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Problems Faced by the Coastal People in Biodiversity Conservation and Management Activities in St. Martin's Island, Bangladesh

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Abstract

The main purpose of this study was to determine the problems faced by the coastal people of the St. Martin's Island during participation in biodiversity conservation and management activities under a project intervention of the Government of Bangladesh. The empirical study was conducted by collecting data from 92 randomly selected members of Village Conservation Groups (VCGs) of the south-eastern coastal island under Teknaf upazila of Cox's Bazar district. A total of 16 problems were considered for the study while ten characteristics of the respondents were selected to explore their relationship with the respondents' faced problem. A structured questionnaire was used to collect data from the respondents in April, 2008 by face-to-face interviewing. Majority (68 percent) of the coastal people reported that they faced high problem in engaging biodiversity conservation and management activities while 20 percent and 12 percent of them faced medium and low level problems, respectively. Out of the 16 identified problems the major problems were: lack of people's awareness on importance of resource conservation, high dependency on woods for cooking, lack of community based government supports for natural resource management activities, lack of alternative livelihood opportunities, and lack of awareness on modern technology of farming. Moreover, coastal people's level of education, farm size, social participation, extension media contact, organizational participation, experience in biodiversity management activities, and knowledge on biodiversity management activities showed significant and negative relationships with their faced problem in biodiversity management activities. On the other hand, age, family size and annual family income of the respondents showed no significant relationships with their confronted problems.

Keywords: *Biodiversity management, coastal people, problems, St. Martin`s Island*

Introduction

Biodiversity of Bangladesh is very rich and very important both nationally and globally all over the world. Due to unplanned and uncontrolled activities of human being the ecology as well as natural resource bases of Bangladesh are becoming unbalanced day by day which is a great threat to the country (Gain, 1998). In order to preserve the major biodiversity bases of the country, the Bangladesh Government in its " Bangladesh Environment Conservation Act 1995" declared eight areas as Ecologically Critical Areas (ECAs), which include: (i) strip of 10 km outside the Sundarban reserve forest, (ii) sea front of Cox`s Bazar and Teknaf, (iii) St. Martin`s Island, (iv) Sonadia Island, (v) Hakaluki Haor, (vi) Tanuar Haor, (vii) Marjat Baor, and (viii) Gulshan & Baridhara lake area of Dhaka. In the declared ECAs, some activities are totally prohibited; the prohibited activities are: cutting and collecting natural forest and trees, killing and hunting of wild life, catching or collecting oysters, corals, turtles or others, all kind of activities destroying the natural habitat for plants and animals,

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any activities which can change the natural characteristics of soil and water, building industries that pollutes soil, water and sound, any activities which is harmful for fishes or any other aquatic life etc (GoB, 1995).

St. Martin`s residents and visitors share a special passion for the Island`s natural beauty and feel strongly about protection its natural resources. It is a small offshore island in the Bay of Bengal, some 10 km south of the tip of the Teknaf Peninsula and about 8 km west of the northwest coast at the mouth of the river Naf. The local people call it Narikel Jinjira. It is long, narrow and flat; almost 7 km long and 500 m wide at its widest point and 3.6 m above the mean sea level. St. Martin`s Island is very much resource rich and one of the most biologically diverse area and only coral bearing island of Bangladesh. Various living organisms with diversified coral are found here due to congenial natural habitat. The island is very important for its rich plants and wildlife biodiversity (Anonymous, 2006). The Government of Bangladesh has strategic plan and programs for getting people involved in different biodiversity management activities. For this reason, both government organization (DoE) and non-government organization have been working for participation in the management of biodiversity.

Coastal people`s participation and knowledge of biodiversity management is very much important. They can change their living status in personal, social and economic dimensions through ensuring their participation in biodiversity management activities. Although the government encourages local people in participating in such activities, a significant extent of participation is not that much visible. It is assumed that there might be some problems those hinder local people's active and functional participation in biodiversity conservation and management activities in the coastal areas (Haque, 2008). These problems are very important to be revealed and to be removed in order to engage local people in biodiversity conservation and management of natural resources in a sustainable and effective way. Thus, the main purpose of this study was to have an understanding of the problems faced by coastal people while participating in biodiversity conservation and management activities. The specific objectives were: (i) to identify nature and extent of problem faced by the coastal people on biodiversity conservation and management activities; and (ii) to explore relationship between selected characteristics of the coastal people and their faced problems.

Methodology

Locale, population and sample of the study: The study was conducted in St. Martin's Island under Teknaf upazila of the southeastern coastal district of Cox's Bazar. The location was selected because of the fact that during the process of the study the government was implementing a project on "Coastal and Wetland Biodiversity Management Project" (CWBMP), among other areas, in the island. The project was implemented by the Department of Environment and supported by United Nations Development Programme (UNDP), while major financial supports came from Global Environmental Facility (FGE). The Island which is 590 ha in area was declared as an ECA (Ecologically Critical Area) in it's entirely (Anonymous, 2006). Since

2004, under the CWBMP project intervention, Bangladesh POUSH, a non-government organization (NGO) had been working in the island through formation of Village Conservation Group (VCG), members of which involved with different biodiversity conservation and management activities. There were 365 members in six VCGs in the island that constituted the population of the study. A number of 92 VCG members (i.e. 25 percent of the population) were randomly selected as the sample of the study.

Variables and their measurement: Coastal people's problem in conservation and management of biodiversity activities was the major focus of the study. A total of 16 problems were considered for the study after consultation with staekholders (beneficiaries, field agents, implementing authority, and officers of DAE, DoF and DLS) of the project and related experts. Problems faced by the coastal people in participating biodiversity management activities were measured through asking coastal people's opinion under the 16 selected problems using a 4-point rated scale. Each respondent was asked to indicate the extent to which he/she considered a specific problem as problematic and the scores were given as 0 for 'not at all' 1 for 'low' 2 for 'medium' and 3 for 'high'. The overall problem facing scores of a respondent was achieved by summing his/her scores in all 16 problem items and the score could range from 0 to 48, where '0' indicated that the respondent faced no problem and 48 indicated highest problem in coastal biodiversity management activities. For a clear understanding of problem faced by the participants (VCG members), a rank order was prepared by developing a Problem Facing Index (PFI). The PFI was measured by using the following formula:

$$\text{Problem Facing Index (PFI)} = (P_{hp} \times 3) + (P_{mp} \times 2) + (P_{lp} \times 1) + (P_{np} \times 0)$$

Where,

P_{hp}= Number of respondents facing high problem
P_{mp}= Number of respondents facing medium problem
P_{lp}= Number of respondents facing low problem
P_{np}= Number of respondent with no problem

Therefore, the range of PFI could be varied from 0 to 276, 0 indicating no problem and 276 indicating high level problem.

Ten personal and socio-economic characteristics of the respondents were selected to understand the factors of their faced problem in biodiversity management activities. The selected characteristics were: age, education, family size, farm size, annual family income, social participation, extension media contact, organizational participation, experience in biodiversity management activities and knowledge on biodiversity management activities. Standard and conventional procedures were maintained for measuring the variables.

Data collection and analysis: A structured questionnaire was prepared for the study considering all the selected variables. The questionnaire was pretested among 20 VCG members and necessary corrections and modifications were made on the basis of the pretesting experience. Data were collected during 1 to 22 April, 2008 from all the 92 selected participants (VCG members) in the study area. Different descriptive statistical methods were used in describing the variables. Coefficient of correlation (r) was used for exploring the relationship between the concerned variables.

Findings and Discussion

Problem faced by the participants: The problems faced the VCG members were computed and the relevant Problem Facing Index (PFI) were obtained. The obtained rank order of the problems has been shown in the Table 1.

Table 1 Rank order of the problems faced by the coastal people in biodiversity conservation and management activities

Sl. No.	Problems	Extent of problem faced				PFI	Rank order
		Not at all	Low	Medium	High		
1	Lack of people's awareness on importance of resource conservation	25	7	12	48	175	1
2	High dependency on woods for cooking	32	2	11	47	165	2
3	Lack of community based government supports for natural resource management activities	37	1	4	50	159	3
4	Lack of alternative livelihood opportunities	44	10	11	27	113	4
5	Lack of awareness on modern technology of farming	52	5	12	23	98	5
6	Low per head land and low income	67	3	5	17	64	6
7	High dependency on coastal resources	69	2	8	13	57	7
8	Lack of electricity facilities	68	14	3	7	41	8
9	Lack of fresh water for drinking	77	0	4	11	41	8
10	Lack communication facilities with mainland	75	4	7	6	36	9
11	Fencing barrier for resource management	83	1	0	8	25	10
12	Lack of credit for income generation opportunities	83	0	5	4	22	11
13	Inadequate supply of inputs for farming	86	1	0	5	16	12
14	Attack of trawler robbers	88	1	0	3	10	13
15	Low tree vegetation in the island	88	2	1	1	7	14
16	Low yield of crops due to salinity and other factors	89	0	2	1	5	15

The computed PFI values ranged from 5 to 175 against the possible range from 0 to 276. The top five problems faced by the respondents were lack of people's awareness on importance of biodiversity conservation and management (175), high dependency of woods for cooking (165), lack of community-based government

support activities for natural resource management (159), lack of alternative livelihoods activities (113), and lack of awareness on modern technologies of farming (98). These high constraint values indicate that without addressing these problems, coastal resource management activities will not be much successful in the poverty stricken and densely populated remotely located island. As St. Martin's Island is an important ECA of the country as well as one of the most important areas of touristic attraction, it is of utmost important to conserve its precious natural resource bases. The government should take appropriate initiative to support the local people for the conservation and management of coastal biodiversity and resources in a coordinated way that all concerned agencies are involved appropriately.

The respondents were classified into three categories on the basis of their overall problem facing scores as shown in the Table 2.

Table 2 Distribution of coastal people according to their overall problems in conservation of coastal biodiversity

Categories of the respondents	Number	Percent	Mean	Standard deviation
Low problem facing (score 0-16)	11	12	38.3	8.78
Medium problem facing (score 17-32)	18	20		
High problem facing (score 33-48)	63	68		

Data presented in the Table 2 show that majority of the respondents (68 percent) faced high problems in participating in coastal biodiversity conservation and management activities, followed by 20 having medium problem. Only 12 percent coastal people faced low problem. The high average value (38.8) of overall problem in a 0-48 scale indicated the reality that the problem of conservation was relatively stiffer than the efforts for sustainable management. As many of the problems are directly related to the respondents' everyday livelihoods and income generation, it could be concluded that efforts for such causes must be preconditioned with the involvement of local people and their livelihood development so that their high dependency on natural resource bases is effectively reduced.

Relationship between coastal people's problem and their selected characteristics: Relationships between the extent of problem faced by the coastal people in conservation and management of biodiversity and their ten selected characteristics have been explored through computation of correlation test. The concerned coefficients of correlation (r) have been shown in the Table 3.

Data presented in the Table 3 show that out of ten characteristics of the respondents, seven showed significant and negative correlation with their extent of problems in coastal biodiversity conservation and management activities. The respondents' age, family size and annual family income of the respondents did not show any significant relationship with their extent of problem in coastal biodiversity management activities. Among the variables having significant relationships, education and farm size may be directly considered as plausible. On the other hand, the remaining

five characteristics having significant negative relationship with the faced problem were more or less related to the activities done by the CWBM project and its local partner Bangladesh Poush, the local NGO. As coastal people's participation in the biodiversity conservation activities increased, their knowledge and awareness on the issue increased. Moreover, organizational participation in VCG also increased their social participation and extension media contacts. These all negatively contributed to the people's faced problems in biodiversity conservation and management activities. Therefore, the continuation of the efforts for the same activities will have long lasting and effective contribution in coastal biodiversity conservation and management of the study area.

Table 3 Correlation between coastal people's faced problem in biodiversity conservation and their selected characteristics

Selected characteristics	`r' values (with 90 d.f.)
Age	-.131
Level of education	-.494**
Family size	.093
Farm size	-.317**
Annual family income	.187
Social participation	-.551**
Extension media contact	-.262*
Organizational participation	-.438**
Experience in biodiversity management activities	-.217*
Knowledge on biodiversity management activities	-.498**

**=P<.05 and **=P<0.01 with 90 d.f.*

Conclusion

Findings of the present study and the logical interpretations of other relevant facts might lead to a number of important conclusions. Firstly, the people of the St. Martin's Island of Cox's Bazar faced a number of problems while participating in activities related to coastal biodiversity conservation and management under the government supported CWBM project. The majority of the problems were related to either their knowledge and awareness issues or their day to day livelihoods. Therefore, awareness building and support for alternative livelihoods are very important to engage local people in coastal biodiversity conservation and management related programmes. Secondly, as majority of the people faced high problems, addressing of the identified problems are important for making such programme more sustainable and effective. Finally, the concerned government agencies and international partners should have more focus on the issues related to the people's personal and socio-economic characteristics those are related to their faced problems in biodiversity conservation and management activities.

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