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People's Participation in Coastal Biodiversity Management Activities in St. Martin's Island

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Abstract

The main objective of the study was to find out the extent of participation of coastal people in various biodiversity management activities. The study was conducted in St. Martin's Island under Teknaf Upazila of Cox's Bazar district. Ten selected characteristics of the participants were selected to explore the relationship with the extent of participation. Coastal people's participation in biodiversity management activities was the major focus of the study and the variable was composed of eight components of participation. A 4-point rating scale was used to measure the extent of participation of the respondents. Data were collected from a randomly selected sample of 92 participants of CWBMP (Coastal and Wetland Biodiversity Management Project) from a total of 365 during April 2008 by using a pre-tested personal interview schedule. The highest proportion (80%) of the respondents had medium participation in biodiversity management activities followed by 12% and 8% having high and low level participation. The respondents had higher level participation in fisheries resources conservation and waste management and lower level participation in awareness building on eco-tourism and social awareness activities. Among the ten characteristics of the respondents seven, namely 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 positive relationships with their extent of participation in biodiversity management activities. However, their age, family size and annual family income did not show any significant relationships with the same.

Keywords: *Biodiversity management, CWBMP, coastal people, St. Martin's Island*

Introduction

St. Martin's Island is a small offshore island in the Bay of Bengal, some 10 km south of the tip of the Teknaf Peninsula. It is long and narrow; almost seven km long and only 500 m wide at its widest point. Various living organisms with diversified coral are found in St, Martin's Island due to congenial natural habitat. The island is very important for its rich plant and wildlife biodiversity (Anonymous, 2006). The Coastal and Wetland Biodiversity Management Project (CWBMP) at St. Martin's Island is a UNDP-GEF funded project being implemented by the Department of Environment (DoE) under

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the Ministry of Environment and Forests, Government of Bangladesh. In 1999 several areas of Bangladesh were declared 'Ecologically Critical Areas' (ECAs). In 2002, the CWBMP came into operation with the management of ECAs in Bangladesh to institutionalize a model of management to ensure the conservation and sustainable use of globally significant biodiversity within ECAs (Anonymous, 2006). Bangladesh POUSH, a partner NGO of CWBMP, has been working for community mobilization towards biodiversity conservation at St. Martin's Island since 2004.

Government of Bangladesh has strategic plans and programmes for getting people involved in different biodiversity management activities. For this reason, both government organization (DoE) and non-government organization (Bangladesh POUSH) have been working for people's participation in the management of biodiversity of St. Martin's Island under the CWBMP. The overall objective of the project is to ensure the conservation and sustainable use of globally significant wetland biodiversity through management as ECA and support to institutionalize the concept of ECA management using the experience gained from the project demonstration sites. The project is to establish an innovative system for management of ECA in Bangladesh that will have a significant and positive impact on the long-term viability of the country's important biodiversity resources. As per reports of the concerned authority, a good number of people are participating in biodiversity management activities under the initiative of the CWBMP. It is of utmost important to document different aspect of people's participation in biodiversity management activities under this project, information on which is not available from a reliable source. In order to fulfil the present information gap, the proposed study was undertaken by the researchers. The major objective of the study was to determine the level of local people's participation in various biodiversity management activities in the St. Martin's Island. The study also explored the relationship between people's participation in biodiversity management activities and their ten selected characteristics.

Methodology

The study was conducted in St. Martin's Island under Cox's Bazar district. The Island, which is 590 ha in area, has been declared an ECA in its entirety (Anonymous, 2006). Since 2004, Bangladesh POUSH, the partner NGO of CWBMP, has been working in the island through formation of Village Conservation Groups (VCG), members of which involved with different biodiversity management activities. The VCGs were located in six villages namely Purbapara, Bazarpara, Paschimpara, Majherpara, Conapara and Dakhinpara.

There were 365 members in six VCGs in the island who constituted the population of the study. Among them, 92 members (i.e., 25% of the population) were randomly selected as the sample of the study.

The extent of people's participation in the biodiversity management activities was the main focus of the study. Eight components of biodiversity management activities such as wildlife conservation, fisheries resources conservation, agro-horticultural activities, community development activities,

awareness on eco-tourism, protection of risks of island, social awareness activities, and waste management were considered for the study. The extent of participation was classified separately into eight components each of which included five specific activities of biodiversity management. A 4-point rating scale was used for the measurement of the variable. Questions were asked to know the respondents' level of participation in five biodiversity management activities under a component, and the scores were given as 0 for 'never' 1 for 'rarely' 2 for 'often' and 3 for 'very often'. Thus, the score of the participants in overall participation in biodiversity management activities could range from 0 to 120, where '0' indicated no participation and '120' indicated the highest level of participation. On the other hand, ten selected characteristics of the respondents were used in the study which included age, level of education, family size, farm size, annual income, social participation, extension contact, organizational participation, experience in biodiversity conservation, and knowledge on biodiversity conservation. The selected characteristics of the participants were measured employing the conventional methods.

A structured interview schedule was used to elicit the data of the study. Data were collected from the selected respondents during 1 to 22 April, 2008 by the first author himself.

Findings and Discussion

Overall participation in biodiversity management activities

The respondents' overall participation in biodiversity management activities could range from 0 to 120, while the observed scores ranged from 26 to 95. The average was 60.34 with a standard deviation of 14.657 as presented in Table 1.

Table 1. Overall participation of respondents in biodiversity management activities

Range: Possible- 0~120; Observed- 26~95

Respondents			Mean score	Standard deviation
Categories (score)	No.	Percentage		
Low (≤40)	7	7.61		
Medium (41-80)	74	80.43	60.34	14.657
High (>80)	11	11.96		

The findings indicate that an overwhelming majority of the respondents had medium to high level participation in biodiversity management activities. It might be due to the fact that the partner NGO of the CWBMP involved the islanders in biodiversity conservation activities through formation of community based organization (CBO). As it is widely reported that participation in CBO increased the members' extent of participation in development activities (Khan, 2004; Rahman and Yamao, 2007; Rahman *et al.*, 2007), the observed level of participation of the local people in coastal biodiversity management activities is quite rational. It should be mentioned here that the level of participation was observed only after hardly three years of intervention. It is expected that the situation would be better in the coming years.

Component-wise participation in biodiversity management activities

Participation of respondents in biodiversity management activities was consisting of eight components, which are presented in Table 2.

Table 2. Component-wise participation of the participants in biodiversity conservation

Possible score range: 0~15

Components of biodiversity conservation	Average score	Standard deviation	Rank
Wildlife conservation activities	6.76	2.85	6
Fisheries resources conservation	9.40	2.96	1
Agro-horticultural activities	7.87	3.47	3
Community development affairs	7.53	2.41	4
Awareness building on eco-tourism	6.20	2.86	8
Reducing the risks of the island	7.16	2.31	5
Social awareness activities	6.32	2.72	7
Waste management	9.10	2.77	2

Data presented in Table 2 show that the local people of St. Martin's Island had relatively higher participation in fisheries resources conservation and waste management activities. Since the inception of the project, the CWBMP authority has been promoting alternative livelihood activities among the local people to save endangered fisheries resources across the coastal belt and there has been preliminary indication that peoples are increasingly participating in these alternative livelihood activities and therefore pressure of fisheries resources are gradually decreasing (Haque, 2008). This, along with continuous community based mobilization of the partner NGO could be considered as major factor for coastal people's higher participation in fisheries resource conservation activities. As waste management activity is a special programme in the study area and there has been mobilization among the VCG members to participate in it, peoples were found having relatively higher participation in this component. People were found to have relatively low participation in the activities like reducing the risk of the island, wildlife conservation activities, social awareness and awareness building on eco-tourism. All these activities directly or indirectly related to the livelihoods of the islanders and it will take longer time to make them fully motivate in participating in these activities. Moreover, coastal people's knowledge on biodiversity conservation has been reported to be increased in the project areas (Hossain, 2008). It might be concluded that more and more motivational programmes along with supportive activities (alternative livelihood activities) would be helpful for having higher level of involvement of local people in all components of coastal biodiversity conservation and management.

Characteristics profile of the respondent VCG members

The salient features of the ten selected characteristics of the respondents have been summarized in Table 3.

Table 3. Characteristics profile of the respondent VCG members

Characteristics (measuring units)	Observed (possible) score range	Respondents (N= 92)		Mean	Standard deviation
		Categories	%		
Age (Year)	17-60	Young (up to 30)	57.61	31.07	9.45
		Mid-aged (31-50)	35.87		
		Old aged (> 50)	6.52		
Level of education (Year of schooling)	0-10	Illiterate (0)	7.60	2.74	3.11
		Primary level (1-5)	73.91		
		Secondary level (6-10)	18.48		
Family size (Number)	2-15	Small (up to 4)	19.56	6.92	2.64
		Medium (5-6)	26.09		
		Large (> 6)	54.35		
Farm size (Hectare)	0-2.32	Landless & marginal (≤ .2)	63.05	0.29	0.43
		Small (0.21-1.0)	31.52		
		Medium(1.1-3.0)	5.43		
Annual family income ('000' Tk)	10.5-811	Low (up to 50)	33.69	113.63	130.64
		Medium (51-150)	47.83		
		High (>150)	18.48		
Social participation (Score)	1-15 (0-24)	Low (up to 6)	64.13	5.96	2.76
		Medium (7-12)	32.60		
		High (> 12)	3.26		
Extension media contact (Score)	4-25 (0-36)	Low (up to 10)	25.00	13.12	4.05
		Medium (11-18)	63.04		
		High (> 18)	11.96		
Organizational participation (Score)	1-9 (0-24)	Low (≤ 2)	80.43	1.79	1.56
		Medium (3-6)	17.39		
		High (> 6)	2.18		
Experience in biodiversity management activities (Year)	1-8	Low (up to2)	66.30	3.11	2.17
		Medium (3-5)	14.13		
		High(>5)	19.57		
Knowledge on biodiversity management activities (Score)	15-48 (0-50)	Low (up to20)	10.70	30.64	7.85
		Medium (21-35)	60.87		
		High(>35)	28.26		

The table shows that age of the respondent people ranged from 18-60 years with a mean of 31.07, which implies that the VCG members were of younger age. Also the highest proportion (57.61%) of the respondents was young. The average education score of the VCG members (2.74) indicate low level of education in the study area. The family size of the respondents ranged from 2-15 with the mean of 6.92. It means that the coastal people of the study area have relatively higher family size, which is also supported by other contemporary findings (Haque, 2008 and Hossain, 2008). The largest part of the respondents (54.35%) possessed large sized families. Farm size of the respondents ranged from 0-2.32 hectares with an average of 0.29, which means that the people possessed very small farm area in the study area. The highest proportion (63.05%) of the respondents belonged to landless through marginal farmer category. The highest proportion (47.83%) of the respondents had medium annual income. The presented data revealed that concerning social participation, extension media contact and organizational participation the majority of the respondents fell into low to medium

categories. However their average scores of these three variables were not much lower. It was due to the fact that due to involvement in community based organization (VCG), the majority of the respondents came into some sorts of regular contact with extension-NGO staff and social-organizational activities. The respondents' experience in biodiversity conservation activities seems low (average of 3.11 years) because of the fact that the project started only in 2004. However, experience of some participants were more than four years as they were involved in some other earlier projects in the study area which dealt with the biodiversity conservation issues. The VCG members' knowledge on biodiversity management activities were found medium to high. It was due to the fact that all respondents used to join in regular meeting of VCG where they took part into interactive discussion and training sessions on biodiversity management activities. Finings on other researchers on CWBMP in other areas (Sonadia Island and Teknaf Peninsula) also showed that the project participants possessed higher knowledge on biodiversity conservation activities than the non-participants (Hossain, 2008 and Haque, 2008).

Relationship between dependent and independent variables

Relationship between the ten selected characteristics of the respondents (independent variables) and their extent of participation in biodiversity conservation activities (dependent variable) were determined through Pearson's coefficient of correlation (r), results of which have been presented in Table 4.

Table 4. Relationship between coastal people's participation in biodiversity conservation and their selected characteristics

Selected characteristics	'r' values with participation
Age	-0.131
Level of education	0.494**
Family size	0.093
Farm size	0.317**
Annual family income	0.187
Social participation	0.551**
Extension media contact	0.662**
Organizational participation	0.438**
Experience in biodiversity management activities	0.317**
Knowledge on biodiversity management activities	0.698**

**=P<0.05 and **=P<0.01 with 92 df*

Data presented in Table 4 depict that among the ten characteristics of the respondents seven showed significant positive relationships with their participation in biodiversity management activities. However, the rest three characteristics (age, family size and annual family income) did not show any significant relationships with the same.

Age of the respondents was not an important indicator concerning the participation in biodiversity management activities, but the level of education and participation in biodiversity management activities were significantly and positively correlated. Hasan (2006), Rahman *et al.*, (2007) and Haque (2008) found similar results in their respective studies. Family size of the respondents was not significantly related to

the participation in biodiversity management activities. The findings were supported by Akteruzzaman (2006), Amin (2004) and Khan (2004). Farm size of the respondent had significant relationship with their extent of participation in biodiversity management activities. The findings support the observations of Haque (2008), Hasan (2006), Yesmin (2002) and Akter (1989).

Annual family income of respondents had no significant relationship with their extent of participation in biodiversity management activities but social participation had a significant positive relationship with the same. Akteruzzaman (2006) found similar results in his study. Similarly, organizational participation and knowledge on coastal biodiversity of the respondents had significant relationships with their extent of participation in biodiversity management activities. Alam (2004) and Khan (2004) observed similar findings in their respective studies. Finally, the respondents' experience in biodiversity management activities showed a significant positive relationship with their extent of participation, which is quite plausible and well supported by the works of Amin (2004) and Haque (2008).

Conclusion

The majority of the CWBM project participants of the St. Martin's Island had medium level participation in biodiversity management activities. The average participation score of respondents was 60.34. So, there remains further scope to increase people's participation in biodiversity management activities. Similarly, considering people's participation in different components of biodiversity management, it could be concluded that appropriate measures are needed to increase coastal people's involvement in different activities under CWBMP. Participation in biodiversity management activities by the respondents was increased with larger farm size, higher social participation, greater extension media contact, higher organizational participation, long experience in biodiversity management and better knowledge on biodiversity management activities. Therefore, government and non-government development initiatives should consider these attributes while formulating any capacity strengthening programmes and projects related to biodiversity management for the coastal people.

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