

## A Profilistic Study on Socio-Demographic Position of Fisher's Community around a Heritage State (Kuakata) of Bangladesh

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**Abstract:** Kuakata, a world heritage of Bangladesh has vast water bodies with a huge source of fisheries production. Thus, Kuakata has great influence on livelihoods status of fishermen in the southern district of Bangladesh. Hence, an investigation was instituted to perceive the socio demographic and livelihood status of fisher's community of Kuakata from September 2015 to August 2016 based on the PRP tools. During the study period, a total 200 fishermen were selected randomly to analysis livelihood status. It was found that most of the fishermen (43%) were between 31 to 40 aged groups. Further, based on Pearson's correlation coefficient, a positive relation between age and experience of fishermen were found ( $r= 0.920$ ,  $p= 0.01$ ). Likert scale method was demonstrated to identify constraints of which extortion by the local extortionist and lack of education due to poverty found as the most dominant constraints faced by fishermen. In addition, a problem tree was developed using brainstorming technique in which reduction of fish stock observed as the core problem. In general, fishermen in Kuakata lead a very substandard life. It is, therefore, ineluctable to provide the necessary training facilities with institutional and organizational supports to improve the livelihood condition of fisher's community.

**Key words:** Kuakata • Fishermen • Livelihood • Pearson Correlation • Likert Scale • Constraints

### INTRODUCTION

Fish and Fisheries sector play an utmost important preface on the socio-economic development of country as a whole from time immemorial and it is the part of our cultural heritage [1-9]. Natural water resources like rivers, estuaries and vast marine water have procreated considerable employment opportunities in Bangladesh

through the production of fish and associated activities [10-18]. The role of fisheries sector to national economy has always been significant [19-26] It is considered as the main source of animal protein, employment opportunities, food security, foreign incomes and socio-economic improvement [27-33]. This sector contributes about 60% of animal protein to the daily diets of the population, about 3.57% to GDP, 25.30% to agriculture GDP and

accounts for about 11% of the total employment of Bangladesh [7, 34, 35]. It has already been renowned as a vital income and employment generating sector in Bangladesh, as cheap sources of healthy food for the population of the country [36-38].

A livelihood is a means of making a living and securing the basic necessities through a set of activities, involving securing water, food, fodder, medicine, shelter, clothing and the capacity to acquire above necessities working either individually or as a group by using endowments for meeting the requirements of the self and his/her household on a sustainable basis with dignity [39-41]. A livelihood is a sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in future, while not undermining the natural resource base [42-46]. For sustainable rural development and poverty elimination, different approaches had been adopted and the sustainable livelihood approach has been gradually expanded with its own core and principles for poverty focused development activities [47-49]. A sustainable livelihood is a way of thinking about the objectives, scope and priorities for development, in order to enhance progress in poverty elimination [50].

Kuakata, a natural heritage of Bangladesh is considered as the most suitable habitats for both migratory and non-migratory fish species from different water bodies (Rivers, estuaries, mangrove and marine) of southern Patuakhali. The region also has vast coastal water bodies which stand as a support of livelihood of thousands of fishermen and plays a very important role in alleviation of rural poverty and supplying food to the poor fishing community [51]. However, the fishermen of the country are one of the most vulnerable communities due to lower economic income than the per capital income of the country as a whole [18]. As a result, socioeconomic status of this fisherman is not satisfactory; production of fish in this river is also declining day by day. Considering the above fact, the present study was instituted to perceive the socio-demographic status and constraint faced by the fishermen in the area.

#### MATERIALS AND METHODS

**Study Area:** The present study was conducted to perceive the socio-demographic and livelihood status of the fishermen around Kuakata sea beach under Patuakhali District, Bangladesh (Fig. 1). It is located in the

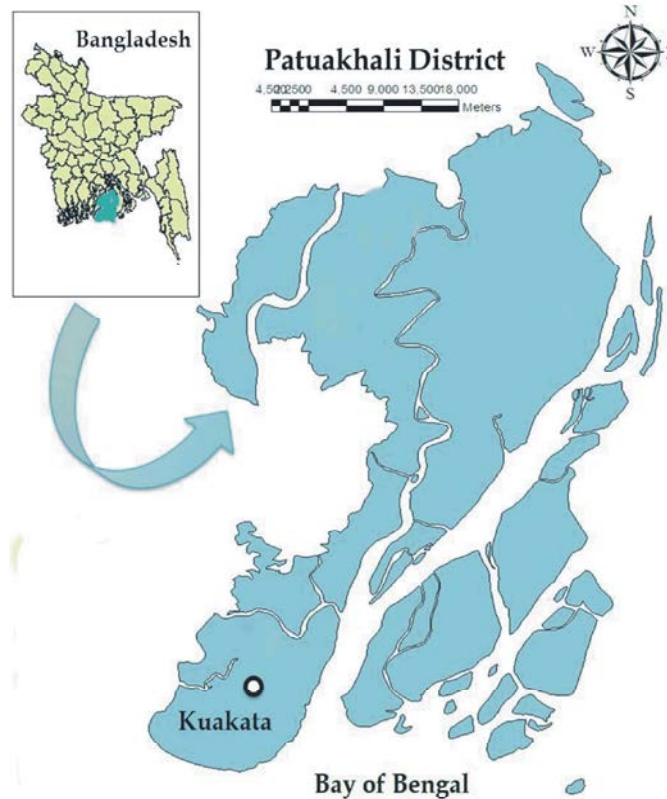


Fig. 1: Geographical location of study areas

southwestern region of the country. It is situated at the 21°48'55.98" north latitude and 90°07'18.62" east longitudes by its municipal central zero point.

**Selection and Category of Fishermen as Sample:** Two hundred (200) fishermen were randomly selected from Kuakata and categorized into several groups on the basis of their socio-economic position.

**Period of Study:** The study was based on both primary and secondary data. Both data were collected during the month of September 2015 to August 2016. The samples and data were collected weekly throughout the study period.

**Collection of Data:** During collection of data, both primary and secondary sources were considered. Primary data were collected from fishermen. Several visits were made to the study area to collect accurate information related to objectives of the study through questionnaire.

For data collection, a set of interview schedule was designed. Data were collected from the fishermen using questionnaire interviews, Participatory Rural Appraisal (PRA) tools such as Focus Group Discussion (FGD) and Cross-check interview with key informants.

The secondary data was collected from Upazila fisheries office, fish aratdar, fish trader and from the online documents.

**Analytical Technique of the Study:** The collected data was summarized and processed for analysis. These data were verified to eliminate all possible errors and inconsistencies. Data was analyzed by SPSS software (Version 16.00) and MS excel 2010 and then presented in textual, tabular and graphical forms to understand the current livelihood status of fisher's community of the studied area.

Likert scale with values of 4, 3, 2 and 1 was settled to determine constraints faced by fishers in the area. In this way the fishermen were enquired to rate their constraint as "very critical" "critical" "to some extent critical" and not "critical". The variable mean score of 2.5 was used to ascertain whether the factor in question was critical or not. The variables with mean score of 2.5 and above were considered critical while variable with less than 2.5 were not.

## RESULTS AND DISCUSSION

### **Pearson's Correlation among the Different Variables:**

Age and experience of fishermen were strongly positively correlated ( $r = 0.938$ ,  $p = 0.01$ ), which shows the experience of fishermen gradually increased with the passing of year. Hossen *et al.* [18, 21] revealed similar results from the fishermen of Sugandha and Kirtankhola River. Partial correlations within different variables are presented in the Table 2. Figure 2 demonstrated the strong relationship between age and experience. Age and education was positively correlated ( $r = 0.704$ ,  $p = 0.01$ ) which predict that majority middle aged fishers were primary educated than older. Age and income were positively correlated ( $r = 0.231$ ,  $p = 0.01$ ) which predict that, saving was dominated by youth. Figure 3 indicates higher saving for middle age fishers but poor savings for both child and old aged fishers. Present findings exposed positive relationship between age and saving ( $r = 0.084$ ,  $p = 0.01$ ) which predict that saving was improved at the certain age level but when they became old, they were not proficient to save as like as the youth. Education and saving exhibited the positive correlation ( $r = 0.169$ ,  $p = 0.01$ ) which denoted that educational knowledge enforced to improve sanitation. Income and savings presented the strongly positive correlations ( $r = 0.808$ ,  $p = 0.01$ ) because saving always depended on income.

**Age Distribution:** The fishermen were classified into five age groups ranged from below 20 years to above 51 years. Present study revealed the highest numbers of people were 31 to 40 years (43.33%) and lowest (6.67%) were below 20 years age group. Ali *et al.* [9] in Lohalia River and Ahmed [28] in coastal region reported 60% and 70% under 40 years age, respectively.

**Religious Status:** Muslims were featuring as the absolute majority (90%) of the fishermen and the minorities of them were Hindu (10%). Samima [52] stated 14.33% Hindus and 85.67% Muslims fishermen in Galamary fishing community.

**Family Type:** Families of the fishermen were categorized into two categories as nuclear family and joint family. It was found that, 65% fishermen family belongs to unit family and 35% of families jointed. About 84% fishermen families were jointed and 16% families were unit family in the Paira River [53].

Table 1: Socioeconomic characters of fishermen in Kuakata fishing community

Capital	Pattern	Number of respondents	Percentage (%)	Cumulative percentage (%)
Types of fishermen	Professional	156	78	78
	Subsistence	44	22	100
Age distribution	Below 20 years	14	6.67	6.67
	21-30 years	40	20	26.67
	31-40 years	87	43.33	70
	41-50 years	46	23.33	93.33
	Above 51 years	13	6.67	100
Gender profile	Male	190	95	95
	Female	10	5	100
Religious status	Muslim	180	90	90
	Hindu	20	10	100
Family Type	Unit family	130	65	65
	Joint family	70	35	100
Educational Status	No education	60	30	30
	Can write name	46	23	53
	Primary level	60	30	83
	Secondary level	34	17	100
Source of income	Fishing	140	70	70
	Processed fish	16	8	78
	Agriculture	14	7	85
	Day labor	20	10	95
	Others occupation	10	5	100
Annual income	Highest	30	15	15
	Medium	54	27	42
	Lowest	116	58	100
Saving	Yes	50	25	25
	No	150	75	100
Fishing assets	i) Fishing gears			
	Nets	154	76.67	76.67
	Traps	46	23.33	100
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	ii) Fishing crafts			
	Trawler	80	40	40
	Boat	94	46.67	86.67
	Without crafts	26	13.33	100
Housing Condition	Tinshed	160	80	80
	Kacha	40	20	100
Sanitary Facilities	Semi-pucca	140	70	70
	Kacha	60	30	100
Health Facilities	Village doctors	160	80	80
	Kabiraj	40	20	100
	Upazila hospital	0	0	100
Electricity Facilities	Present	54	26.67	26.67
	Absent	146	73.33	100
Drinking Water Facilities	Tube-well	146	73.33	73.33
	Other sources	54	26.67	100
Communication facilities	Good	34	16.66	16.66
	Moderately good	50	25	41.66
	Bad	116	58.34	100
Recreational facilities	Television	40	20	20
	Radio	90	45	65
	Others	70	35	100
Land status	1-10 decimal	120	60	60
	11-20 decimal	50	25	85
	21 to above	30	15	100
Marital status	Married	186	93	93
	Unmarried	14	7	100
Credit facilities	Govt.	70	35	35
	Non-govt.	130	65	100
Training received	Yes	46	23	23
	No	154	77	100

Table 2: Partial correlation among different variables fishermen

Variable	r value	P value
Age and experience	0.938	0.01
Age and education	0.704	0.01
Age and income	0.231	0.01
Age and house	0.359	0.01
Age and saving	0.084	0.01
Education and sanitation	0.169	0.01
Sanitation and family type	0.358	0.01
Education and training	0.049	0.05
Education and house	0.276	0.05
House and sanitation	0.715	0.01
Family type and sanitation	0.358	0.01
Training and income	0.804	0.01
Income and saving	0.808	0.01
Training and saving	0.956	0.01
Income and sanitation	0.108	0.01
Income and house	0.075	0.01

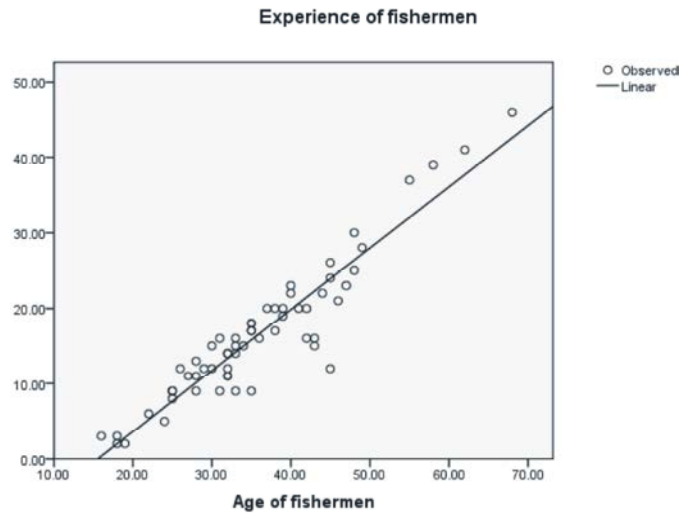


Fig. 2: Regression curve of the age and experience

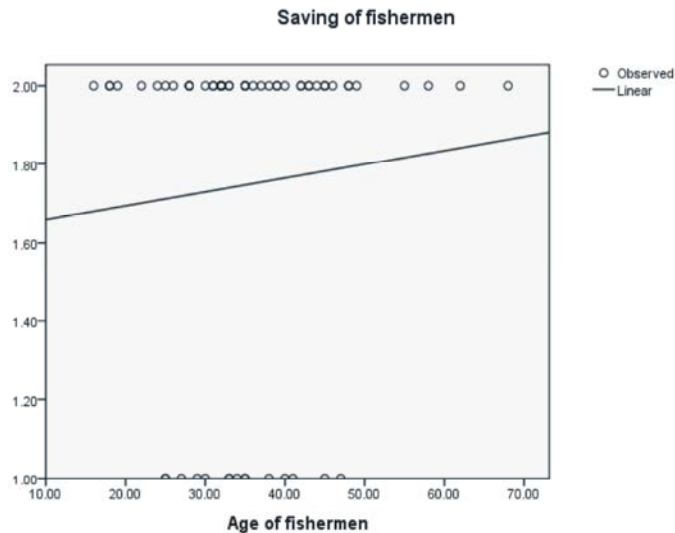


Fig. 3: Regression curve of age and income fishermen

**Educational Status:** Most of the fishermen in the study area are illiterate. However, ability of writing name was considered as literate (23.33%). There were maximum people who had passed primary (30%) and some had no education (30%). Ahamed [28] in Sundarbans and Mahbubullah [54] in the polder fishing communities obtained literacy rates 25% and 23% respectively which is more similar to the present study.

**Occupational Status:** It was revealed that the main occupations of the people were fishing (70%), while only 7% were involved in agriculture. Raju [55] found that agriculture was the main occupation of 51% fishermen in Sailkupa Upazila under Jhenaidah district. Ahmed [29] found that about 34% fishermen depending on fish farming as subsidiary occupation in Tangail.

**Average Monthly and Annual Income of Fishermen:** From the present study, it was found that the average monthly income of the fishermen was BDT 5500-6000. The average annual incomes of the fishermen were varied from 60,000-70,000 BDT which indicating better than national average income at BDT 22,000. Raju [55] reported that maximum fish farmers (37%) yearly income was between 10 to 30 thousand (TK) in Sailkupa Upazila under Jhenaidah district.

**Housing Condition:** From the present study, it was evident from data that 80 % of fishermen were lived in the tin shed house whereas 20% had kacha house respectively. According to Khan *et al.* [56] fishing community near Tista River had 83% kacha and 3% semi pucca house respectively. 62% of fisherman house structure was kacha in Mymensingh reported by Rabbani [57] which is not similar to the present findings.

**Sanitary Facilities:** Sanitation facilities were very low in the study area. Most of the people (70%) are used semi-pucca latrines (made of tin or wood with inadequate drainage system) and rest (30%) used kacha and no fisherman had pucca latrine. Akter [58] recorded that 64% use semi pucca latrine in Chalan beel under Sirajgonj district which is relatively similar to the present study.

**Health Facilities:** Health facilities of the fishermen were very poor and it was found that 80% of the fishermen households were dependent on village doctors and rest 20% dependent on kabiraj who did not have any understanding and knowledge of medical science. Sharker and Alam [59] found that 64% of the fishermen in

Mohipur under Patuakhali district were dependent on unskilled village doctors who have no knowledge of medical science. On the contrary 24% of the fishermen were depend kabiraj and 12% getting standardized health service from the Upazila health complex.

**Electricity Facilities:** It was found that the majority percentage of households had no electricity connection (73.33%) and minority (26.67%) percentage of households had electricity connection. Samima [52] reported that 20% used electricity in Gallamary fishing community, Khulna which is more or less similar to the present findings.

**Drinking Water Facilities:** The provision of clean and safe drinking water was considered to be the most valued elements in the society. Of the total 60 fishermen interviewed most of them (73.33%) used tube-wells water for drinking purposes which indicates positive sign for sound health and the rest 26.67% used drinking water from other sources. The great majority of fishermen used Government tube-well in Schools area and the remaining part used own and shared or neighbor tube-well to collect drinking water which is almost identical to the findings of Ali *et al.*, [9].

**Livelihood Constraints of the Fishermen:** Most of the fishermen were facing various problems during fishing and marketing their goods in the local market. The main problem was documented as extortion by the local extortionist. Most of the fishermen were very poor and they have limited resources to buy nets and other fishing equipment's. They are ignored in all respect in the society.

The Likert scale technique [22, 27] was used to analyze Table 3. Table discovered extortion by the local extortionist, Disturbances by dacoits and thieves, Lack of education due to poverty, Climate changing problem and Lack of sufficient fishing craft was critical in the studied area. On the other hand, Lack of fishing gears, Household pressure for large size family, Lack of credit facilities, Lack of training facilities, Lack of marketing facilities and Poor housing condition was not critical in the studied area.

**Problem Tree Analysis:** A problem tree analysis is a bottom up approach which gives a diagrammatic presentation of the problem, its causes and effects, was employed to find the reasons for decline in fisheries resources and its effect on the living standard of fisher's community [9]. In the present study, brainstorming technique was applied to analysis the problem of fisher's

Table 3: Constraints faced by the fishers in the Kuakata

Constraints	To Sum				Scores	Points	Remarks
	Very critical	Critical	Extent Critical	Not critical			
Lack of sufficient fishing craft	28	12	14	6	182	3.03	Critical
Lack of fishing gears	8	12	7	33	115	1.92	Not critical
Household pressure for large size family	5	11	10	34	109	1.82	Not critical
Climate changing problem	15	20	25	00	170	2.83	Critical
Lack of credit facilities	4	16	11	29	115	1.92	Not critical
Lack of training facilities	6	11	24	19	124	2.07	Not critical
Lack of education due to poverty	30	21	6	3	198	3.30	Critical
Poor housing condition	12	21	6	21	127	2.12	Not critical
Lack of marketing facilities	7	9	13	31	112	1.87	Not critical
Disturbances by dacoits and thieves extortion by the local extortionist	44	14	2	00	222	3.70	Critical

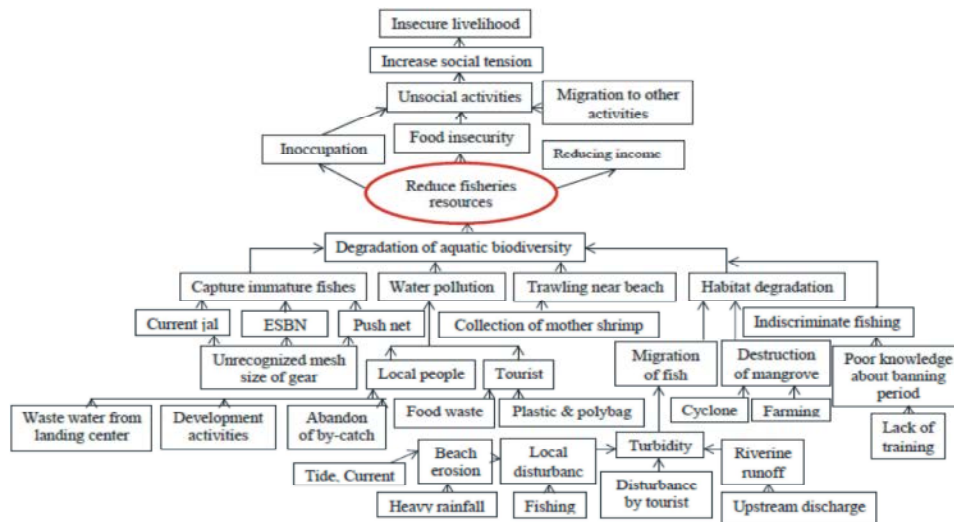


Fig. 4: Problem tree analysis indicating the causes of reduction of fisheries production at the Rivers of Kuakata

community around Kuakata (Figure 4). Kuakata is a well-known tourist spot due to its unique nature. To attract more tourists, different developmental activities (restaurants, bridges, residential hotels etc.) are a common scenario. Large quantities of contaminants (food waste, plastic, polybags etc.) are then produced as an ultimate result of these activities which causes reduction of fish species. Further, mangrove forest at Kuakata also represents as a feeding, breeding and nursery ground for important aquatic species especially Shrimp. So, trawling near beach is applied to collect mother shrimp as well as larvae of shrimp which causes turbidity and beach erosion. Unrecognized mesh size of gears responsible for large scale destruction of immature fish species. All these causes significantly ‘reduce fisheries resources’ which found as a core problem during the preparation of problem tree. Finally, shortage of food, job sector and reduction of income are converted the fishermen to unsocial activities which causes insecure livelihood and subnormal of living.

**CONCLUSION**

The present livelihood status of the fishermen in this region was not satisfactory. The fishermen were deprived of many amenities. They were not aware of proper sanitation system, education, housing condition, nutritional status and even their health conditions. If the fishermen get proper training programs, credit facilities on easy terms and condition, more profitability would be reflected. It is therefore recommended that Government and other support organizations should take initiatives to uphold their socioeconomic condition. The Government should take some important stage by providing some sorts of management policy as well as providing of some extra providence during the ban season of the fishing. The NGO’s must be helpful about the providence of the loan which may be used for the up gradation of the income procedure.

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