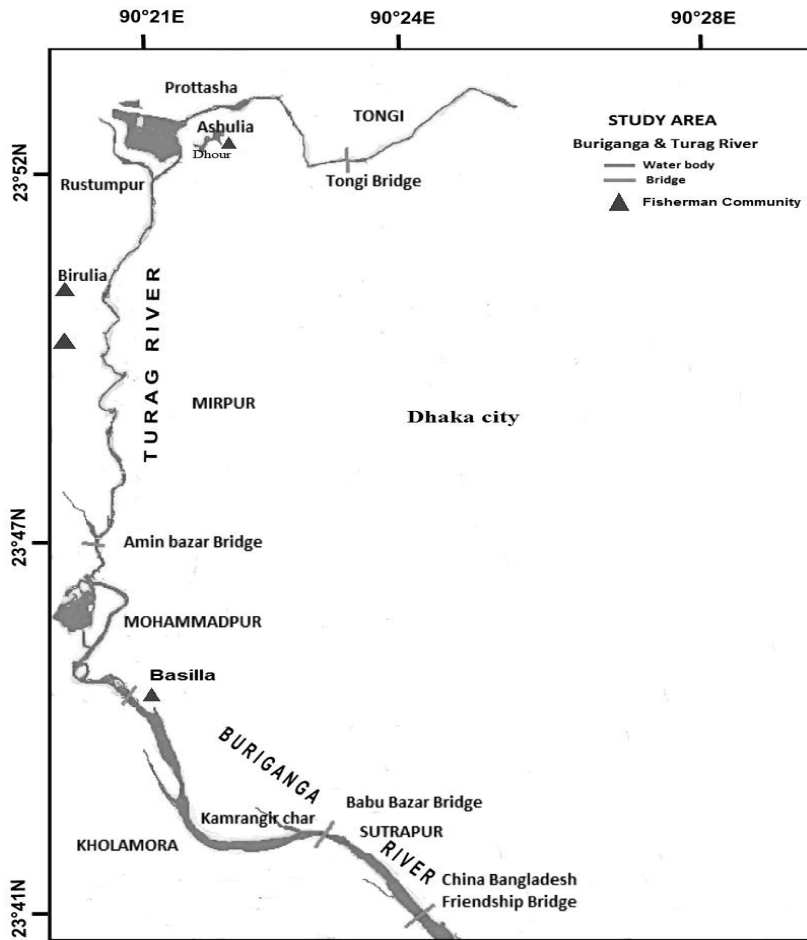


Figure 1. Study area of fisherman Community near Buriganga and Turag River.

Infrastructure of fishing village

Dhour fishing village accommodates 60 family, Basilla 40, Sadullapur 4, and Birulia 30 families. These fishing villages' infrastructures are different from any other fishing village of our country because these villages are situated near the river bank in the capital city of Dhaka, Bangladesh. There are many developmental changes at these villages to reach the Dhaka city. Infrastructures of those fishing villages are not well develop to survive in the critical environment such as fish landing sites of Dhour, Birulia and Sadullapur is situated on muddy field, most of

the fishermen create fish market at bank of the river and on road, fishing boat, mud house, law land, paddy field, repair facilities, and net making are present and there no water supply facilities in the those village. Most of the walking roads made of without bricks and every fishing village has well developed educational institution but electricity is not well developed so that most of the children of fishermen can't study properly at night. There is no health care center or hospital in those villages. On the other hand Basilla fishing village well developed than other villages. This village road made of brick, electricity, health care center, educational, transports, water supply are available.

Data collection process

Data were collected mainly by observation and survey methods. Surveys were of different types, such as through personal interview supplemented by multiple methodological Participatory Research Approach (PRA) tools such as Focus Group Discussion (FGD) and Crosscheck Interviews (CI) with key informants (Lin, 1976). The survey was conducted over a period of six months from January to June 2013. Fifty fishermen were questioned by interview in these fishing villages.

Questionnaire surveys

The study was based on collection of primary and secondary data. Before collecting the primary data a draft questionnaire was developed which was pre-tested with few fishermen. In this pre-testing, much attention was given to any new information in the draft questionnaire in order to reach the objectives of the study. According to the experience gained in pre-testing, the final questionnaire was improved, rearranged and modified.

Survey design

The interview schedule for fisherman was divided into 3 sections, which mainly addressed the issues of personal and family details, fish catch and socio-economic status. The first section of the interview schedule was for personal information of the respondents and their families. The second section related to fish catching including income, marketing, credit access issues etc. The third section explored detailed information about farmer's conditions, employment, housing condition, drinking water, health, and other facilities. 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 livelihood status and constraints of the Fishermen community in adjacent area of Turag-Buriganga River.

RESULTS

A total of 50 house heads were interrogated. Sixteen persons were cross-examined from Dhour fishing village, twenty persons from Basilla, four persons from Sadullapur and ten persons from Birulia fishing community. Only two female persons were interviewed from Basilla fishing community.

Family size and type

In this study, family sizes of fisherman were divided into three categories according to the numbers. only 18% had

members 7-10 as large family. Most families had only (46%) members 5-6 as medium family and 36 % had members 2-4 as small family. It was found that, about 60% fishermen lived with nuclear families and 40% fishermen lived with joint-families (Table 1).

Table 1. Family size of the fisherman in the study area.

Family size	No. of fisherman (n=50)	% Of total fisherman
Small family (2-4)	18	36
Medium family (5-6)	23	46
Large family (7-10)	9	18

Age structured

Different categories of age groups: Young (20-30 years), middle aged (31-40 years) and old (41-60 years) were considered to examine the age structure. It appeared (Figure 2) that age group wise middle age (31-40 years) was the highest (48%), young (32%) and 41-60 years was the lowest (20%) among all fishermen (Figure 2).

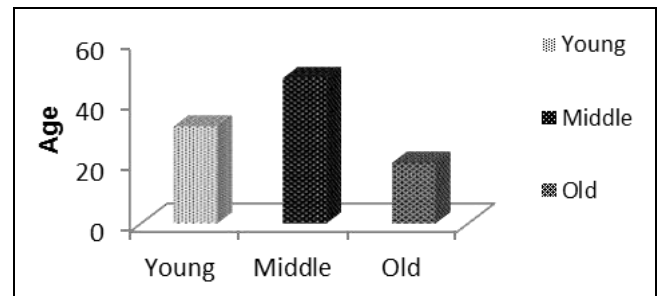


Figure 2. Age groups of fishermen community.

Educational status of fishermen

Most of the fishermen are illiterate (66%) only small portion of them have secondary level (6%), can sign only (12%), some has primary level of educated (16%) (Table 2). From the research it was found that, none of the fishermen had the secondary level education.

Table 2. Educational status of the fisherman in the study area.

Educational Status	No of fisherman (n=50)	% of total fisherman
Illiterate	33	66
Sign only	6	12
Primary	8	16
Secondary	3	6

Educational status of the fisherman children

Most of the Fisherman children can write and read. Primary level education was (54%), secondary level (30%), capable to sign only (2%) illiterate (6%) and Higher secondary level 0% (Table 3). Fisherman children could not cross the secondary level. About 84% of the children complete their primary level and 16% drop out before completing primary level.

Table 3. Educational status of fisherman in the study area.

Educational Status	No of fishermen (n=50)	% of total fishermen
Primary	27	54
Secondary	15	30
Illiterate	3	6
Capable to sign only	1	2
Higher secondary	0	0
Complete primary level	42	84
Dropout primary level	8	16

Annual income

Annual income of the fishermen were varied from 60000tk to 85000tk the selected fisherman were grouped into three categories based on the level of annual income and it was found that 40% of the fishermen had annual income between BDT 60000 to 66000, 54% of the fishermen had annual income ranged 66000 to 75000 and rest of the 6% income ranged 75000 to 85000 (Table 4).

Table 4. Annual income of the fisherman in the study area.

Level of income(BDT)	No of fisherman (n=50)	% Of total fisherman
60000-66000	20	40
66000-75000	27	54
75000-85000	3	6

Daily income

From the interviews, 14 Fisherman (28%) mentioned that their daily fishing income fluctuate between Tk.150-250, while 24 fisherman (48%) mentioned that there daily income was between Tk. 250-350 per day. The daily income of the rest of the fisherman (20%) was 350 to 450 Tk. It was found that fishers spend 18 to 30 days (25 days on an average) per month on fishing.

Credit access

Most of the fishermen are involved with cooperative organization. Some are involved with NGO, Usurer and Mahajan. They get credit from those cooperatives such as

pollimongole somobay somiti, Adesh somobay somiti, Nirapad somobay bahumukhi somiti, Asha somiti etc. It was found that 28% fisherman do not received loans from NGO or somiti, 46% of fisherman received loans from somiti, 8% usurer, 6% relatives and 12% received loans from moneylenders (Mahajan) (Figure 3).

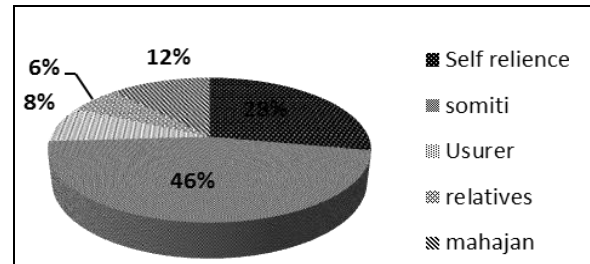


Figure 3. View sources of credit facilities of fisherman.

Housing condition

The nature of house indicates the social status of the people. During the survey attempts were made to find out the condition of living house of the people. Most of the fishermen lived in very poor housing conditions. The landless fisherman construct temporary house (36%) on the land of their relatives, neighbors, fellow fisherman and any wealthy person. The fisherman who has own land, they construct permanent house (64%). It was found that 66% house were Mud-built (kacha), 34% semi brickbuilt (semi paka) (Figure 4).

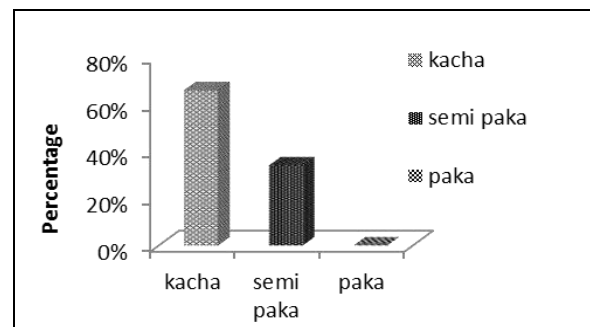


Figure 4. View the housing condition of the fisherman community.

There have no brickbuilt (paka) house. Kacha house means the houses made of tinshed, bambo, sidewall made of mud and tin, roof made of tin. Semi paka house were made of tin and brick. These types of houses roof is tin and sidewall made of brick.

Drinking water facilities

In the study area clean and safe drinking water is considered to be the most valued elements to live around the polluted river. There are many tube-wells in these fishing villages, so fresh drinking water is not a problem. Yet some fisherman suffer fresh drinking Water problem. Most fisherman use tube-well and supply water for

drinking purposes and for other household activities. There are 30% fisherman who used their own tube well, 20% used neighbor's tube well, 14% used Government tube well, 34% used supply water (WASA) and 2% used Garments water (Figure 5).

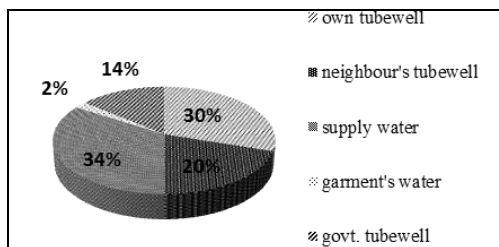


Figure 5. Drinking water sources status of fisherman in the study areas.

Sanitary facilities

The present study that reveals that fisherman has been facing sanitary problems. It was observed that sanitary conditions of the fisherman were very poor. In the study areas, it was found that 44% of toilets were green (kacha) while 22% were semi brickbuilt (semi paka), 12% were brickbuilt (paka) and 22% of the fisherman had no sanitary facilities (Figure 6).

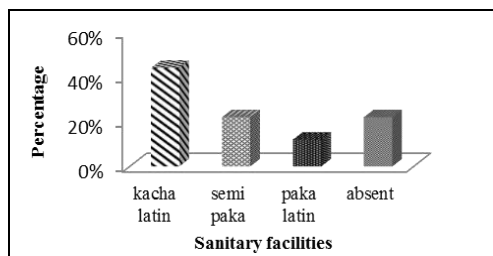


Figure 6. View sanitary facilities of the fisherman community in the study areas.

These fishermen used their neighbor toilets and/or open field. As a result they suffered from various infectious diseases.

Health facilities

The present study reveals that fishermen have been facing severe health problems. There is no good medical facility in the fishing village. There are some village doctors in the fishing villages.

Table 5. Health facilities received the fisherman in the study area.

Health facilities	No. of fisherman (n=50)	% Of total fisherman
Village doctor	27	54
Upazilla health complex	14	28
MBBS doctor	9	18

The health center is very far away, which is about 7 or 8 km away from the village. From the survey, it was found that 54% of the fisherman households were dependent on village doctors who did not have any understanding and knowledge of medical science, 28% of the fisherman got health service from upzaila health complex and remaining 18% got health service from MBBS doctors (Table 5). However, the fishermen are devoid of proper knowledge on health.

Electronic media

There are different types of media elements in these fishing villages. Such as Television, Mobile set. There are 52% fishermen who have own television and 56% fisherman use mobile (Table 6).

Table 6: Electronic media used the fisherman community.

Electronic Media	No of Fisherman (n=50)	% of total fisherman
Television	26	52
Mobile	28	56
Radio	0	0

DISCUSSION

Fishing plays an important role in supporting livelihoods worldwide and inland fisheries are particular importance to the rural poor people accounting for about 15% of total global employment (FAO, 2000).

Religion

All of the 50 fishermen interviewed in the Dhour Birulia, Sadullapur and Basilla Villages belong to the Rajbongshi sect of the Hindu community. Their predecessors formed these villages about 50 to 200 years ago. From then these villages have kept their absolute religious and ethnic purity intact. Hannan (1994) stated that ethnic communities used to catch fish from natural water in Bangladesh and that fisherman came from a low caste of Hindu society. The Hindu community is a religious minority in Bangladesh, and the Rajbongshi caste is a small segment of this community.

Fish catch

Fisherman catch fish in the Buriganga and Turag River for 4 or 5 months, using different types of gears like Ber jal (Seine net), Dharma jal & Beshal (Lift net), Jhaki jal (cast net) and various forms of traps. In the remaining 7 or 8 months the fisherman does not get any fish from the river because the river water is polluted. Most of the fishermen catch fish by grouping and others are individual group fisherman 60% and individual 36% and Group individual 4%. Group fisherman use Ber jal and it requires 8 to 10

fisherman to operate. Individual fisherman uses Jhaki jal, Beshal or Dharma jal. There are 72% Fisherman who own Boats and nets, and 28% fisherman have no own boats and nets.

They start fishing at about 7 pm and continue till 5 or 6 am. Fishing effort is high during the Rainy season. A Group of 8 to 10 fisherman catches about 5 to 18 kg of fish per day. They catch prawn, bime, Nola, khoilsha, puti, taki, koi, butom, boal, shing, magur etc. The fishermen sell their catches early in the morning on the riverbank to the middlemen or sell it to the market, near the whole buyer. The fisherman who catches fish day time, he sells the fish at the evening. The owner of nets and boats gets 30% of the total cash obtained from the catch sale. The Remaining 70% of the money is equally divided among the fisherman.

Income

Most of the respondents have no land property. So they sell physical labour, live by catching fishes or engage themselves in other kind of economic activities during dry season. But during rainy season they mainly depend on fishing. So the monthly cash income of the respondents has been considered as actual monthly income. Many of the respondents have no fixed amount of income. Their income also varies from time to time. In Northeast Nigeria, around 42% to 70% of rural households who are dependent on fishing contribute 24-28% of their income (Neiland and Sarch, 1994).

Other income activities rather than fishing during non fishing period

The traditional fishermen are forced to take up different types of income generating activities during non fishing period. In the study area, there are many brick fields which operate during dry season. They are forced to join non-fishing income generating activities such as daily laborer in agricultural fields, brick fields, stone carrying and breaking fields, building construction sites, furniture shops etc. Some fishermen work as boatmen who transport goods and humans from one bank to other bank of the river. Some of them set up small mobile shops on rickshaw-vans, those are traditional non-mechanized three wheelers or on the bank of the river. Some fishermen drive small mechanized vehicles or rickshaws on rental basis. Although there is no fish in the river during certain months of the year but there is a scope for job due to the geographical location of villages the fisherman live in and as villages are situated at the periphery of the capital city. It makes them different in the point of income generation from the other fishing community of Bangladesh. During the off season of fishing few fishermen still try to harvest fish from other canals or rivers to carry out their profession or they can't be able to perform other income generating activities.

Food habits

Food habit is different from nation to nation, country to country, area to area, and caste to caste. So the

Rajbongshi's food habit is different from other caste. Their main food is Rice, chicken, turtle, meat and fish. They are interested to eat turtle meat but they do not get it to eat, because turtle meat is very costly. Also they eat different types of food such as naru, moa, sweet, egg, milk, vegetables, chiramuri, dry fish etc. Food insecurity depends on equitable access to resources, access of disadvantaged groups to sufficient, safe and nutritionally adequate food (Scones, 1998).

Socio-economic constraints

Socio economic constraints such as illiteracy, population pressure, low economic status and river pollution are the main problems for the Buriganga and Turag river fisherman community. Most of them are illiterate and live from hand to mouth. Being very poor their children often go for fishing rather than going school. As a result, generation after generation they remain illiterate and not being able to contribute to the betterment of their community. Fishermen live below the poverty line and are struggling to survive with health, nutrition, and house buildings materials as their day to day problems. Most fishermen take health care from the village doctor and remaining fisherman take health care from different hospital.

Role of women in fishing activities

Although traditionally fishing activities are male dominated but female members are playing a good role in the fisheries sector now days in Bangladesh. Some women are engaged in fish selling and fishing. They are involved in making different types of fishing materials. The Female members help the male member to harvest fish. The women do their household works. They are busy in raising their children and in making food for the family. In the rainy Season also observed freshwater habitat and fishing activities of man, women and children in bank of the Buriganga River (Hossain and Baki, 2014).

Migration and ethnicity

They migrate from one village to another where the majority of the people are Hindu because of social security. Furthermore, few of them have migrated to foreign country for earning their livelihood due to pollution in river. But the migration takes place in a small scale. The migration of fisherman from one water body to another is caused by geographic differences in the supply of and demand of economic fish species. Industrial pollution is one of the major factors affecting fishermen livelihoods as the industrial discharge includes heavy metals. Ahmed *et al.*, 2015 accumulated heavy metals and associated human health risk were investigated in fish & shellfish species, namely *Ailia coila*, *Gagata youssoufi*, *Mastacembelus pancalus* and *Macrobrachium rosenbergii* and *Indoplanorbis exustus*, which was collect from the Buriganga River, Bangladesh. So that most of the fisherman has been migrated from the area for health risk and polluted river.

CONCLUSION

These 50 house heads and four fishing village are very important constituents of aquatic ecosystem around the Turag-Buriganga River. In the present investigation we can recognize their status, house condition, transport, fishing equipment, income source development, environment development of economic fisheries. During the dry season some sorts of alternate jobs for fishermen should be provided by government and NGOs. The government should also take step to control river pollution and thus create safe environment for save the children. Health facilities of these fishing villages should be ensured by the government assistance.

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