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Participation of Coastal Fishermen in Alternative Livelihood Activities under a Development Intervention in Teknaf Peninsula

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Abstract

The paper attempts to make a preliminary evaluation of the Coastal and Wetland Biodiversity Management Project (CWBMP) in terms of coastal fishermen's participation in alternative livelihood activities towards biodiversity conservation. The study was conducted in Teknaf Peninsula under Cox's Bazar district while 112 randomly selected coastal fishermen from a population of 455 were interviewed by using a structured interview schedule in April 2008. A 4-point rated scale was used to measure the extent of participation of the respondents in eight alternative livelihoods activities which included cultivation of field crops, cultivation of vegetables in homestead, cultivation of vegetables in field, cultivation of fruits in homestead, cultivation of fruits in fields, plantation of timber plants in hilly areas, plantation of other plants in hills and homestead, and other alternative livelihood activities. The result showed that the coastal fishermen had highest participation in cultivation of vegetables in fields followed by fruits in homestead, cultivation of field crops and other livelihoods activities. The remaining alternative livelihood activities were not significantly practiced by the respondent fishermen. Majority (56.3%) of the fishermen had moderate level participation while 33.9% had low level participation in different livelihoods activities. Among the ten selected characteristics of the respondents, education, farm size, family size, annual income, extension media exposure, and social participation were positively and significantly related to their level of participation in alternative livelihood activities. On the other hand, age, cosmopoliteness, organizational participation, and training exposure did not show any significant relationship with the respondents' participation in alternative livelihood activities.

Keywords: *Coastal fishermen, biodiversity, alternative livelihood activity, CWBMP*

Introduction

Bangladesh has the world's longest beach (710 km) along the Bay of Bengal, filled with a rich and unique coastal biodiversity. It has a great natural ecosystem value in terms of scientific interest, and because of its outstanding aesthetic value. It also provides multiple renewable resources of direct economic benefits to the nation. But mainly due to coastal people's heavy dependence on coastal resources for their livelihoods and an ever increasing population in the area, the resource extraction has become so high that

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entire coastal biodiversity and resource bases are in jeopardy.

In order to maintain an effective management of biodiversity of the ECAs, the Government in 2003 undertook the "Coastal and Wetland Biodiversity Management Project" (CWBMP) for the ECAs of Sea front of Cox's Bazar and Teknaf, Sonadia Island, Saint Martins Island and Hakaluki Haor. The project has been funded by the GEF (Global Environment Facility) under the supervision of UNDP, while the DoE (Department of Environment) under the Ministry of Forest and Environment has been working as the implementing authority. With the participation of local people, the CWBMP is implementing several activities towards sustainable management of coastal biodiversity; the activities include protecting the natural habitat of animals, extending eco-friendly agriculture, awareness campaign and motivational drive, application of laws, facilitating eco-tourism, creating opportunities for alternate livelihood activities etc (GOB/GEF/UNDP, 1999).

An important precondition of preserving coastal biodiversity is to reduce people's dependency on coastal resources. As fishing is one of the most important resource utilizing livelihoods activities in the coastal area, the CWBMP gives emphasis on increasing coastal fishermen's participation in alternative livelihood activities by providing various supports (training, inputs, result and method demonstration etc.) with the help of the project's partner NGOs. Participation of coastal fishermen is of crucial importance for the success of any biodiversity management programme. Their participation in alternative livelihood activities is expected to have substantial impact on their livelihoods and income generation. As it is expected that the CWBMP activities should have significant influence on coastal fishermen's participation in alternative livelihoods activities in different ECAs, the researchers deemed it appropriate to conduct a research on the real success of this issue. It is not possible to measure success of any development intervention without having research based information. In this context, the researchers deemed it important to have a study on participation of coastal fishermen in alternative livelihood activities. Therefore, the main purpose of this paper is to determine and describe the nature and extent of participation of coastal fishermen in alternative livelihood activities and to explore the relationship between their selected characteristics and extent of participation.

Methodology

Study locale, population and sample: The study was conducted in Teknaf upazila under Cox's Bazar district where NACOM (Nature Conservation and Management), a partner NGO of CWBMP, had been involved alternative livelihood activities for the local fishermen since 2006. The NGO organizes local fishermen under a community based organization named Village Conservation Group (VCG). Among the 455 members in Teknaf upazila, 112 (i.e., approximately 25%) were randomly selected as the sample of the study.

Instrument for data collection: An interview schedule was prepared, where the items were arranged in order to objectives of the research and following the procedures of

measurement of different variables. Data were collected from the selected fishermen by face to face interview during March-April, 2008.

The variables and their measurement: Eleven selected characteristics of the fishermen were selected as the independent variables of the study. These characteristics were: age, education, family size, farm size, annual family income, cosmopoliteness, extension media exposure, experience in alternative livelihood activities, organizational participation, social participation and training exposure. The variables were measured by following standard procedures.

Participation of fishermen in alternative livelihood activities was the dependent variable of the study. This was measured on the basis of coastal fishermen's participation in eight selected alternative livelihood activities. A 4-point rated scale was used for the measurement, where a respondent was asked to indicate her/his level of participation in eight livelihood activities by choosing one of four possible responses. The possible responses in the scale representing levels of participation were "never", "rare", "occasional", and "regular" while the assigned scores for the responses were 0, 1, 2, and 3 respectively. Thus, the overall participation scores, obtained by summarizing the scores of all eight alternative livelihood activities, could be ranged from 0 to 24, 0 indicating no participation and 24 indicating highest level of participation.

Findings and Discussion

Level of participation in alternative livelihoods activities

Results concerning coastal fishermen's level of participation in eight alternative livelihood activities have been presented in Table 1. Data presented in Table 1 reveal a number of important information. Firstly, the majority of the fishermen preferred cultivation of vegetables in field and homestead as the most suitable alternative livelihoods activity in the expense of fishing in the sea. Secondly, cultivation of fruits in homestead and cultivation of field crops are the other important alternative livelihood activities. That means the traditional agricultural practices could be seen as the best alternatives for the coastal fishermen and they preferred to do alternative activities in their own land or land where they had some sorts of right. This might be the reason that the utilization of hilly areas for alternative livelihoods activities was not preferred by the respondents in the study area.

Overall participation in alternative livelihood activities

The overall participation score of a respondent was realized by adding her/his obtained scores in all eight alternative livelihood activities. The computed overall participation scores ranged from 0 to 20 against the possible range from 0 to 24, while the average score and standard deviation were 9.35 and 4.30 respectively. Based on their participation score the respondents were classified into four categories as shown in Table 2.

Table 1. Coastal fishermen's participation in eight alternative livelihood activities

Alternative livelihood activities	Respondents (N = 112)			Mean	Standard deviation
	Participation	No.	%		
Cultivation of field crops	Regular	33	29.5	1.17	1.33
	Occasional	11	9.8		
	Rare	10	8.9		
	Never	58	51.8		
Cultivation of vegetables in field	Regular	67	59.8	2.17	1.17
	Occasional	17	15.2		
	Rare	8	7.1		
	Never	20	17.9		
Cultivation of fruits in field	Regular	12	10.7	0.79	1.03
	Occasional	14	12.5		
	Rare	24	21.4		
	Never	62	55.4		
Cultivation of vegetables in homestead	Regular	34	30.4	1.52	1.21
	Occasional	23	20.5		
	Rare	22	19.6		
	Never	33	29.5		
Cultivation of fruits in homestead	Regular	20	17.9	1.37	1.00
	Occasional	24	21.4		
	Rare	45	40.2		
	Never	23	20.5		
Plantation of timber plants in hilly areas	Regular	8	7.1	0.80	0.94
	Occasional	16	14.3		
	Rare	34	30.4		
	Never	54	48.2		
Plantation of other plants in homestead and hilly areas	Regular	5	4.5	.44	0.81
	Occasional	8	7.1		
	Rare	19	17.0		
	Never	80	71.4		
Other alternative livelihoods activities (day labour, rickshaw pulling, small business, service, salt cultivation etc.)	Regular	33	29.5	1.03	1.35
	Occasional	4	3.6		
	Rare	8	7.1		
	Never	67	59.8		

The Table shows that majority of the respondent coastal fishermen (56.3%) had a moderate level of participation in alternative livelihood activities while nearly one third (33.9%) had a low level of participation. Only 7.1% of the respondents were reported to have high level of participation, while 2.7% had no participation at all in alternative livelihood activities. As the CWBMP intervention regarding alternative livelihood activities was in effect in the study area only for less than two years, it could be concluded that the result was not discouraging considering the time required for a success of such project intervention. On the other hand it was a positive indication that about 7% fishermen had a high level of participation in these alternative livelihoods activities. From these observations we can arrive at a conclusion that if CWBMP supports continues for several years, it will be positive to bring all coastal fishermen under the practices of alternative livelihoods activities.

Table 2. Distribution of coastal fishermen according to their participation in alternative livelihood activities

Categories with score range	Respondents (N = 112)		Mean	Standard deviation
	No.	%		
No participation (0)	3	2.7	9.35	4.30
Low participation (1-8)	38	33.9		
Moderate participation (8-16)	63	56.3		
High participation (17-24)	8	7.1		

Selected characteristics of the coastal fishermen

The salient features of the ten selected characteristics of respondents along with their unit and method of measurement have been presented in Table 3. Data presented in Table 3 show that the coastal fishermen were relatively younger and possessed lower level of education in average. Although they had relatively small sizes of cultivable land and bigger family sizes, their average family income was not very low mainly because of occupation of more than one member of the families. The respondents' average scores in cosmopoliteness, extension media contact, organizational participation, social participation, and training exposure were better than expected. The reason was their involvement in CWBMP through different awareness programmes and social activities of their community based organization (VCG).

Table 3. Salient features of the selected characteristics of the coastal fishermen

Characteristics with measuring units	Score range		Mean	Standard deviation
	Possible	Observed		
Age (Year)	Unknown	19-75	32.83	11.16
Level of education (Year of schooling)	0-16	0-15	3.71	3.61
Family size (Number)	Unknown	2-21	7.32	3.33
Farm size (Hectare)	Unknown	0-3.76	0.67	1.30
Annual family income ('000' Tk.)	Unknown	22-1,177	119.71	148.08
Cosmopoliteness (Scale score)	0-18	3-17	9.41	2.80
Extension media exposure (Scale score)	0-42	4-33	16.23	6.43
Organizational participation (Year)	Unknown	1-76	10.20	9.99
Social participation (Scale score)	0-18	1-14	8.80	2.59
Training exposure (Day)	Unknown	0-54	5.08	7.87

Relationships between dependent and independent variables

Pearson's Product Moment Coefficient of Correlation (r) was computed in order to explore the relationships between the selected characteristics of the coastal fishermen and their participation in alternative livelihood activities. The results of correlation tests between the concerned variables have been presented in Table 4. The Table clearly shows that coastal fishermen's level of participation in alternative livelihood activities had significantly positive relationships with their education, family size, farm size, annual family income, extension media exposure, and social participation. Other characteristics except age showed positive sign although the relationships were not statistically significant. The correlations test indicate that peoples with higher education, higher family size, higher farm size and higher annual income had more

opportunities to participate in alternative livelihoods activities at the expense of fishing in the sea. On the other hand, more exposure to extension media, social participation (and although not significant, organizational participation) and training exposure are the important characteristics in determining one's enhanced participation in alternative livelihood activities.

Table 4. Relationships between the selected characteristics and their participation

Selected characteristics of the coastal fishermen	r-value with 110 d.f.
Age	-0.092
Education	0.198*
Family size	0.311**
Farm size	0.379**
Annual family income	0.236*
Cosmopoliteness	0.097
Extension media exposure	0.334**
Organizational participation	0.178
Social participation	0.247**
Training exposure	0.051

**, **= Correlation is significant at 0.05 and 0.01 levels, respectively*

Conclusion

Although the CWBMP activities in the study area had been in action for less then two years, which is not enough time to assess impact of a development intervention, it could be concluded that the coastal fishermen were positively adopting suitable alternative livelihood activities. This might be considered as a good sign of achieving project objective of sustainable coastal biodiversity management. On the other hand, it was found that the fishermen, if necessary incentives provided, preferred agriculture related livelihoods activities as their alternative occupation. Proper opportunity and support in this area in the forms of input, training and financial support will definitely increase their future involvement in agricultural activities. Appropriate motivational campaign, extension support and involvement in community based organization, along with educational programme, might be instrumental to further success of any resource management and biodiversity programme like CWBMP.

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Reference

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