



E-ISSN: 2320-7078
P-ISSN: 2349-6800
JEZS 2016; 4(4): 641-646
© 2016 JEZS
Received: 25-05-2016
Accepted: 26-06-2016

Md. Simul Bhuyan
Institute of Marine Sciences and
Fisheries, University of
Chittagong, Chittagong,
Bangladesh.

Aysha Akhtar
Institute of Marine Sciences and
Fisheries, University of
Chittagong, Chittagong,
Bangladesh.

KM Saim
Institute of Marine Sciences and
Fisheries, University of
Chittagong, Chittagong,
Bangladesh.

Md. Shafiqul Islam
Institute of Marine Sciences and
Fisheries, University of
Chittagong, Chittagong,
Bangladesh.

Correspondence
Md. Simul Bhuyan
Institute of Marine Sciences and
Fisheries, University of
Chittagong, Chittagong,
Bangladesh

Present status of socio-economic conditions of the fishing community of the Meghna River adjacent to Narsingdi District, Bangladesh

Md. Simul Bhuyan, Aysha Akhtar, KM Saim and Md. Shafiqul Islam

Abstract

The present study was carried out to assess the livelihood status of traditional fishing community of the Meghna River adjacent to Narsingdi District from September 2015 to March 2016. Data were collected through the well-structured questionnaire survey from Noyapara, Daspara, Birpur and Boiddamara char close to Meghna River. A total of 100 fishermen were selected randomly for interview. The findings of the present study revealed some interesting facts and showed most of the fishermen were Hindus (63%) belong to the age group of 24-45 years. Almost 71% of the fishermen were illiterate and got medical help mainly from village doctors (80%). It was found from the investigation that most of the houses were kacha (65%) and with poor sanitation facilities. For coping with adverse situation most of them (85%) take loan from somiti (Asha). There was a prevalent relationship of contentment of fishermen, children's school, taking risk at work, electricity facilities and medical facilities with the fishing income that was analyzed by One Way ANOVA (SPSS v.22) as the alpha level ($p < 0.05$). Principal Component Analysis (PCA) was done to isolate variables that may be sufficient for socio-economic study and Correlation matrix was done to find out the relation among variables.

Keywords: Socio-Economic, Conditions, Fishing Community, Meghna River, Correlation Matrix

1. Introduction

Predominantly, Bangladesh popularly known as 'land of rivers' [1] and criss-crossed by hundreds of rivers, rich with marine and fresh water resources [2]. There are about 230 rivers and estimated total length of rivers, streams and canals altogether cover more than 24,000 km [3]. Interestingly, riverine fishing areas include approximately one fifth of the entire fishing area of 4.9 million ha of the country [4] that may be considered as dynamic component of the agro-ecosystem of Bangladesh [5]. Moreover, about 12 million people directly or indirectly associated with fishing activities for their livelihood [6]. For subsistence level fishermen and their families, catching fish is often their only source of protein and essential minerals [7]. Fishermen are the essential but the most vulnerable communities live below the poverty line and their livelihood standard is deteriorating with times in Bangladesh. Fisheries sector plays an important role in the national economy of Bangladesh through employment generation, poverty alleviation, supply of animal protein and foreign exchange earnings [8]. It provides 1.78 million people's full-time and part-time employment facilities [9]. This sector also contributes about 60% of the national animal protein intake and 19% percent of the total protein intake in the average Bangladeshi diet [10]. Furthermore, this sector adds about 2.46% of the total export earnings (contribute 4.39% to GDP and 22.76% to agrarian sector). Yearbook fish production was 3.26 million metric tons in the fiscal year 2011-2012 [11] and estimated income was about 70% lower than the per capita income stated by Alam and Bashar [12]. Ironically, Ahmed and Reazuddin [13] have reported that some of the rivers have become biologically and hydrologically dead due to haphazard discharge of domestic sewage, industrial wastes and agricultural inputs. Chambers and Conway [14] have stated that, livelihood is defensible when it can cope with stresses & shocks and enhance its competences to recover from it. Different approaches had been adopted for sustainable rural development and poverty elimination [15]. Scoones [16] has reported that, to eradicate poverty sustainable livelihood is a way of thinking about the ideas, scope and priorities for development. Meghna River close to Narsingdi district is being polluted and industries are the great contributor of wastages. The effluent from these industries severely affecting the aquatic organisms and declining fish hugely.

In some cases, the waters bodies of the river endowed with no fish because of heavy pollution. Unfortunately, there was no systematic research on the livelihood status of this region. For sustainable management of natural resources and building capacity, participation of fishermen needed badly [17-20]. Sustainable and marginalized development of the fishermen largely rely on successful management of water resources.

2. Materials and methods

2.1 Study area

The present study was carried out at Noyapara, Daspara, Birpur and Boiddamara char in Meghna River nearer to Narsingdi district (23°55'28.52"N and 90°45'12.06"E). The survey was conducted from September 2015 to March 2016. All the people of these area are somehow more or less involved with the fishing. Meghna River plays an important role in the improvement of the present life style of fishermen.

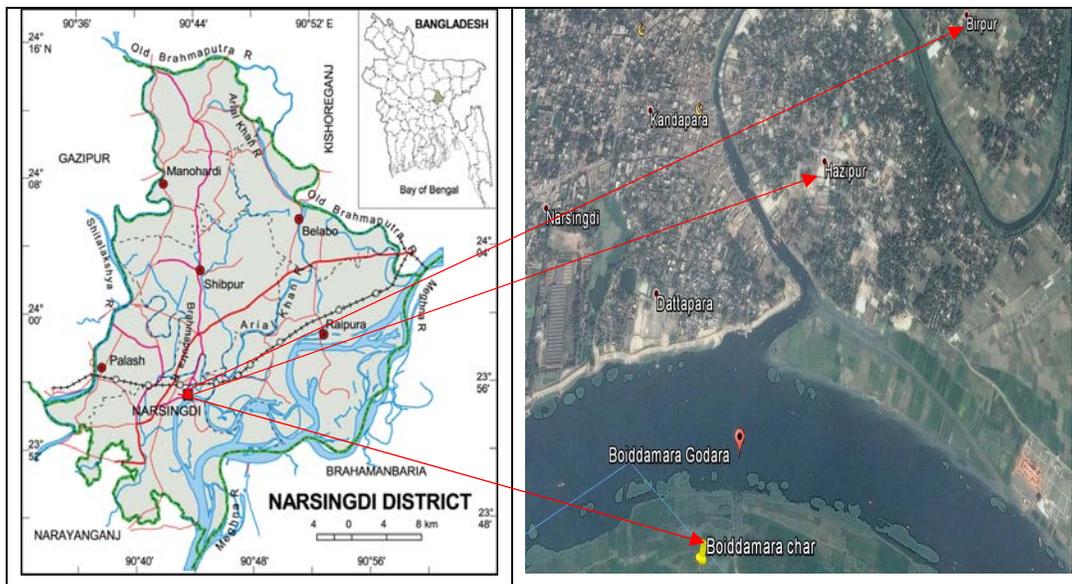


Fig 1: Map showing sampling sites of the Meghna River.

2.2 Data collection

Data were collected using surveys, (FGD) Focus Groups Discussion, PRA (Participatory Rapid Appraisal), RRA (Rapid Rural Appraisal), 100 key informant interviews and direct observations. Questionnaire survey was done for this study and interviewees were selected randomly [21]. The survey design was based on expert advice from local NGO staff and guidelines for collecting baseline fisheries data [22]. To get income and demographic data we used the design drew on regional guidelines [23] and validity recommendations [24].

2.3 Data analysis

One Way Analysis of Variance (ANOVA) was done to show the relationship among the variable. According to Dreher [25], Principal Component Analysis (PCA) was performed on the original data set (without any weighting or standardization). Pearson’s product moment correlation matrix was done to identify the relation among variables to make the result strong obtained from multivariate analysis.

3. Results and Discussion

The present study was carried out to evaluate the livelihood standard of the fishing community of Meghna River. From the study, it was observed that there was a significant relationship of contentment of fishermen, children’s school, taking risk at work, electricity facilities and medical facilities with the fishing income that was analyzed by One Way Analysis of Variance as the alpha level ($p < 0.05$).

3.1 Human capital

In the present research findings, 63% fishermen were Hindus whereas the rest belong to the Muslim (27%) similar to [26-28].

Kabir, [29] found 82% Hindus and the rest 18% Muslims (Fig. 2) at fishermen community of the Old Brahmaputra River. Hannan [30] has reported that, fisherman used to catch fish came from a low caste of Hindu society and most of them are affected by caste system [31].

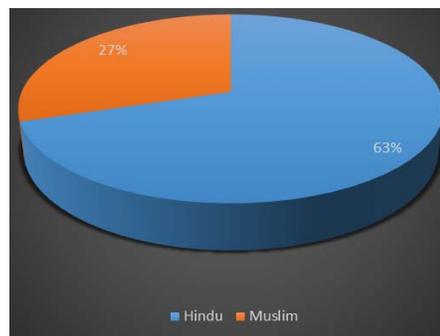


Fig 2: Religion status of the fishermen in the study area

Mainly men (86%) are directly involved with fishing and female (14%) incorporate in fishing. More or less similar result found by Das *et al.* [26] and DoF [32]. Results of the present study indicates that most of the fishermen belong to the age group of 24-45 years (45%). Similar results were found by Minar [33] who conducted research in the Kirtonkhola River nearby to the Barisal town. In the recent findings, it was found that most of the family comprises of 5-6 family members similar to [27, 29]. Most of the families prefer single family (81%) because of poverty. This result more or less similar to the results found by [26, 27, 29, 34]. Unfortunately, in the present study 71% of the fishermen are illiterate while only 4% can sign (Fig. 3).

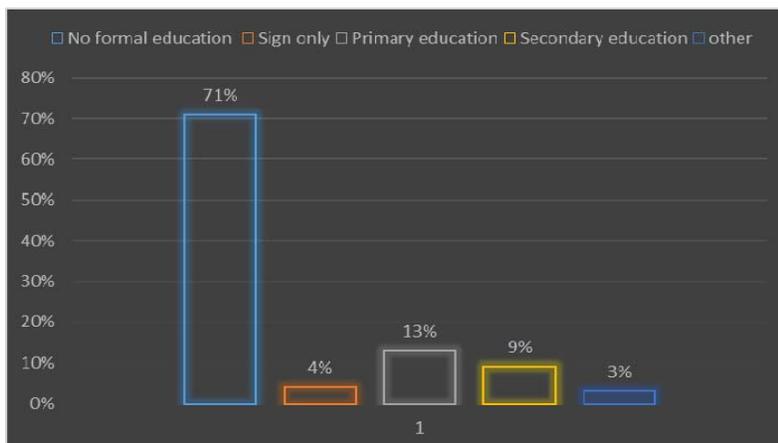


Fig 3: Educational status of the fishermen in the study area

Hossain & Pingali [35] and Shahjahan *et al.* [36] have reported that majority of the fishermen were uneducated (71.12% and 63.33% respectively) while 24.44% and 31.67% of the riverine fishermen had only primary level of education, while only 4.44% and 5% of them had only secondary level of education respectively. These results are fully acquiesced with the present study. According to Hannan [30], most of the fishermen (96.97%) were literate at the multiple phases of education among the coastal fishing community of the Kalapara Upazilla. Ahamed [37] found literacy rates 25% and 23% respectively in the Polder Estuaries. DoF [32] in chanda beel and Ahamed [38] in Tangail recorded literacy rates 45% and 69% respectively.

3.2 Natural capital

The natural capital of the fishermen characterizes the resources such as land, water, timber, wildlife, biodiversity, environmental resources [29]. These resources are essential for fishermen and related groups to support yield [34]. Unplanned and rapid growth of population affected fishermen income that hugely responsible for capital depletion.

3.3 Physical Capital

It was found from the investigation that most of the fishermen were landless (61%) (Fig. 4) and houses were mostly kacha (65%).

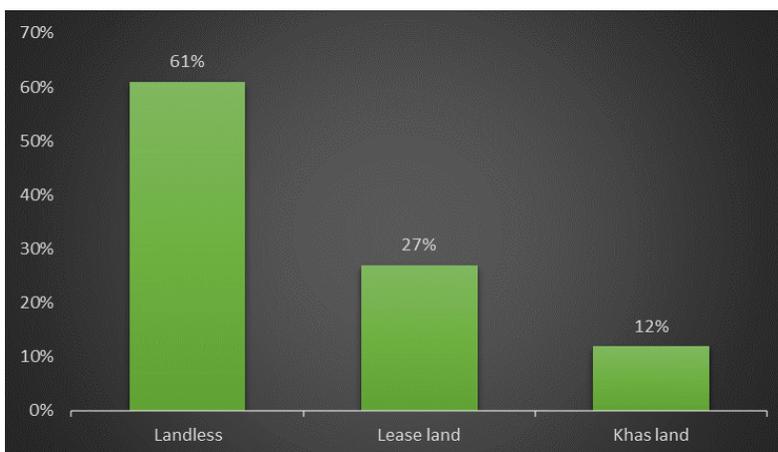


Fig 4: Land ownership status of the fishermen in the study area

Ahamed [38] has reported that 94% fishermen dwell in their own houses while Mannu [39] has reported that 28% of fishermen built houses on the khal land. Alam and Bashar, [12] have documented about 82.22% of households arrangements were kacha of the Basantapur beel fishermen. In the investigated area, it was found that health facilities were very poor and most of them (80%) relied on village doctors (quack). That result quite above the Ali *et al.* [34] and Kabir *et al.* [29]. Fishermen were experienced with various diseases like fever (50%), skin diseases (32%), cold, diarrhoea, jaundice, and typhoid etc. due to using polluted water of the river and having poor sanitary condition. Shamima [28] has reported that 52% of the fishermen suffered from fever in Gollamari fishing communities, Khulna District. Access to the clean and safe drinking water is regarded as the most important fundamentals need in the

society. In the recent study it was found that 100% of fishermen households used tube-well water for drinking purposes (Fig. 5). Among them 52% fishermen used their own tube-well while 48% fishermen used neighbors tube-well. This scenario was quite common among the fishermen in most areas of Bangladesh and similar results were documented by Alam [40]. In the present study, almost 65% latrine were found to be Kacha in the studied area that making the health condition worsen. This study revealed that the sanitary conditions of the fishermen were not so well. Ali *et al.* [34] have reported that 62.5% of the farmers had semi-paka and 25% had kacha in some selected areas of Tarakanda upazila of Mymensingh district. Almost 52% fishermen have access to the electricity which was above the result found by Shamima [28] and DoF [41].

3.4 Financial Capital

Most of the fishermen dwelling close to the Meghna River adjacent to Narsingdi district engaged in fishing as their principal occupation (73%). Nevertheless, some were engaged in agriculture (17%) and day labor (10%) as their core occupation (Fig. 5).

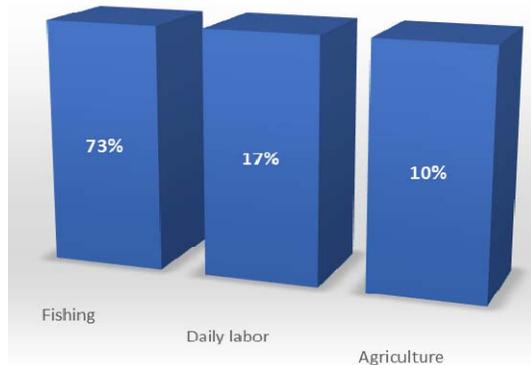


Fig 5: Occupational status of the fishermen in the study area

The findings of the present study were more or less similar to the results found by Kabir *et al.* [29] and Alam and Bashar [12]. Majority of the fishermen possessed no land and completely depended on physical labor. They live by catching fishes during rainy season or engage themselves in other kind of economic activities during dry season. Most of the fishermen have no fixed income and income varies from time to time. The annual income of the subsistence level fishermen ranged from (40000-60000 BDT) (72%). In Northeast Nigeria, about 42% to 70% of rural households are dependent on fishing in Northeast Nigeria that contribute 24-28% of their income [42]. In the present study, fishermen overcome the financial crisis by taking loan from *somiti* (45%), some of them take loan from NGO (12%) and relatives (10%) during the odd situation. These results were found to be similar with the findings of Baki *et al.* [27] and Alam and Bashar [12].

3.5 Correlation Matrix

In livelihood assessment, the inter relationship among variables provide insight about the relationship among variables. The result of correlations between variables acquiesced with the results obtained by PCA and CA that confirm some new relations among parameters. There was significant positive correlation between Lengths of service vs Age of the respondent (0.829), Number of children vs Number of family members (0.744). moderate positive correlation between Number of children vs Age of the respondent (0.540), Children going to school vs Sole earning member of the family (0.523), and weak correlation exist between Is fishing main income source vs Number of family members (0.495), Receive advance money vs Sole earning member of the family (0.345), Satisfaction with present financial benefits vs Satisfaction level in present socio-economic condition (0.321), Type of garden produces vs Having livestock (0.351). On the other hand, moderate negative correlations were found between Children going to school vs. Sole earning member of the family (-0.619), Sole earning member of the family vs. Length of service (-0.541).

3.6 Principal Component Analysis

The extraction method was used to find out the principal components in PCA analysis that was Eigen values. The components were taken as principal components whose

Eigen values were greater than 0.5 were taken into account. 13 PCs were extracted by using correlation matrix. Sole earning member of the family and Children going to school were belonging to PC1. PC2 was declining of catch year to year, Membership to association and PC3 was having livestock. Legal help from police (PC4), source of weather forecast at river (PC5), coping mechanism for declining fish catch and Superstition regarding safety at river (PC6), having saving schemes (PC7), life insurance can reduce risk (PC8), satisfaction with present financial benefits (PC9), common coping strategies for financial difficulties (PC10), life insurance can reduce risk (PC11), having gold jewelry (PC12), Sources of loan available (PC13).

3.7 Nets Used for fishing

The net mostly used in fishing in the study area were Current jal, Ber jal, Thella jal, Jhaki jal, Dharma jal, Borshi etc. in the Meghna River. Similar net patterns were used in the old Brahmaputra river region by the fishermen reported by Kabir *et al.* [29].

3.8 Limitations towards socio-economic development

Illiteracy, population pressure, low economic status and river pollution are the main problems towards socio-economic development for the Meghna river fishermen community. Most of them are illiterate and their children have to detach from school as they live from hand to mouth. Fishermen live below the poverty line from generation to generation and struggle for existence not for develop their condition. In fishermen community, women play role in making diverse types of fishing materials, rearing children, household activities and sometimes in harvesting fish [43]. Both male and female work hard but their socio-economic condition remain same or become worse than past.

4. Conclusion and recommendation

The present study was conducted to assess the socio-economic condition of fishermen living in Noyapara, Daspara, Birpur and Boiddamara char nearby the Meghna River located at Narsingdi district. The fishing communities of the study area were found as the disadvantaged group of the society. They are the people of lower economic strata. The monthly income per fishermen was comparatively lower from the national per capita income. On the whole, the fishermen have to experience with risk and their life passed without refreshment. Their social status is very low. From the findings of the study, the following recommendations can be made to improve the socio-economic condition of the fishermen and thereby improve their well fare.

- Pollution from industries must be controlled.
- Educational institution should be set up in fishing villages to improve their educational status.
- Government should give loans for them at a low interest rate and create alternative job opportunity in off peak season.
- Local government, NGOs should play a vital role for improving sanitation system.
- Increase of public awareness through the various publications and publicity for protecting fishery resources should be done.
- Organization of fishery co-operative society should be done.
- The fishermen should be encouraged to sell their fish to the market directly without involvement of the intermediaries.

5. References

1. Bundell K, Maybin E. After the prawn rush: the human and environmental costs of commercial prawn farming. Christian Aid Report, London. 1996.
2. Rahman AKA. Country report on socio-economic issues in coastal fisheries management in Bangladesh. In: Socio-economic Issues in Coastal Fisheries Management, Proceedings of IPFC Symposium, Bangkok, Thailand, 23-26 November 1993. FAO IndoPacific Fishery Commission, 1994; 8:170-175.
3. Rashid H. Geography of Bangladesh (Second Revised Edition), University Press Limited, Dhaka, Bangladesh, 1991, 529.
4. Huq A, Khan MS, Huq M, Dey HK, Alam SMN, Mahbubullah M. Socioeconomic Study of Typical Fishing Community in Bangladesh. A Report Prepared for the Food and Agricultural Organisation (FAO), Rome, Department of Economics, University of Chittagong, Bangladesh, 1986, 1-10.
5. Sadeque SZ. Capture fisheries and other common property resources in the flood plains of Bangladesh. Journal of social studies. 1990; 55:20-34.
6. DoF. Fisheries Fortnight Compendium, Department of Fisheries, Ministry of Fisheries and livestock, Dhaka, Bangladesh. 2005.
7. Rahman MA, Mondol MN, Hannan MA, Habib KA. Present Status of Fish Biodiversity in Talma River at Northern Part of Bangladesh, International Journal of Fisheries and Aquatic Studies. 2015; 3:341-348.
8. Alam MJ. Socio-economic conditions of haor fishermen a field level study. BRAC university journal. 2005; 2:57-63.
9. Azad SA. Fisheries sector in socio-economic development of Bangladesh, National Fish Week 2015 compendium (In Bengali), Department of Fisheries, Ministry of Fisheries and Livestock, Bangladesh, 2015, 13-23.
10. DoF. Compendium (In Bengali), Department of Fisheries, Ministry of Fisheries and Livestock, Bangladesh, 2014, 144.
11. DoF, National Fish Week 2013 Compendium (In Bengali) Ministry of Fisheries and Livestock, Bangladesh. 2013, 144.
12. Alam MF, Bashar MA. Structure of cost and profitability of small scale riverine fishing in Bangladesh. Journal of Research Progress. 1995; 9:235-241.
13. Ahmed AU, Reazuddin M. Industrial Pollution of Water Systems in Bangladesh, University Press Limited, Dhaka, Bangladesh, 2000, 175-178.
14. Chambers R, Conway R. Sustainable Rural Livelihoods: Practical Concept for the 21st century, Discussion paper, IDS No. 1992, 296.
15. DFID. Sustainable livelihoods guidance sheets, (DFID), London, UK. 1999.
16. Scones I. Sustainable rural livelihoods: a frame work for analysis. IDS working paper No. 72. Brighton: IDS, UK. 1998.
17. Agarwal B. Participatory exclusions, community forestry, and gender: an analysis for South Asia and a conceptual framework. World Development, 2001; 29:1623-1648. doi:10.1016/S0305-750X(01)00066-3
18. Agrawal A, Gupta K. Decentralization and participation: the governance of common pool resources in Nepal's Terai. World Development, 2005; 33:1101-1114. doi:10.1016/j.worlddev. 2005. 04.009.
19. Bhandari BS, Grant M. Analysis of livelihood security: a case study in the Kali-Khola watershed of Nepal. Journal of Environmental Management. 2007; 85:17-26. doi:10.1016/j.jenvman.2006.07.01020.
20. Rew A, Rew M. Development models 'Out-of Place': social research on methods to improve livelihoods in eastern India. Community Development Journal. 2003; 38:213-224.
21. Henry GT. Practical Sampling. SAGE Publications, Newbury Park, CA, USA. 1990.
22. Kronen M, Stacey N, Holland P, Magron F, Power M. Socioeconomic Fisheries Surveys in Pacific Islands: A Manual for the Collection of a Minimum Dataset. Secretariat of the Pacific Community (SPC), Noumea, 2007. New Caledonia, Available at: http://www2008.spc.int/DigitalLibrary/Doc/FAME/Manuals/Kronen_07_SocioFishSurveys.pdf
23. Malleret-King D, Glass A, Wanyonyi I, Bunce L, Pomeroy B. Socioeconomic monitoring guidelines for coastal managers of the Western Indian Ocean. In: Coral Reef Degradation in the Indian Ocean (CORDIO East Africa), 2006. Available at: <http://www.socmon.org/publications.aspx>
24. Fink A. The Survey Kit, 2nd ed. SAGE Publications, Thousand Oaks, CA, USA. 2003.
25. Dreher T. Evaluation of graphical and multivariate methods for classification of water chemistry data. Hydrogeology Journal. 2003. 11:605-606.
26. Das MR, Roy S, Kumar U, Begum S, Tarafder SR. Livelihood assessment of the fishermen community in the south west region of Bangladesh, Journal of Experimental Biology and Agricultural Sciences, 2015; 3:353-361. DOI: <http://dox.di.org/10.18006/2015>.
27. Baki MA, Islam MR, Hossain MM, Bhuiyan NA. Livelihood status and assessment of fishing community in adjacent area of Turag-Buriganga River, Dhaka, Bangladesh, International Journal of Pure and Applied Zoology. 2015; 3:347-353.
28. Shamima A. Socio-economic conditions of fishing community: Gallamary fish market, Khulna. A project thesis in Fisheries and Marine Resource Technology Discipline, Khulna University, Khulna, Bangladesh. 2000, 11-34.
29. Kabir KMR, Adhikary RK, Hossain MB, Minar MH. Livelihood Status of Fishermen of the Old Brahmaputra River. Bangladesh. World Applied Sciences Journal. 2012; 16:869-873.
30. Hannan M. Fisherfolk organization in Bangladesh. In: Socio-economic Issues in Coastal Fisheries Management. Proceedings of the IPFC Symposium, Bangkok, Thailand, 23-26 November 1993; FAO Indo-Pacific Fishery Commission (IPFC), 1994; 8:216-222.
31. Oudwater, Nicoline. The Sustainable Livelihoods Approach and its Relevance for Marketing, Paper presented in the inception workshop on 'Poverty Alleviation and Livelihood. 2001.
32. DoF. Ministry of Fisheries and Livestock, Dhaka, Bangladesh. National Fish Week Compendium (in Bengali). 1993, 144.
33. Minar MH, Arifur AFMR, Anisuzzaman M. Livelihood status of the fisherman of the Kirtonkhola River nearby to the Barisal town. Journal of Agroforestry and Environment. 2012; 6:115-118.
34. Ali H, Azad MAK, Anisuzzaman M, Chowdhury MMR,

- Hoque M, Sharful MI. Livelihood status of the fish farmers in some selected areas of Tarakanda upazila of Mymensingh district. *Journal of Agroforestry and Environment*. 2009; 3:85-89.
35. Hossain M, Pingali PL. Rice research, technological progress and impact on productivity and poverty: an overview. In: Pingali P, Hossain M (Eds.) *Impact of Rice Research*. Proceedings of the International Conference on the Impact of Rice Research, 3-5 June 1996, Bangkok. Thailand: Thailand Development Research Institute and Los Benos (Philippines) and IRRI, 1998, 1-2.
 36. Shahjahan M, Miah MI, Haque MM. Present Status of Fisheries in the Jamuna River. *Pakistan Journal of Biological Sciences*. 2001; 4:1173-1176. DOI: 10.3923/pjbs.2001.1173.1176_
 37. Ahamed N. A study on socio-economic aspects of coastal fishermen in Bangladesh, *Bangladesh journal of Zoology*. 1999; 24:20-26.
 38. Ahamed NU. Reports of the fishermen's socioeconomic survey. Fisheries survey and monitoring program. Department of fisheries, Bangail. 1996, 4.
 39. Mannu MU Jeleder Sukh Dukh. *The Daily Janakantha*, 1999, 40.
 40. DoF, Ministry of Fisheries and Livestock, Dhaka, Bangladesh. *National Fish Week Compendium (in Bengali)* 2012; 144.
 41. Neiland AE, Sarch MT, Madakan S, Ladu B, Jaffry Shabbar, Cunningham S. A socio-economic analysis of artisanal fisheries in North East Nigeria. Portsmouth, *CEMARE*, University of Portsmouth, Report no. R26a, R26b, R26c, 1994, 222-256.
 42. Hossain MM, Baki MA. Freshwater habitats and fishing activities in the Buriganga River, Dhaka,
 43. Bangladesh. *Hydro Medit* 2014, November 13-15, Volos, Greece. 2014, 318-323.