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LIVELIHOODS OF OTTER FISHERS IN THE SOUTH-WESTERN ZONE OF BANGLADESH

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A B S T R A C T

Fishing with otters is an ancient fishing technique in Bangladesh, exists only in the south-western part of the country with smooth-coated Otter (*Lutrogale perspicillata*). The present study was carried out to portray this unique fishing technique and to investigate otter fishers` livelihood status in Narail District. Fishing with otters is carried out at night in the Chitra and the Nabaganga rivers, involving at least four people, a boat, a net, 2-3 adult tamed otters and 1-2 immature trainee otters. The socio-economic conditions and livelihood status of the otter fishers` were found as not-satisfactory level whereas about 75% of total 36 fishermen were termed as very poor and they don`t have their own boat and nets for fishing. All of the surveyed fishers belong to the Hindu religion and less access to education, pure drinking water, and a healthy sanitation system. Due to scanty income, and resultant low-living standard, 14 otter fishers were found changed their ancient profession. Therefore, direct interventions are essential to support improved and sustainable socio-economic condition of the otter fishing community.

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INTRODUCTION

Bangladesh is a south Asian low-lying and riverine country endowed with over 230 rivers (Rahman, 2005). The Ganges-Brahmaputra-Meghna Delta of Bangladesh is one of the biggest and active deltas of the world (Shamsuzzaman *et al*. 2017) and inland rivers and their tributaries are great sources of diverse fisheries resources which offer livelihood options for millions of rural people in Bangladesh (Islam, 2018). Bangladesh gained 3rd rank in world in inland open water capture fisheries production in 2018 (FAO, 2018). Fisheries sector contributes 3.57% to National GDP of Bangladesh and almost 11% of total populations are engaged in this sector for their livelihood (DoF, 2018). Otter is one of the unique animals that helping humans in fishing. From very old age people some Asian country like China, Malay etc. and some European country like Sweden, Norway etc. used otters on fishing purpose (Gudger, 1927). Famous traveler Marco Polo also wrote about otter fishing of Chinese people in the Yangtse Kiang River in his travels about 600 years ago (Gabriel et al., 2005). The Chinese are reputed using otters for commercial fishing from the inhabitants of Indo-China and the Malaysian area; on the other hand, in India otters were used for fishing in areas of the rivers Indus and Ganges and elsewhere in Bengal (Gabriel et al., 2005). Beside this the practice of using otters to drive fish into nets was prevalent in Asia and is still practiced in southern Bangladesh (Feeroz et al., 2011). However, livelihood assessments of these fishing communities are inadequate and difficult to find out their current status. Otter fishing community of Narail district, south-western part of Bangladesh, have been engaged in this unique practice for many years. But it was found that fishermen have changed their profession to alternative livelihood options. Therefore, the present study was carried out to investigate and reveal the livelihood status of the otter-fishing community.

MATERIALS AND METHODS

Study Area and Duration

Two union of Narail Sadar upazila: Kalora and Chandibarpur were selected for data collection by analyzing the preliminary survey. Three villages from those unions were surveyed. Name of the villages from Kalora union was Goalbari and Chandibarpur union was Chandibarpur and Rathodanga (Figure 1). The study period was from January to August 2019.

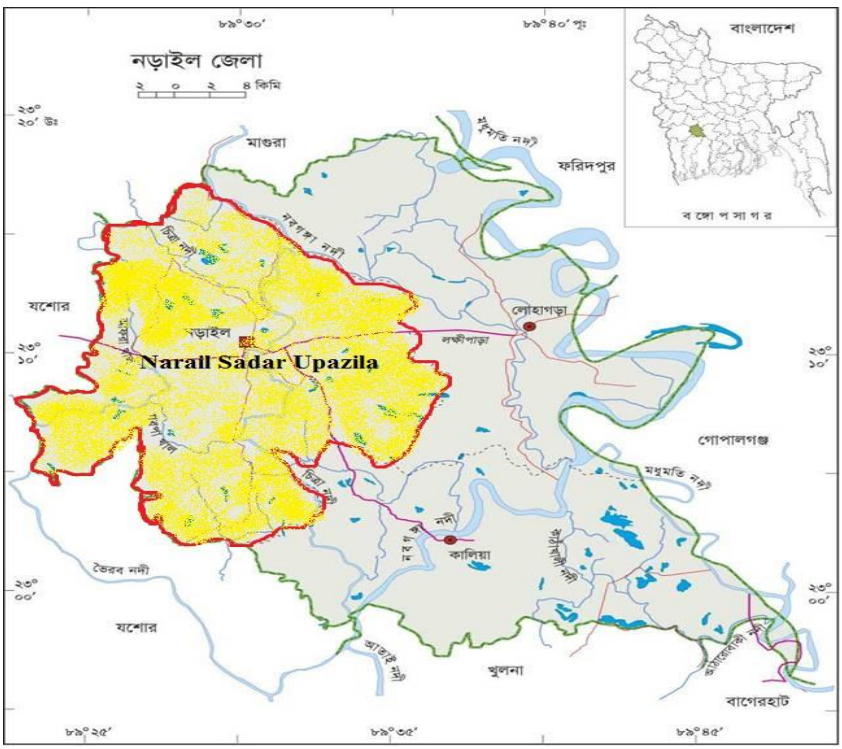

Figure 1. Study Area (image source: BCAS)

Sampling Framework

A total of 50 fishermen were selected by considering their relationship with the otter fishing from those three villages. However, responses from 36 fishermen, directly involved in otter-fishing at that time were assessed and analyzed for livelihood assessment. Primary data were collected by Questionnaire surveys, Focus Group Discussion (FDG), Key Informant Interviews and direct observations. Secondary data was collected from relevant articles, books, government offices, NGOs and others. To analyze represent data for otter-fishing community in the study, descriptive statistics (frequency, percentage means) and cross tabulation were carried out. Data were assessed, analyzed and presented using MS-Excel (Microsoft Inc.).

RESULTS

Fishing strategy and equipment

During the survey 36 fishermen were found who were directly involved with otter fishing in Chitra and Nabaganga river. Riverine otters *Lutrogale perspicillata* (locally known as vodor or dhaira) is being used forming small to medium groups (2 to 6 otters) to help catching fish. Otter fishing boat is locally known as 'Bachari Nouka' (**Figure 2**). The boat is about 8 to 12 meter long and 1.5 to 2.5 meter wide. The deck of the boat is generally convex in shape. Islam (2018) found that Nomadic Fishers in the Meghna River use boats which are usually 3 meters in length and 1.20 meters in width in the middle part. A form of specialized rectangular net, 'Tar Jal', with mesh size varies from 1 to 2.5 cm, is being used by otter fishers of the region. A bamboo stick made rectangular cage, with length (1.5-2m), width (1-1.5m) and height (1-1.5m), is used to hold otters in boat. Size may vary in accordance to otter numbers.

Figure 2. Otter (A), fishing boat (B), otter fishing (C) and nets (D)

Otter fishing usually held at night. The fishing starts at the middle of the river. During fishing two boatmen hold the oar of the boat to keep the boat straight. Two adult otters are each tied to a separate rope that is fixed to a stick held by the fishermen on either side of the net. The length of the otter sticks varied from 1.5m to 3m and the length of the rope varied from (1-2) meters. Small otters are set free to move in front of the net. This arrangement created a rectangular fishing area of about 40 square meters. Once the otters are in place, the fisherman sink the net and the two men hold the oars to help moving the boat to the edge of the river by keeping the boat parallel with the edge. The otters start driving fish to the net from different directions and when the fish come close to the net, the fishermen pull the net into the boat. Since, usually four fishermen participate in fishing; the money after fish selling is distributed in 5 shares of which 4 shares for four fishermen and the left one is for the owner of the boat, otters and net.

Livelihood assessment

Total 50 people were selected from three villages of two unions of Narail Sadar Upazilla. Among them 36 (72%) people were involved with otter fishery at present and 14 (28%) people were involved with otter fishery at past, switched their profession following economic crisis. Livelihood of the region's otter fishers was assessed based on the 36 respondents presently involved in the traditional otter fishery.

In the study, categorized age groups were considered to determine the productive age structure of the fishermen. It appeared that, age group of 41-50, was dominant (34%) in fishing activity (Figure 3). Having vast experiences, their role was identified as to lead the fishing activity as well as train the newcomers. However, fresh involvement (age group 21-30) was found to be significant declining (only 2%) (Figure 3). Moreover, monopolized income distribution by the owners of otters, nets & fishing boats, also discouraging the existing and potential otter fishers to continue the profession. The study revealed that about 25% out of 36 fishermen possessed fishing boat and otters while 72.22% did not own fishing nets (Table 1).

Table 1. Ownership of fishing otter, boats and nets of the respondents (N=36)

Categories	% owned	% do not owned
Fishing otter	74	26
Fishing boat	25	75
Fishing net	27.78	72.22

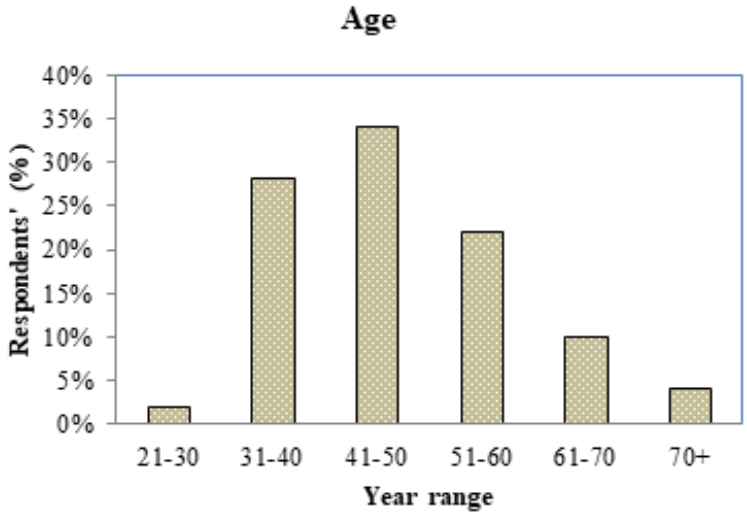

Figure 3. Age distribution of the respondents

Educational status of the fishers in the study had been classified into 4 categories: illiterate, can sign only, up-to primary school and secondary school level. Most of the fishermen in the study found to be able to sign only (52%), following by illiterate (26%) and had education up to primary school (20%), whereas only 2% had high school level study (Figure 4).

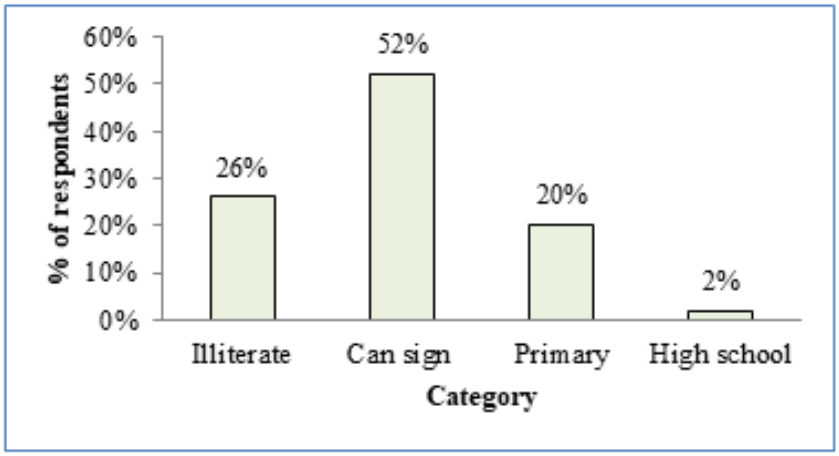

Figure 4. Educational Status of the respondent fishermen

Present study found that 96% of the fishermen were married and traditional rural extended families of that region have been replacing by medium sized (50%) and nuclear families (40%) (Table 2). Demise of joint family structure may be triggered by unstable economic condition. Religion plays as a catalyst in effective socio-cultural and socio-economic growth towards social change. The study found that, 100% of the fishermen involved in otter fishing were Hindu (Table 2). The findings of the present study are dissimilar with the findings of Ahamed (1999) where he reported that in coastal region of Bangladesh, majority of the fishermen are Muslims (68.33%).

Table 2. Religion, Family Type and Marital Status of the respondents (N=36)

Religion	Respondent (%)	Family Type	Respondent (%)	Marital Status	Respondent (%)
Hindu	100%	Small (1-4 members) family	40%	Married	96%
Muslim	0%	Medium (5-6 members) family	50%	Unmarried	2%
Other	0%	Large (more than 7 members) family	10%		

In the study area, maximum houses (88.89%) of the otter fishing community were made of bamboo and tin, while semi-concrete made house was also found (11.11%) indicating some economic progress among them (Table 3). Safer sanitation facility and access to safe water are important factors for proper hygiene system in a community. The study found, 88.89% of the households used ring-slab made sanitary while the rests (11.11%) had improved semi-concrete-made toilet (Table 3). In addition, 33.33% of the respondents owned tube-well for safe water and the majority (66.66%) had to depend on other sources including neighbor's tube-well (Table 3). Different water-borne diseases were prevalent among the otter fishing community. In case of illness, most of the respondents of the area dependent on homeopathy medicine (44.44%) whereas, 30.55% of them went to hospital or clinic to get health service and the rests (25%) took treatment from village quacks for low financial capacities (Table 3).

Table 3. Housing condition, sanitation and tube-well and health facility of the respondents (N=36)

Characteristics	Categories	Number of respondents	% respondents of the total fishermen
Housing Condition	Bamboo-tin made house	32	88.89%
	Semi-concrete	4	11.11%
Sanitation Facilities	Ring-slab made toilet	32	88.89%
	Semi-concrete (improved) toilet	4	11.11%
Safe water facility	Own tube-well	12	33.33%
	Other sources (including neighbor's tube-well)	24	66.67%
Health facility	Homeopathic treatment	16	44.44%
	Hospitals or clinics	11	30.55%
	Village quacks	9	25%

Table 4. Monthly income range, saving scheme and micro-credit loan profile of the respondents (N=36)

Characteristics	Range (BDT)	% respondents
Monthly income	6000-10000	22.22%
	10,000-15,000	41.67%
	15,000-20,000	33.33%
	20,000-30,000	2.78%
	30,000+	0%
	Response	**% respondents**
Saving Schemes	Yes	36.11%
	No	63.89%
Micro-credit loan	Yes	91.67%
	No	8.33%

It was also observed that sole dependence on otter fishing as primary occupation was also decreasing. Among the 36 respondents, 72% of fishermen's primary occupation was otter fishing (Figure 5). They were also found to be involved in alternative occupations including fishing (without otter), fish selling, agricultural labor, small business etc. (Figure 5).

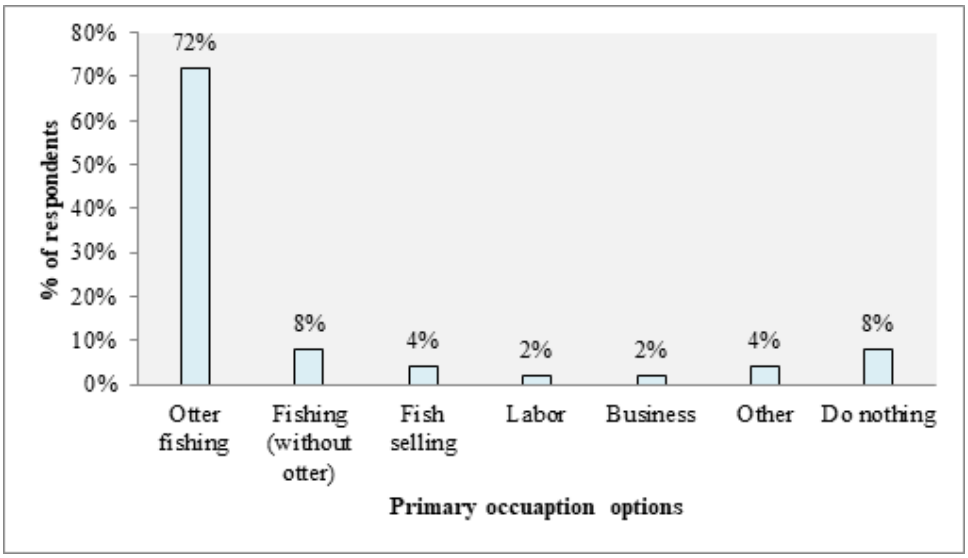

Figure 5. Primary occupation of the otter fishermen

Income of the fishing community often serves the basis for better understanding of the livelihood status. From the respondents, the study found that monthly income range of most of the otter fishermen of the area was in a range of BDT 10000-15000 (41.67%) (Table 4). A small portion (2.78%) of them had a higher income range (20,000-30,000 BDT) per month (Table 4). The boat, otter and net owners usually belong to the higher income category. It was also found that, most of the fishermen (63.89%) could not able to save money for future due to lower monthly income (Table 4). As a result, about 91.67% of the fishermen (Table 4) received microcredit loan form different microcredit loan serving NGOs, like Grameen Bank, Brac etc.

DISCUSSION

Livelihood comprises of people, capacities, resources and activities required for resilience (Chambers & Conway, 1991). A socially sustainable livelihood which can be able to maintain the desired standard of living following existing stress and shocks requires, therefore, analysis on new concepts, practice and policy (Sharifuzzaman et al., 2018; Chambers & Conway, 1991). Various livelihood aspects of otter-fishing community of Narail district, south-western part of Bangladesh, have been studied and analyzed in the present study.

It was observed that the age group of 41 to 50 years was leading the fishing activity and less number of new recruits is alarming sign for the future of the otter-fishing. Moreover, monopolized income distribution by the owners of otters, nets and fishing boats, usually get larger share, discouraging the existing and potential otter fishers to continue the profession. Education is the powerful and pervasive factor contributing to develop overall human resources through influencing behavioral pattern, knowledge, skill, capability and performance (Tran *et al.,* 2020). Most of the fishermen were poorly educated and at most one-fourth had upper primary level education. However, a significant portion (26%) of them were found unlettered. Though, in Bangladesh, primary education is free and compulsory, lower literacy rate of the community might be an indicator of prevalent economic stress. Family size, on the other hand, influence economic well-being of underprivileged portion of the society (Ominde *et al.,* 1972). Breakdown of larger families into small and medium sized ones was observed in the study. Demise of joint family structure may be triggered by unstable economic condition. All of the respondents from the otter fishing community were the follower of Hinduism. A similar finding was reported by Hossain *et al*. (2014) in Chittagong coast whereas, Ahamed (1999) reported that in coastal region of Bangladesh, majority of the fishermen were Muslims (68.33%).

The study also found that, bamboo and tin-made houses were most common among the fishers and financially stables of them, built semi-concrete housing. Almost ninety percent of the fishermen used ring-slab made toilets and the rests had semi-improved sanitary facility. Use of safe water for drinking and other household works have direct effect on

health of a community. However, the study found less than 35% of the households owned tube-well. The finding is controversial with the report of Kumar *et al*. (2015) who reported that 89% fishermen of south-western zone of Bangladesh had tube-well for safe water option. Furthermore, different water-borne diseases were found to be common in the area. Most of the disease-affected fishermen and their family members sought treatments from local homeopaths and quacks indicating economic stress of the families.

Present study observed that the otter fishermen also involved in alternative livelihood options due to scanty income in the fishing. Monthly income range of most of them was in range between 10,000-15,000 BDT, which is consistent with the findings of Islam (2018) who reported that Nomadic fishermen of Meghna river typically earn about BDT 92,980 (USD 1192) yearly. More than three fifth of the respondents had no savings resultant from lower income. The study is similar with Galib *et al* (2016) where they reported that more than two-third of fishing community in north-western part of Bangladesh had no savings for future. In addition, more than ninety percents of the otter fishers took micro-credit loan from different NGOs to finance their family expenditures including medical emergencies, house-repairing and education purpose.

CONCLUSION

Socio-economic condition of the studied fishermen was not satisfactory. Present study may help the administrators, policy makers, govt. and NGOs to assess existing stress and shocks and future actions for improving their livelihood. This vulnerable fishing community should get proper education, health services and providence by the Government for the up gradation of their living standard. In terms of credit, NGOs may provide loans by lowering interst rate with easy terms and conditions. Integrated and sustinable approach of govt. and other concerned organizations should be materialized on immediate basis focusing on minimizing existing livelihood stresses for better living.

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CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

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