SOCIOECONOMIC CONDITIONS OF FISHERMEN OF DEKAR HAOR IN SUNAMGANJ

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Abstract

The investigation was conducted on the livelihood status of fishers in Dekar haor of Sunamganj in Bangladesh for a period of 12 months from June 2013 to May 2014. A total 40 fishers were randomly selected and data were collected from them through direct interview. Focus group discussions were carried out by a previously made checklist. The result showed that the annual income of fishermen varied from BDT 34900 to 176100 with a mean income of BDT 60566.67±23189.27. Maximum (72.5%) fishers were low income levels (BDT 40000-60000) and trying to shift their professions to other subsidiary professions. Relatively middle age group (31 to 45 years) dominated in all study areas. Muslim fishermen are the most dominant in the study area. Average family size was (6.875) persons and majority of joint family with members ranging from 6 to 11. The highest percentage (57%) fishers were illiterate due to economic crises and lack of awareness about education. Maximum (41.15%) fishers' children were found up to primary level, whereas 29.1% not schooling of children categories and 11.98% children dropped out of school before completing their primary education. Housing and sanitation conditions of the fishermen were not well developed. Most of the fishers get their health services from village doctors and upazila health complex. Women participated in various income generating activities to improve their livelihood along with the household activities. Based on various livelihood parameters, it can be concluded that fishermen are leading very poor state of lives. Community based aquatic resource management strategies should be undertaken with a view to enhance fish production for improve the livelihood condition of the fishers dwelling in the Dekar haor area of Bangladesh.

Keywords: Livelihood, Dekar haor, fisherman, questionnaire interview, focus group discussion.

Introduction

Bangladesh is an agro-based country. Majorities of the rural people depend on natural resources (land, aquatic resources, forests, livestock etc.) for their livelihoods. This is particularly important for poorer households as they have few opportunities of income generation for their livelihoods. Fish is an integral part of life and livelihood of the people of Bangladesh for food, nutrition, income generation, poverty alleviation, foreign exchange earnings, as a prime source of animal protein supply and it is the part of our cultural heritage (Wahab, 2014). The Fisheries sector contributed about 4.37% to GDP, 23.37% to agriculture, 2.01% to the total foreign exchange and provides 60% of the animal protein consumed by the people of Bangladesh (DoF, 2014). It provides full-time and part-time employment opportunities to about 5.51 million people in various dimensions such as fishing, fish trading, processing, transporting, marketing, exporting and associated activities (DoF, 2012). The inland waterbodies are full of fisheries resources. It offers tremendous opportunities for fisheries development in terms of potential for augmenting fish production and livelihood support of the people living around these water bodies. Among the vast inland fisheries resources, *haors* are more prospective for fish production.

Haor is one of the most distinguished natural habitats for the indigenous fishes of Bangladesh. There are altogether 423 small and large *haors* in Bangladesh (Alam *et al.*, 2011) which comprise an area of about 8000 km² dispersed in

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the districts of Sunamganj, Sylhet, Moulvibazar, Hobiganj, Netrakona, Brahmanbaria and Kishoreganj covering nearly 25% of the entire *haor* region of Bangladesh (BHWDB, 2011). Sylhet division is completely *haor* basin area where many *haors* and *beels* are found. The most noticeable *haors* are Hail *haor*, Hakaluki *haor*, Dekar *haor*, Chayer *haor*, Maker *haor*, Tanguar *haor*, Kawadighi *haor* and Saneer*haor* (Hossain, 2014).

Dekar haor is a resourceful wetland basin located in the North-East part of Bangladesh, lies between latitude 24°34'N to 25°12'N and longitude 90°56'E to 91°49'E under Sunamganj district. The Dekar haor covers four upazilas namely Sunamganj Sadar, Dakshin Sunamganj, Dowarabazar and Chhatak having an area of 11514.6 ha (Banglapedia, 2012). In monsoon, it is full of water look like an inland sea, but in the dry season maximum portion of the haor becomes dry except some deeper portions. The average water depth varies from 1.07 meters in winter and 3.1 meters in monsoon. The haor covers a total 36 small and large interconnecting beels, channels, rivers and crop lands (CNRS, 2004). The haor is a critical habitat for fishes and other aquatic species. A large number freshwater fishes, thousands of indigenous and migratory birds and non-fishes aquatic organisms have been found. The *haor* is also the home grounds for many organisms and provide suitable areas for feeding, breeding, nursing and so on. Boro is the main crop in the area. About 110000 people live around the haor, all of them depend on its resources for their livelihoods (CNRS, 2004). There has been a gradual reduction of fish diversity in the Dekar haor area that is from the earlier 84 species to present 65 species (22.62% declined). Average fish catch per fisherman per day was also reduced from 8.35kg to 1.4kg in the haor within 10-15 years (Pandit et al., 2015). Due to reduction in fish harvest, fishers' income from the *haor* was declined. However, there is little reliable data about the livelihood status of the fishers in the Dekar haor. Therefore a comprehensive study is essential to investigate the livelihood status of the fishers in and around the haor area. Considering the above context, the main purpose of this study is to survey the socioeconomic conditions of the fishers dwelling in the Dekar haor area of Sunamganj.

Materials and Methods

The study was conducted in a pre-selected area of Dekar *haor* under Sunamganj district of Bangladesh to investigate the livelihood status of fishers. Because it consists of a suitable geographical coverage, the physical characteristics and depth of water that ensure adequate coverage in terms of biodiversity and good number of dependent fishers as far as possible. The study was performed for the periods of 12 months from June 2013 to May 2014 to fulfill the requirements of the research objective. The study was based on both primary and secondary data. A total 40 fishers were randomly selected in six villages named Inatnagor, Goniginj, Sultanpur, Chandrapur, Raipur and Noyagaon under Dakshin Sunamganj *upazila* for the study (Fig. 1). Both full time and part-time fishers were randomly selected. Data were collected through personal interview, focus group discussions (FGD) of the fishermen and key informant interview (KII). The primary data were collected through direct interview using a well-structured questionnaire, so that the fishermen could answer chronologically each and every question. Focus group discussions (FGD) were carried out by a previously made checklist. A total of six FGD sessions was conducted in the study areas where each group size was 10-15 fishers.



Fig. 1. Location of the study area (Banglapedia, 2012)

The secondary information was collected from the Department of Fisheries Office, Local Government Engineering Department (LGED) office, WorldFish office of Sunamganj and from different journals regarding the fisheries and socioeconomic condition of the fishermen. Key informant interviews (KII) were made with key person such as *Upazila* Fisheries Officer (UFO), District Fisheries Officer (DFO), LGED officer, local leaders and WorldFish Sunamganj to cross-check the collected data from the fishermen.

After collecting, the data were computed, edited, coded, summarized and processed for analysis. These data were verified to eliminate all possible errors and inconsistencies. All the collected data were accumulated and analyzed by Microsoft Excel program.

Results and Discussion

Livelihood status of the *haor* fishers

A livelihood comprises the capabilities, assets and activities need for a means of living (Scoones, 1998). To determine the livelihood conditions of the *haor* fishers it must need attention of five types of capital (human, physical, natural, financial and social) upon which their livelihood depends. To investigate the fishers' livelihood, fishers from different levels of the society were considered.

Age and religion structure of the fishers

The highest numbers of fishers (50%) were in the middle (31 to 45) age group, whereas 35% in old (above 46) age and the lowest 15% in young (below 30) age group (Table 1). The Muslims were more dominant about 85% than the Hindus 15% (Table 1), which is similar to the finding of Roy (2010) in Pagnar*Haor*. The dominance of the Muslims in the fishing community indicates that the Muslims are progressively entering into fishing profession.

Family size and type

The respondent households had an average family size of 7 (6.875) persons where 52% male and 48% female. In case of family type, 67.5% joint and 32.5% nuclear family were observed in the study area ranges from nuclear family (1-5) and joint family (6-11) (Table 1). The members of fishers' community were illiterate and early marriage was a common state of affairs. For this reason, their family size is big and unplanned. Now family conflicts are common due to poverty and income variation of the family members and joint family is gradually breaking and they are trying to live in a nuclear family.

Characteristics of respondents		Number of fishers	Percentage (%)
	Young (Up to 30)	6	15
Age	Middle age (31-45)	20	50
	Old (Above 45)	14	35
Religion	Muslims	34	85
	Hindus	6	15
Family size	Male	143	52
	Female	132	48
Family type	Nuclear (1-5)	13	32.5
	Joint (6-11)	27	67.5

Table 1. Socioeconomic characteristics of the haor fishers

Educational status of fishers

Educational qualification has immensely influenced on individual preferences and behavioral patterns. It is the key determinant of the lifestyle and status in a society. The result showed that the highest (57%) number of fishers were illiterate (Fig. 2). Most of the literate fishers are in the group of primary and secondary levels and few are in the SSC and above levels. Maximum fishers were compelled to enter into the fishing profession in their early stage due to

economic crises and lack of awareness about education. But now-a-days the educational status of the fishers' community is developing, but not too much remarkable.



Fig. 2. Educational status of fishers

Educational status of fishers' children

The highest number of fishers' children (41.15%) was found up to primary level followed by 29.1% not schooling and 17.17% secondary level. It is notable that 11.98% of the children dropped out of school before completing their primary education (Fig. 3). It is due to economic involvement of children to support their family. So they did not get access to educational facilities. Besides, other causes are lack of awareness about education, there is no developed educational institute in the studied area and some other social problems.



Fig. 3. Educational status of fishers' children

Land area owned by fishers

In the study area, it was observed that the majority (55%) of the fishermen had 1 to 20 decimal lands and the lowest (10%) respondents had 21 to 41 decimal lands. It is notable that 20% landless fishers were found (Table 2).

Land area (decimal)	Number of fishers	Percentage (%)
1-20	22	55
21-40	4	10
41-Above	6	15
None	8	20
Total	40	100

Table 2. Land area owned by the fishers

Annual income

The income summary is the main economic point of national development. In the study area, the annual income of fishers mainly depends on *haor* fisheries resources. The annual income of fishers was found BDT 34900-176100 with a mean income of BDT 60566.67 \pm 23189.27. It was found that maximum 72.5% of fishers were low income levels (Table 3). The result of the study showed that the annual average income was comparatively low due to low fish production and the fisheries resources are declining day by dayin the *haor* areas. Khanum (2013) reported only 16% of fishers had higher annual income and 31% had low incomes, whereas 53% of the fishers on moderate income in Hakaluki *haor*, which is not similar to the present findings.

Table 3. Annual income of the fishers in the Dekar haor

Annual income (BDT)	Number of fishers	Percentage (%)
Low (40000-60000)	29	72.5
Moderate (61000-90000)	8	20
High (Above 91000)	3	7.5

Occupational satisfaction of the fishers

During the study, only fishing was found insufficient to provide adequate means of total livelihood support. It is remarkable that fish biodiversity and fisheries production in the *haor* are decreasing day by day due to some manmade and natural causes. The fishers get a minimum amount of fishes which is not satisfying their income level to meet their family demands. For this reason, most of the fishers (72.5%) are trying to shift their occupation from fishing to livestock domestication, day labors, boat pulling, agriculture, small scale business etc. to sustain their livelihood. On the other hand, 27.5% fishers did not want to shift their occupation because they are satisfied with their income from fishing (Table 3).

Table 4. Opinion of fishers about changing their occupation

Occupational shifting	Number	Percentage (%)
Yes	29	72.5
No	11	27.5

Credit access and savings of the fishers

In the study area, average 72% fishers received credit facilities with range of BDT 7,000 to 15,000 from several NGOs and Banks such as ASA, Proshika, BRAC, Grameen bank as well as moneylenders. They take this credit for

the purchase of fishing gears, boats and other materials. Only 28% fishers did not receive credit facilities (Fig. 4). Fishers in the surveyed areas solely reside from hand to mouth. The fishers could achieve their living means from fishing, agriculture, wages and so on. Maximum fishers did not save money due to their low income levels and household expenses.



Fig. 4. Credit access of the fishers in the haor area

Women participation in different livelihood options

Sideways from performing various household activities, the women also joined in various incomes generating and management activities to improve their livelihood. During the period of the present investigation, it was found that most of the women involved in net making, fish drying, poultry rearing, livestock rearing, cultivation (fruit and vegetables), handicraft, and other activities along with the household activities to improve their livelihood facilities.

Housing condition

In the present observation, 57.5% tin shed 30% *Kacha* (Raw house made of bamboo, mud and straw) and 12.5% *semi-paca* (Floor and wall made by bricks and roof made by woods cover) houses were found in the study area (Table 5). Most of the respondent fishers were very poor due to their low income, so their housing conditions were not well developed. Roy (2010) found that in Jamalgonj area, 83% of fishers' house structures were *kacha* and only 17% were *semi-paca*, this is not similar to the present findings.

Electricity facilities

Availability of electricity is an essential element in our livelihood structure. In the present study area 55% fishers have no access to electricity facilities, but 35% have access to electricity and 10% have solar facilities for their home consumption (Table 5).

Drinking water facilities

The provision of clear and safe drinking water was considered to be the most valued element in a society. It was observed in this study that 100% of fishers' household used tube-well water for drinking purpose, but most households had no own tube-well (Table 5).

Sanitation facilities

In terms of sanitary facilities, only 10% fishers were using the ring sanitary latrine. The rest 90% fishers were using ring, slab latrine facilities (Table 5). There was no sanitary latrine found in this study, so that most of the fishers suffer from various contagious diseases. It was concluded that sanitary conditions of the fishers were not well developed.

Characteristics of respondents		Number of fishers	Percentage (%)
	Semi-paca	5	12.5
Housing condition	Tin shed	23	57.5
	Kacha	12	30
Electricity facilities	Electricity used	14	35
	No electricity	22	55
	Soler panel	4	10
Drinking water facilities	Tube-well water	40	100
Sanitation facilities	Ring sanitary latrine	4	10
	Slab	36	90

Table 5. Some socioeconomic characteristics of fishers

Health facilities

During the study period, health service status was categorized into four groups: *Kobiraj*, the village doctor*upazila* health complex and private practitioner MBBS doctor. It was indicated that 50% are getting health service from village doctors, while 30% of *upazila* health complex and 10% from the private practitioner MBBS doctor. About 10% fishers were getting health service from *kobiraj* (Quack doctor) (Fig. 5). Roy (2010) found only 15% fishers in the Jamalgonj *upazila* under the Sunamganj district got the opportunities for medical care by *upazila* health complex while the rest 85% was dependent on village doctor and others. The present finding is similar in agreement with the observation of Roy (2010) that highest people go to village doctors for their treatments.



Fig. 5. Health service received by the fishers in the surveyed area

Fish market system

The status of fish marketing channel around Dekar*haor* region is represented in Fig. 6. A marketing system of fish in the areas is not well developed and thus the fishers are deprived from the premium price of the fishes. From the survey area, it was observed that 32.5% fishers sold their captured fishes directly to the consumer, whereas 45% sold their fish to either retailer in landing center and 22.5% sold their fishes directly to the wholesalers.



Fig. 6. Fish marketing chain from fishers to consumers in the study areas

Fishing gears used

Five different types of fishing gear were considered during the study period (Table 6).

Group	Types of gear used	
	Gill net	Current jal Koi jal
	Seine net	Beer jal Kona jal
Fish net	Cast net	Jhakijal
	Push net	Thelajal
	Lift net	Dharma jal Khorajal Chotkajal
Fish trap		Chai Darki Dori
Hook and line		Borshi Hand borshi
Wounding gear		Koach Akkata
Fish aggregating devices		Dhol

Table 6. Fishing gears used in the study area

Fisheries co-operative society

During the entire study course, it was perceived that maximum (75%) fishers were not engaged with co-operative society. Only 25% responder fishers were engaged with co-operative society, they received both physical and financial conveniences (Table 7). But the management structure of the co-operative society was not well-developed. The scenario is very much frustrating and worrying.

Training facilities

In recent years, Department of Fisheries (DoF), WorldFish, several Non-Government Organizations (NGOs) and other institutes have been providing training to the fishers (rearing of fry and fingerlings, feed and fertilizer, maintaining water quality, maintenance of fish sanctuaries, cage culture and so on). About 12.5% fishers respectively received formal training, whereas 87.5% of fishers could not receive any training (Table 7).

Table 7. Status of fisheries co-operative society and trained personnel in the study area

Characteristics of respondents		Number of fishers	Percentages (%)
Cooperative society	Active	10	25
Cooperative society	Inactive	30	75
Training facilities	Trained	5	12.5
Training facilities	Non-trained	35	87.5

From the study, it is clear that the socioeconomic status of the fishers living around the Dekar *haor* is very poor in relation to land properties, health facilities, drinking water facilities, electricity facilities, housing condition, sanitary facilities and income. They are deprived of basic needs and mostly dependent on the fisheries resources of the *hoar*. It is notable that fish biodiversity and fisheries resources in the *haor* are decreasing day by day due to some

manmade and natural causes. Fishers get the minimum amount of fishes, which is not enough to meet their family demands. For this reason, most of the fishers are trying to shift their occupation from fishing to agriculture, livestock domestication, day labors, boat pulling, small scale business etc. Aquatic resource management strategies should be undertaken with inputs from scientific research, policy makers, government, non-government organizations and other stakeholders with a view to enhancing fish production, maintaining biodiversity in a sustainable manner and improving the livelihood condition of the fishers dwelling in the Dekar h*aor* area of Bangladesh.

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References

- Alam M S, Quayum M A and Islam M A. 2011.Crop production in the *haor* areas of Bangladesh. Insights from farm level survey. A scientific journal of Krishi Foundation, 2010, 8(2), Agricultural Economics Division, Bangladesh Rice Research Institute, Gazipur- 1701, Bangladesh. pp. 88-97.
- Banglapedia. 2012. National Encyclopedia of Bangladesh. Asiatic Society of Bangladesh Dhaka.
- BHWDB (Bangladesh *Haor* and Wetland Development Board). 2011. Ministry of Water Resources, Government of the People's Republic of Bangladesh, Dhaka. 5p.
- CNRS (Center for Natural Resource Studies). 2004. Management of aquatic ecosystems through community husbandry. Feasibility report on MACH (Management of Aquatic Ecosystems through Community Husbandry) outreach program. 10pp.
- DoF (Department of Fisheries). 2012. National Fish Week Compendium, Ministry of Fisheries and Livestock. The Government of Peoples Republic of Bangladesh. 76p.
- DoF (Department of Fisheries). 2014. National Fish Week Compendium, Ministry of Fisheries and Livestock. The Government of Peoples Republic of Bangladesh. 73p.
- Hossain M A R. 2014. An overview of fisheries sector of Bangladesh. Res. Agric., Livest. Fish. 1(1):109-126.
- Khanum R. 2013. Socio-economic conditions of fishermen: Evidence from Hakaluki *haor* of Bangladesh. Assistant Professor, Department of Agricultural Economics and Policy, Sylhet Agricultural University, Sylhet-3100, Bangladesh. 3p.
- Pandit D, Kunda M, Rashid A H A, Sufian M A and Mazumder S K. 2015. Present status of fish biodiversity in Dekar *haor*, Bangladesh: a case study. World J. of Fish and Marine Sciences, 7(4):278-287.
- Roy K C. 2010. A study was conducted to find out fish biodiversity and the livelihoods of the fishing Community in Pagnar*haor* under Jamalgonj *upazila* in Sunamganj district. M.S. Thesis, Department of Aquaculture, Bangladesh Agricultural University, Mymensingh. 51p.
- Scoones I. 1998. Sustainable rural livelihoods: a framework for analysis. IDS Working Paper72, Institute of Development Studies (IDS), Brighton, UK.
- Wahab M A. 2014. Sustainable fish production and management to meet the requirements for micronutrient-rich small fish in Bangladesh.Faculty of Fisheries, Bangladesh Agricultural University, Mymensingh-2202, Bangladesh. 6p.