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Studies on fisheries status and socio-economic condition of fishing community in *Bhatiary* coastal area Chittagong, Bangladesh

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Abstract
The present investigation was conducted to assess the livelihood and socio-economic condition of fishermen in *Bhatiary* coastal area Chittagong, Bangladesh and this research work has been carried out during the period of January to June, 2009 with coordinate 22°26'20.4"N 91°43'52.7"E. A total of 100 fishermen were interviewed with a well-structured questionnaire. The survey revealed that, the age of the respondents ranged from 18 to above 60 years. The highest proportions (36%) of fish farmer were middle aged and above 60 years was the lowest (6%). There are about 96% of fishermen who had religion status as Muslim; rest of fisher had Hindu (6%) and Buddhist (2%). Up to primary level 78%, only 12% fishermen was S.S.C passed and rest 10% passed H.S.C. There are 74% male and 26% female fisher were found in this present study. It was found that, 82% family which belongs to nuclear type status and rest 18% had joint family in the present study area. This present study indicates that 80% houses were owned, while 8% were free use and only 12% were rented. In the study area houses of fishermen were of two main types as, Tin shed house (68%) and concrete house (32%). In this present study, there were 88% semi concrete toilet facilities were found among the respondent and the rest of 12% fishermen had a concrete toilet for hygiene facilities. About 54% respondent had a television set belongs to their house, 90% fisher had a portable radio, 48% fishermen had own mobile phone and the rest of people use shared one and lastly, only 36% fishermen had a CD player in their house for entertainment purpose. The main secondary occupations were found, small scale business (40%), agriculture (36%) and rickshaw pulling (24%) for their livelihood. The highest percentage (26%) fish farmers earned BDT 30,000 to 40,000 per year and the lowest percentage were, (12%) earned BDT 70,000 and above. In the study area, 67% fishermen took medical facility from village quack doctors, and the rest of 33% got from MBBS doctors. In the study area, 41% fishermen's children got education from government and non-government institution, 59% children did not have education from any kind of institutions. It was found that 47% of the fishermen used their own money for their financial assistance, 26% received loan from the bank and 27% received loan different NGOs. Around 78% of the fishermen identified insufficient credit most important problem for any kind of initiative in the study area. Here respondents also identified that lack of weather forecast 10%, pollution (40%), insufficient communication equipment (84%) and insufficient fishing equipment (80%) as constrain.

Keywords: livelihood; fishermen community; income generation; coastal area; Chittagong

1. Introduction
Bangladesh has a total of 260 freshwater fish species and 475 marine species. Fisheries, the high growing sector, contributed about 3.61% of the total export earning, 4.39% to GDP and 24.41 % to the agricultural sector [11]. Marine fisheries donate at least 20-24% of total fish production in Bangladesh and >90% of catch originates from artisanal fishing, with around 500,000 individuals are straightly reliant on the segment [38]. The amalgamation of reduced yield and worth of catch will practically lead to condensed earnings in the marine fishery of Chittagong, therefore, weakening the livelihoods of those who are entirely reliant on fishing [23]. Complete investigation of fishing oriented livelihood influences would need to be examined to make any definitive statements. There is no appropriate administration system for capture fishery of the Bay of Bengal. So, numerous species from the Bay of Bengal are radically dropping with their biomass and number. Government and non-government organizations are not initiated sufficient measures to overwhelm this problem. That's why appropriate rules and regulation should be applied in a strategic way to upsurge the production as to save the endangered species as well as to expand the livelihood prominence of the people

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in this region. Fishermen communities are habitually situated in unapproachable regions where no contemporary communication schemes, having a very stumpy progressive and socio-economic influence in the community. There is no denying the fact that fishermen and fishing community as a whole the lowliest and most underprivileged group of Bangladesh [13]. For the complete scheduling and improvement and implementation in fisheries sector, it is essential to have a sound understanding about the livelihood configuration of the associated people. With such kind of aim in view, this present study was conducted to know the socio-economic condition of involved fishermen in *Bhatiary* coastal area Chittagong, Bangladesh.

2. Materials and Methods
2.1 Study area and periods
The study was conducted in *Bhatiary* coastal area Chittagong, Bangladesh with coordinate 22°26'20.4"N 91°43'52.7"E during January to June 2009.

2.2 Data collection
The main data collection technique of the study was a survey having semi-structured questionnaire with local fishers in specific house location. The other techniques used for using participatory tools PRA (Participatory Rural Appraisal) as, Focus Group Discussion (FGD); key informant interview and photo plate etc.

2.3 Sampling of FGD respondents
The sampling technique was purposive because it was necessary to select those persons who would be able to provide most useful information on the question. Each group consists of 6 – 8 persons.

2.4 Target group: fishermen
A large number of fishermen were known to be engaged in fishing in *Bhatiary* coast, Chittagong. Fishing is the main occupation of most of the people of adjacent area.

2.5 Sample size
The sample size of fishermen depends on several factors such as financial constraints, the importance of the study, its method of data collection etc. For this study, the data were collected from 100 randomly selected fishermen.

2.6 Data processing and analysis
The collected data were scrutinized and summarized carefully before the actual tabulation. Some of the data were collected into local units and those data were converted into international units. After data entry, the data were analyzed with computer programs, Microsoft Excel 2007.

3. Results
3.1 Age group
Age of the respondents ranged from 18 to above 60 years. They were classified into five categories as young (18-30 years), middle aged (31-40 years), nearly old (41-50 years), old (51-60 years) and old above 60 years. The highest proportions (36%) of fish farmer were middle aged and above 60 years was the lowest (6%) (Figure 1).
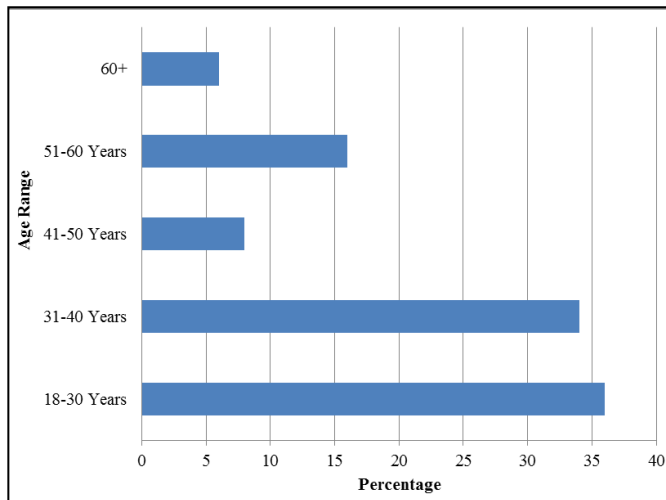

Fig 1: Age distribution of fishermen

3.2 Religion
There are about 96% of fishermen who had religion status as Muslim; rest of fisher had Hindu (6%) and Buddhist (2%) (Figure 2).
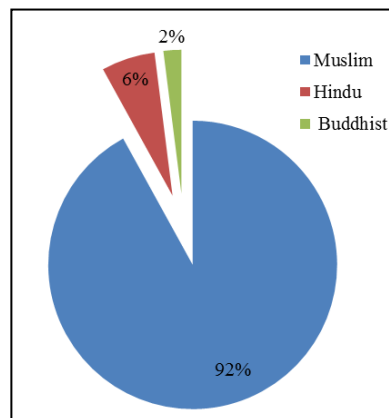

Fig 2: Religion status of fishermen

3.3 Education status
Most of the fishermen had education up to primary level 78%, only 12% fishermen was S.S.C passed and rest 10% passed H.S.C (Figure 3).
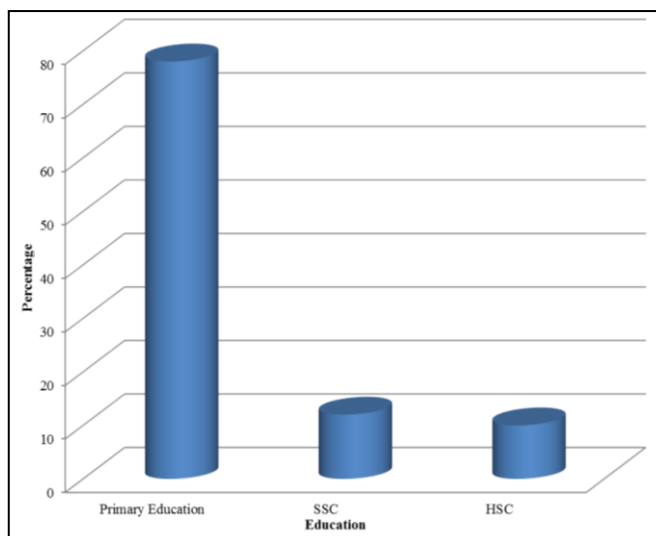

Fig 3: Education status of fishermen

3.4 Gender

There are 74% male and 26% female fisher were found in this preset study (Figure 4).
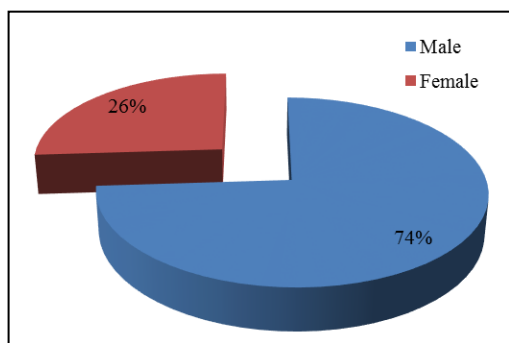

Fig 4: Gender distribution of fishermen in *Bhatiary*.

3.5 Family type

There were 82% family which belongs to nuclear type status and rest 18% had joint family in the present study area (Figure 5).
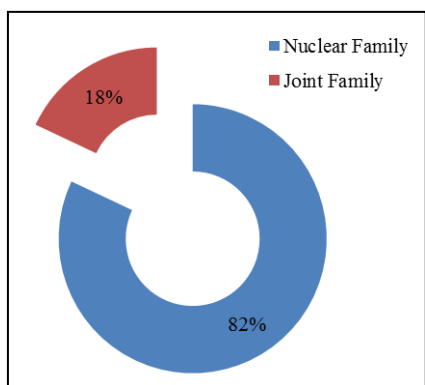

Fig 5: Family type of fishermen in *Bhatiary*.

3.6 Housing condition

This present study indicates that 80% houses were owned, while 8% were freely use and only 12% were rented. In the study area houses of fishermen were of two main types as, Tin shed house (68%) and concrete house (32%) (Figure 6).
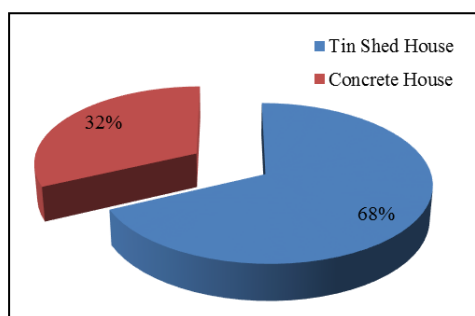

Fig 6: Housing condition of fishermen in *Bhatiary*.

3.7 Water, sanitation and hygiene status

No deep tub-well was seen in this present fishing community areas whereas 48 shallow tube-wells found to supply drinking water for fishermen. In this present study, there were 88% semi concrete toilet facilities were found among the respondent and the rest of 12% fishermen had a concrete toilet for hygiene facilities (Figure 7).
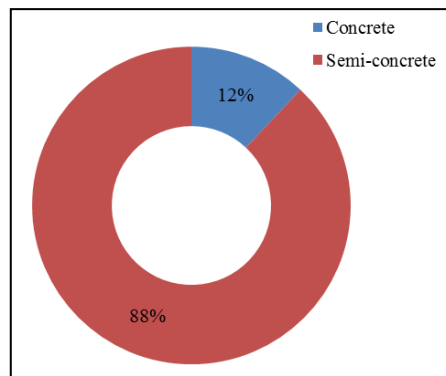

Fig 7: Sanitation condition of fishermen in *Bhatiary*.

3.8 Entertainment of fishermen

It was found that, 54% respondent had a television set belongs to their house, 90% fisher had portable radio, 48% fishermen had own mobile phone and the rest of people use shared one and lastly, only 36% fishermen had a CD player in their house for entertainment purpose (Figure 8).
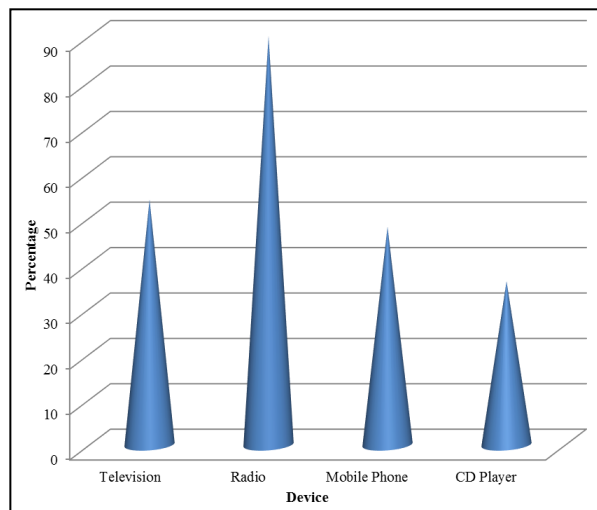

Fig 8: Entertainment status of fishermen in *Bhatiary*.

3.9 Secondary occupation

It was found that, full time fishing activities were not the main occupation for all fishermen; instead of this, majority number of fishermen had their secondary occupation, like small scale business (40%), agriculture (36%) and rickshaw pulling (24%) for their livelihood (Figure 9).
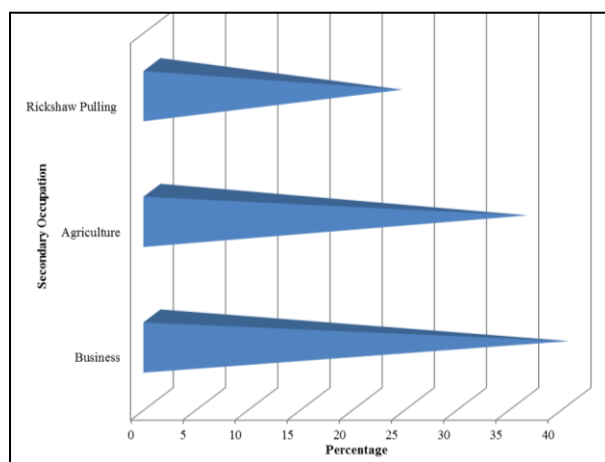

Fig 9: Secondary occupation of fishermen in *Bhatiary*.

3.10 Yearly income

Annual income of fish farmers were varied from 30,000 to 70,000 and BDT above. The selected fishermen were grouped into five categories based on the level of their annual income. The highest percentage (26%) fish farmers earned BDT 30,000 to 40,000 per year and the lowest percentage were, (12%) earned BDT 70,000 and above (Figure 10).
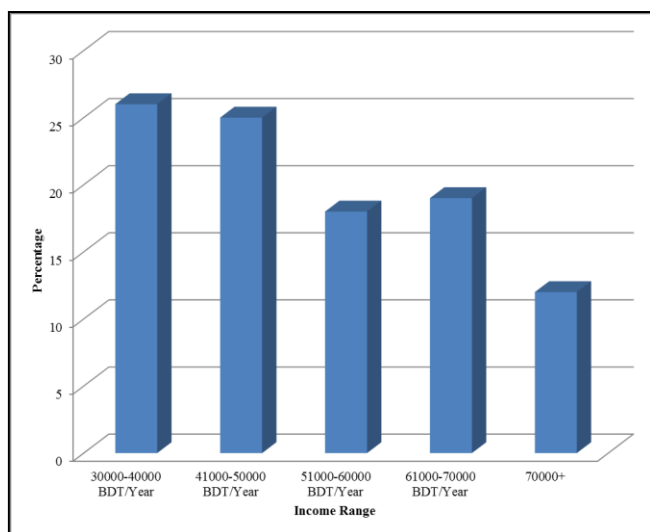

Fig 10: Yearly income of fishermen.

3.11 Medical facilities

In the study area, 67% fishermen took medical facility from village quack doctors, and rest of 33% got from MBBS doctors (Figure 11).
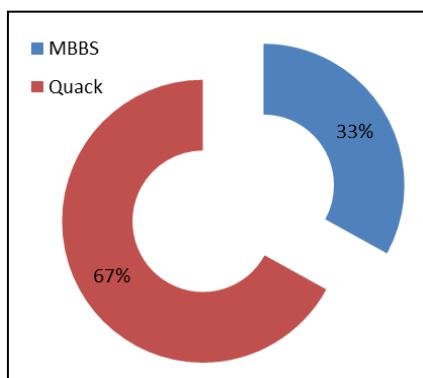

Fig 11: Medical facilities of fishermen in *Bhatiary*.

3.12 Children's education of fishermen

In the study area, 41% fishermen's children got education from government and non-government institution, 59% children did not have education from any kind of institutions (Figure 12).
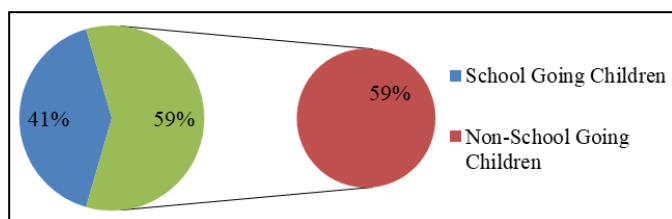

Fig 12: Children's Education condition of fishermen in *Bhatiary*.

3.13 Sources of credits

It was found that 47% of the fishermen used their own money for their financial assistance, 26% of the fishermen received loan from bank and 27% of the fishermen received loan from other sources like different NGOs (Figure 13).
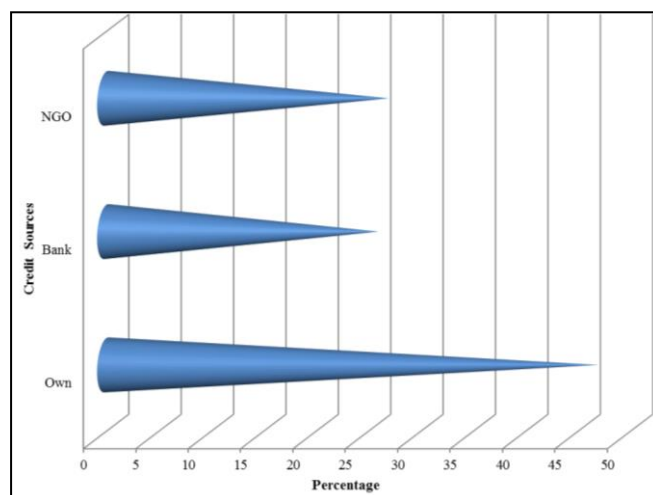

Fig 13: Credit source of fishermen in *Bhatiary*.

3.14 Constrains

Present survey revealed that 78% of the fishermen identified insufficient credit most important problem for any kind of initiative in the study area. Here respondents also identified that lack of weather forecast 10%, pollution (40%), insufficient communication equipment (84%) and insufficient fishing equipment (80%) as constrain in the present study area (Figure 14).
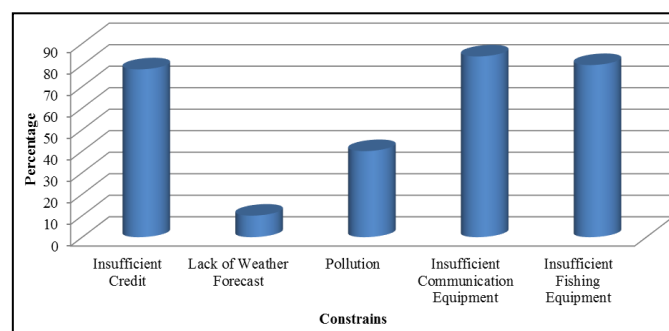

Fig 14: Constraints faced by fishermen in *Bhatiary*.

4. Discussions

Among 100 fishermen, age ranged from 18 to above 60 years. A similar study revealed, 30-40 age groups are dominant as 50% and 46% of total fisher population in two villages of Chittagong [23]. A study found that the highest proportions (36%) of fish farmer were middle aged (31 years-40 years) and above 50 years was the lowest (14%) [1]. Another investigation found that fishing efficiency varied with the age and number of owners of pond in *Tangail* district [20]. Around 30% farmers were 31-35 years old, 31% were between 36-40 years in *Lalmonirhat* district [35]. A study concluded 85% farmer has the age of 40 and above in *Jessore* district [33]. Islam found in *sundarban* the maximum age level was 20-30 years old [18]. [17] revealed 44% farmer had a age level 31-40 years as well as [7] research found the 38% people has an age group of 51-60 years which is similar with the present study and [34] revealed 44% of farmers had age of 36 to 50 years which is more or less similar with present study. There are about 96% of fishermen who had religion status as Muslim; rest of fisher had Hindu (6%) and Buddhist (2%). Similar

findings were found by Mondol *et al.* about 65% Hindu communities and 35% Muslim in *Kattoli* where *Kumira* comprises 80 % Hindu (*lodash*) and 20% Muslim in 2005 along with there are about 45% Hindu communities and 55% Muslim in *Kattoli* where *Kumira* comprises 40 % Hindu (*lodash*) and 60% Muslim in 2018[23]. Islam *et al.* stated, 8% had no education (illiterate), 16% had primary level, 36% had secondary level, 20% had S.S.C. level, 14% had H.S.C. level, and 6% had bachelor level of education in *Meherpur* district [16]. Zaman *et al.* found that 23.3% farmers were illiterate whereas 14.4%, 8.9% and 6.7% were educated up to primary, secondary and higher secondary or above level respectively in *Rajshahi* district [37]. 46% of traders have institutional education [9]; stated 36% had primary level, 42% had secondary level (up to X), 10% had S.S.C. level, 4% had H.S.C. level and 4% had bachelor level of education [7]. Islam *et al.* found most of the respondents (40%) are illiterate. In *Meherpur* another study found 16% farmer had primary level, 36% had secondary level, 20% had S.S.C. level, 14% had H.S.C. level, and 6% had bachelor level of education [16]. Hossain *et al.* mentioned only 18.33% are secondary educated in *Dinajpur* district [14]. Rahman *et al.* mentioned that, 33% of the contact farmers had up to secondary level of education (S.S.C) and only 7% of the contact farmers had masters' degree[26] which is more or less similar with the present study. There are 74% male and 26% female fisher were found in this preset study. A similar study revealed that, in 518 people 266 was male and 252 was female that means the ratio of male and female was 1.05:1 [18]. There were 82% family which belongs to nuclear type status and rest 18% had joint family in the present study area. Similar study revealed, 77% of fish farmer family was jointed and 23% percentage fish farmer family was nuclear. Joint family was predominant in that area [1]. Similar studies were also conducted by [4] in *Mymensingh* district; [6] at *Jhikargacha* in *Jessore*; [9] in *Jessore*; [7] at *Jhikargacha* in *Jessore*; [14] conducted in *Dinajpur*; [33] at *Chaugachha* in *Jessore*; [35] in *Lalmonirhat* district and [36] at *Jhikargacha* in *Jessore* also found the similar family type status in their research. Around 58% fishermen were lived in joint families which are similar with the present study [12, 22]. In the study area houses of fishermen were of two main types as, Tin shed house (68%) and concrete house (32%). Similar study found, 70% of were *katcha*, while 21% were semi-*pucca* and only 9% were *pucca* in *Gazipur* district [29]. Another study also found that 62% of *katcha* housing structure of prawn farmers in *Mymensingh* area [2]. Another study stated around 88% had concrete house in *Jhikargacha upazila*, *Jessore* which is not similar with the study [7]. Around 54% farmers used semi *pucca*, 19% of fish farmers used to live *pucca* houses and rest of 27% farmers used to live earthen houses in *Chaugachha*, *Jessore* [33]. Full *katcha* (17 %) houses were few, while the semi-*pucca* (40%) and *pucca* (43%) houses were more abundant which is similar with the present study [17]. In this present study, there were 88% semi concrete toilet facilities were found among the respondent and rest of 12% fishermen had concrete toilet for hygiene facilities. Hundred percentage of the studied fishermen used tube-wells' water for drinking purposes and among them 64% fishermen had own tube-well and 36% used neighbors tube-well [1]. The highest (100%) fishermen of the Old Brahmaputra River used tube-well water for drinking purposes, among them 40% had their own tube-well, 50% used shared tube-well and remaining 10% used neighbors tube-well[19]. Same study conducted by [6] in *Jessore* district;

[9] in *Jessore* district; [7] in *Jessore* district; [14] in *Dinajpur* district; [33] in *Jessore* district; [27] in *Kushtia* district; [35] in *Lalmonirhat* district; [36] in *Jessore* district; [31] in *Jessore* district and [30] in *Mymensingh* district also they have found the similar results. In a study 20% of toilets were *katcha* while 56% were semi-pucca and only 24% were pacca. A study found that 62.5% of the farmers had semi-*pucca*, 25% had *kancha* (made of bamboo with leaf shelter and inadequate drainage disposal) and 12.5% had *pucca* toilet [4]. Similar study [9] in *Jessore* district; [7] in *Jessore* district; [14] in *Dinajpur* district and [17] in *Jessore* district also found the similar results. It was found in present study that, 54% respondent had a television set belongs to their house, 90% fisher had a portable radio, 48% fishermen had own mobile phone and rest of people use shared one and lastly, only 36% fishermen had CD player in their house for entertainment purpose. Similar study revealed, among them 93% traders have television, 5% house consist radio and another 2% house no instrument for entertainment in their house [9]. About 99% farmers use mobile phone and only 1% has no mobile phone in a *upazila* in *Jessore* and these studies is similar with the present study [33]. In the present study, full time fishing activities were not the main occupation for all fishermen; instead of this, majority number of fishermen had their secondary occupation, like small scale business (40%), agriculture (36%) and rickshaw pulling (24%) for their livelihood. Around 24% took fish farming as their main occupation, 10% in business, 50% in agriculture and 16% in others [1] which was more or less similar to the findings of [3]. [7, 9, 17, 30, 6, 36 and 33] conducted survey on major occupation of fish farmer and their results are more or less similar with the present study. Annual income of fish farmers were varied from 30,000 to 70,000 and BDT above. A study showed average income of fishermen was 15,000-25,000 per month [1]. Likewise study reported that average monthly income from cage culture was BDT 2250 (USD$30). Similar study found, the highest percentage (34%) fish farmers earned BDT 75,000 to 1,00,000 per year [24]. It was higher than the national average BDT 28,430 [10]. The present findings of annual income of fish farmers correspond well with the findings of [28] in *Noakhali* district. Similar study stated that levels of family income are important economic factor affecting utilization of pond fish farming in *Mymensingh* district [21]. In the study area, 67% fishermen took medical facility from village quack doctors, and rest of 33% got from MBBS doctors. Similar study found that 46% of the fishermen received health service from village doctors, 18% from *upazila* health complex, and 14% from district hospital and 20% from MBBS doctors in *Rajshahi* district and some different study also found the similar results with present study [5, 9, 7, 14, 33, 35 and 17]. In the study area, 41% fishermen's children got education from government and non-government institution, 59% children did not have education from any kind of institutions. Researchers studied about farmer's children education and the result is similar with present study [9, 7]. It was found that 47% of the fishermen used their own money for their financial assistance, 26% of the fishermen received loan from bank and 27% of the fishermen received loan from other sources like different NGOs. In *Demra*, Dhaka only 34% farmers got bank loan for fish culture while majority (53%) of farmers expend from their own sources [25]. About 40% farmers got loan from bank whereas 35% farmers took loan from local moneylenders with high interest of credit [32]. Another findings also stated that, 24% farmers got loan

from bank whereas 31% farmers took loan from local money lenders which is similar with the present study [8]. Present survey revealed that 78% of the fishermen identified insufficient credit most important problem for any kind of initiative in the study area. Here respondents also identified that lack of weather forecast 10%, pollution (40%), insufficient communication equipment (84%) and insufficient fishing equipment (80%) as constrain in the present study area. Such kinds of data were not available by any researcher, so further extension related work could be carried out to investigate constrains in the coastal fishermen.

5. Conclusion

The coastal area of *vatiary* has enormous productive due to availability of fishes and other aquatic resources. The fishing communities are recurrently situated in remote regions where no contemporary communication schemes, having a very low progressive and socio-economic influence because lack of education and insufficient equipment's. Proper management and restoration of the aquatic resources may enhance the livelihood of the people and develop the socio-economic condition of the vicinity.

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