Full Length Research Paper

Attitudes of local people towards community-based forest management: A study of a Sal forest area in Bangladesh

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This paper examined attitudes of local people towards community-based forest management (CBFM) and explored factors influencing their attitudes. A survey instrument was administered to 80 household heads (both from ethnic and non-ethnic), sampled across the communities adjacent to the forest area using stratified random sampling method. Attitudes of local people towards CBFM approach were measured by developing 15 relevant statements. The study findings revealed that two-third (66.7%) of the ethnic respondents and near about three-fourth (77.3%) of non-ethnic respondents had favouable to highly favourable attitudes towards CBFM. Almost similar percentage of respondents from ethnic (13.7%) and non-ethnic (13.6%) categories were found with unfavourable attitudes. The regression results showed that credit received, participation in training supported by the CBFM project and knowledge on forest conservation had significant positive influence on attitudes of both categories of respondents. Though the independent variables namely, duration of involvement with CBFM project and membership in local formal committee (s) had significance influence upon non-ethnic respondents' attitudes, these variables did not have significant influence upon attitudes of ethic respondents. For sustainable forest management and conservation goals to be achieved, it is vital that local people's needs and aspirations and their attitudes regarding CBFM should be considered.

Key words: Attitudes, Local people, Community-based forest management, Sal forest, Bangladesh.

INTRODUCTION

While forests have always played an important role in human history, their national management became a key crucial concern in 1980's in both developed and developing countries. Faced with increasing rates of deforestation and the attendant problems or loss of biodiversity and other socio-environmental costs, the issue of conservation and national management of forests became an important item on the agenda of many national and international organizations (Biswas, 1992).

In recent years, forest management practices have shifted from an emphasis on maximizing yield to maximizing sustainability through increased participation of local communities, conserving biodiversity and maintaining forest-based ecosystem services.

Forests in Bangladesh, as in other tropical countries, are deteriorating at an alarming rate because of various socioeconomic threats, biotic pressure and competing land uses (FAO, 2015). The per capita forest area in Bangladesh is very low (0.009 ha) compare to average values in Asia (0.145 ha) and in the world (0.597 ha) (Table 1). Distribution of forests in the country is considerably skewed, with 29 of 64 districts having no

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Table 1. Forest area and forest change.

Country/ Region	Extent of forest 2010			Annual change rate			
	Forest area	% of land	Per capita	1990-2000		2001-2010	
	(1,000 ha)	(%)	(ha)	(1,000 ha)	(%)	(1,000 ha)	(%)
Bangladesh	1,442	11	0.009	-3	-0.2	-3	-0.2
Asia	592,512	19	0.145	-595	-0.1	2235	0.4
WORLD	4,033,060	31	0.597	-8323	-0.2	-5211	-0.1

Source: FAO, 2011

official forest area at all, and only 12 with an area of 10% or more (Iftekhar, 2006). Over the years, due to exploitation of forest resources and its non-participatory management, more than 50% of the forest resources have been depleted. Realizing the grim effect of destruction of forests and to repair the lapidated environmental condition, both the government and non-government organizations have taken up afforestation programme (Zaman et al., 2011).

In addition, to address the degradation of forest resources, policy and management regimes have been revised to reflect the change from centralized government management toward more participatory management system (Biswas and Choudhury, 2007). A key drawback of centralized management system is lack of ownership over forest resources, which often results in illegal cutting, forest encroachment etc. Thus, participatory forest has evolved with the broad aim of giving forest-dependent people ownership and a stake in managing forest resources so that they have an incentive to protect resources. Many less developed (low income and lower middle income) nations, with the assistance of international donors, have engaged in community-based forest management (CBFM) programme as a means of delivering sustainable forest management. Bangladesh has been practicing CBFM approach for more than three decades with an aim to meet local populations' forest product needs, reserve ecological degradation, and improve socioeconomic conditions of people living around the forest area (BFD, 2016). CBFM refers to forest management approaches where governance is developed to local community groups or institutions to varying degrees (Bhattacharya et al., 2010). Furthermore, CBFM as any government-approved form of forest management in which local communities participate, with an objective of providing communities with social and economic benefits while promoting the sustainable management forest resources. Through its independence on the knowledge and institutions of local users for decision-making, monitoring the rule enforcement, CBFM may be more successful than management being carried out by the state (Behera, 2009).

There has been an increasing recognition that local communities must have actively involved, and their needs and aspirations considered if resources are to be conserved (Triguero-Mao et al., 2009). Since CBFM approach gaining attention as one of the solution to conserve and manage forest resources based on local peoples' participation, effective measures are needed to involve whole community for achieving maximum benefit from this approach. All policies and programmes implemented under the CBFM paradigm should share a key assumption that forest resource conservation will succeed only if local communities receive sufficient benefit, participate in management, and therefore, have a stake in conserving forest resources (Wily, 2002). However, the main objective of the study was to examine the attitudes of local people towards community-based forest management programme implemented by a project under participatory forestry approach. Another objective was to determine the personal and socio-demographic characteristics of local people influence their attitudes.

Conceptual Framework and Hypothesis

A comprehensive approach to understand the human dimension of protected area management is provided by Firey's (1960) conceptual framework of resource use theory. This theory recognizes three value factors or frames of reference - ecological, economic and technological/cultural those interact with each other and play a role in determining local attitudes towards the fate of a resource system. The resource system is viewed differently by different social groups within their own frame of reference. Social groups differ in their needs, perceptions, and attitudes of a resource system along the lines of their personal attributes. There is growing empirical evidence in support of the theory that local peoples' support for forest area depends mainly on their perceptions of economic benefits of living in or around such areas against the background of socioeconomic and demographic considerations (Fiallo and Jacobson, 1993, De Boer and Baquete 1998, Allendorf, 1999).

Being one of the pioneers in implementing a nationwide community forestry programme in Asia through the adoption of a CBFM strategy, Bangladesh provides an interesting case that illustrates the challenges of providing sustainable forest management through the participation of local communities in forest development and conservation. In terms of engagement of local communities, the practice of community forestry can replace from "consulting" the local people before a

forestry project implemented in their areas, to actually recognizing community control of the local forest resources (La Vina, 1997). Regardless of the types and local peoples' level of engagement, however, community forestry initiatives have the overreaching goal of sustaining the forest resources and their associated benefits, improving the socioeconomic welfare of forest-dependent communities, and communities regarding control over the resources and lives. Since CBFM approach enhances to accommodate local peoples' need and aspirations by empowering them, promoting their active participation in local resource management, and providing their economic welfare, knowing the attitudes of local people is very essential in this regard. It is now widely accepted that long-term survival of forest resources in developing nations like Bangladesh will be jeopardized if needs, aspirations and attitudes of local people are not accounted for (Kemf, 1993; Rava.1994; Ghimire and Pimbert, 1997)

For developing a sustainable forest management programme, social and ecological systems must be linked and local and scientific knowledge be integrated. Experiences have proved that effective management of forest resources cannot depend merely on prohibition and it is necessary to investigate the users' attitudes towards these resources and then encourage their sustainable use (Pyrovetsi and Daoutopulos, 1997). Hence, studies on attitudes of local peoples have contributed to the understanding of people's needs and aspirations, and in identifying their needs, opinions and suggestions regarding sustainable forest management issues. The term 'attitudes' has been used in relation to the positive or negative responses towards one or more stimuli can also be related to possible conduct and behavior (Murphy and Watson, 1991, Karanath et al., 2008). Attitudes are formed in part by individuals or communities perceptions and experiences (Infield and Namara, 2001) can be change their values and thoughts and improve their overall welfare. Although the management and conservation of forest resources may be influenced by larger policy decisions, their sustainable use relies mainly on local people and other users living close to the forest areas. Through attitudes survey, it may be possible to predict how people's attitudes will be influenced by management policies and vise- versa allowing more effective resource allocation and planning as well as provide baseline data to access the efficiency of new policies regarding natural resource conservation, thereby guiding policy and management decisions in the design, implementation and evaluation of sustainable management, conservation and development projects (Parry and Campbell, 1992).

Based on foregoing discussion, we selected a set of personal variables associated with CBFM approach that we hypothesized would affect local people's attitudes. For example, we predicted that economic benefits, membership in formal local committee (s), participation in project sponsorship training programme would be significantly associated with favourable attitudes. Secondly, we hypothesized that knowledge of local people about forest management and conservation can play important roles to their mental-make up on the above issue which accordingly may have influence upon their attitudes formation (Mehta and Kellert, 1998). In addition, we scrutinized the influence of personal and socio-demographic factors on attitudes of local people. The personal and socio-demographic factors such as - age, education and income have been shown to influence attitudes in some cases although not consistently (Kellert, 1980 and Solecki, 1997).

MATERIALS AND METHODS

Study area

In Bangladesh, Sal forest belongs to the category, 'Tropical Moist Deciduous Forest' dominated by a single plant species, commonly known as Sal tree (*Shorea robusta*), which is one of the most important time yielding plants. The distribution of Sal forest is controlled by the conditions of topography, geology, and soil. These type of forests cover an area of 121,000 ha which is about 32% of the total forest land in Bangladesh (BBS, 2014), which is distributed over the relatively drier central and north-western part of the country (Fig. 1). The major Sal forest lies in the districts of Tangail, Mymensingh, Gazipur and Dhaka. Among these districts, Sal forest in Tangail district is the largest belt, distributed between the Brahmaputra and the Jamuna rivers extending a length of 96 km and width of 8 to 24 km running from north to south (GOB, 2015). However, in 1989, Asian Development Bank (ADB) started participatory forestry project mainly with Madhupur and Sakhipur Sal forests areas in Tangail district. Presently, it is called as community-based forest management (CBFM) approach. Sakhipur Sal forest is located in the south-eastern part of Tangail Forest Division with a small portion of the boundary with the Mymensingh Forest Division. Therefore, this study has been conducted in Sakhipur Sal forest area consists of two ranges (forest administrative unit) namely, Hoteya and Baheratoli (Fig. 2)

Description of the CBFM approach

Community-based forest management (CBFM) approach has been practiced in Bangladesh for more than three decades. It has been initiated to meet local populations' forest product needs, reserve ecological degradation and improve socio-economic conditions of the living near the forest area (FAO, 2015). The basic principal of CBFM approach is integration of local people in reforestation activities with multiple objectives that include ecological, economic and social benefits (BFD, 2016). The forest
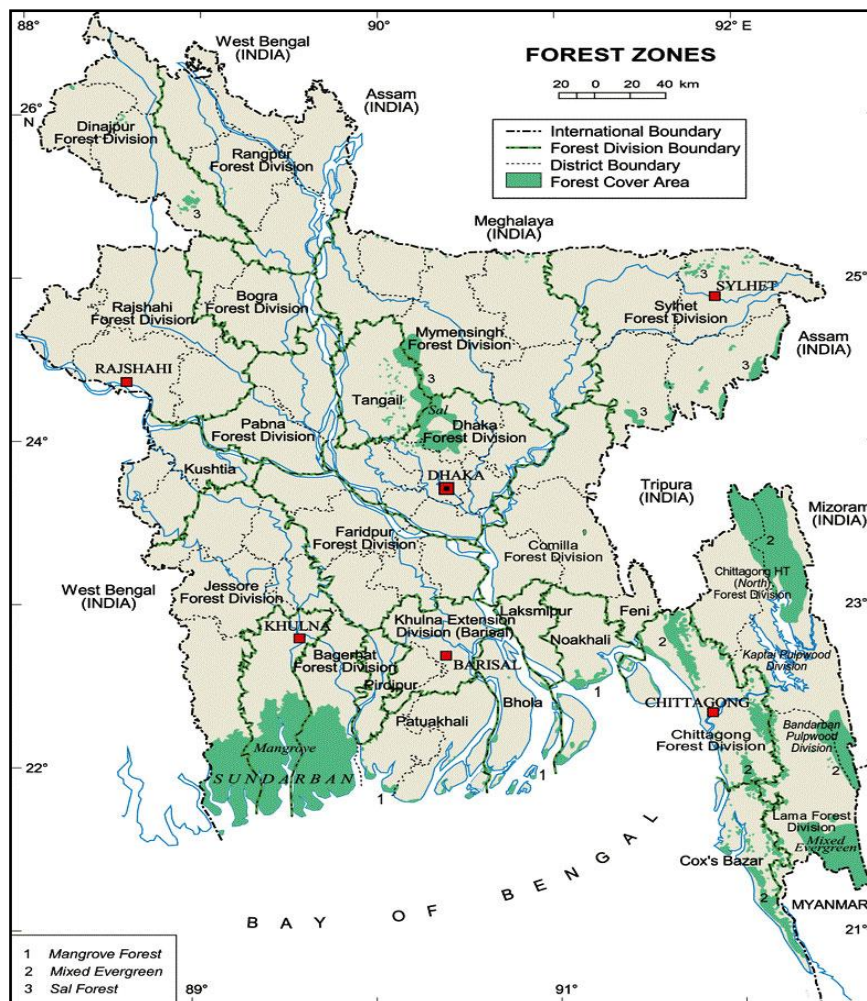
Figure 1. Forest cover of Bangladesh (Source: BFD, 1999)

policies that institutionalize CBFM approach in Bangladesh are considered to be most elaborate in the country's history. However, according to many evidence, progress remain slow and in many cases the approach could not fulfill the demands of participants.

Key components of CBFM approach implemented in Bangladesh include establishment of woodlot plantations, agroforestry productions, and strip plantations along road sides, village reforestation, institutional planting and seedling distribution, establishment of plantation center and training of various stakeholders involved to practice this approach. Major objectives include: increasing timber production; poverty reduction; and enhancing the institutional capacity of forest department. Forest-dependent local people and indigenous communities are the major stakeholders of the CBFM approach. It generally grants each single participant one ha for management as a woodlot, every five participants of one km of strip plantation, and each family two ha for settlement and agroforestry. Participants are allowed to

grow fruits and other crops between trees, participate the wage labour for plantation maintenance, and retain intermediate products from thinning and other forest management activities (BFD, 2016). The duration of each programme is 10 years and each 10-year is referred to as one rotation. Each participant may be involved for maximum three rotations (equal to 30 years).

Data Collection and Analysis

The study adopted a multi-method approach relying on both quantitative and qualitative data from primary and secondary sources. The quantitative data for this study came mainly from a questionnaire survey, where as the qualitative data were obtained by informal interviews with key local informants, focus group discussion, discussion with forest personnel, literature review and personal observation. A total of 80 households (36 ethnic and 44 non-ethnic) were selected using stratified random sampling method from two ranges (Table 2). We only
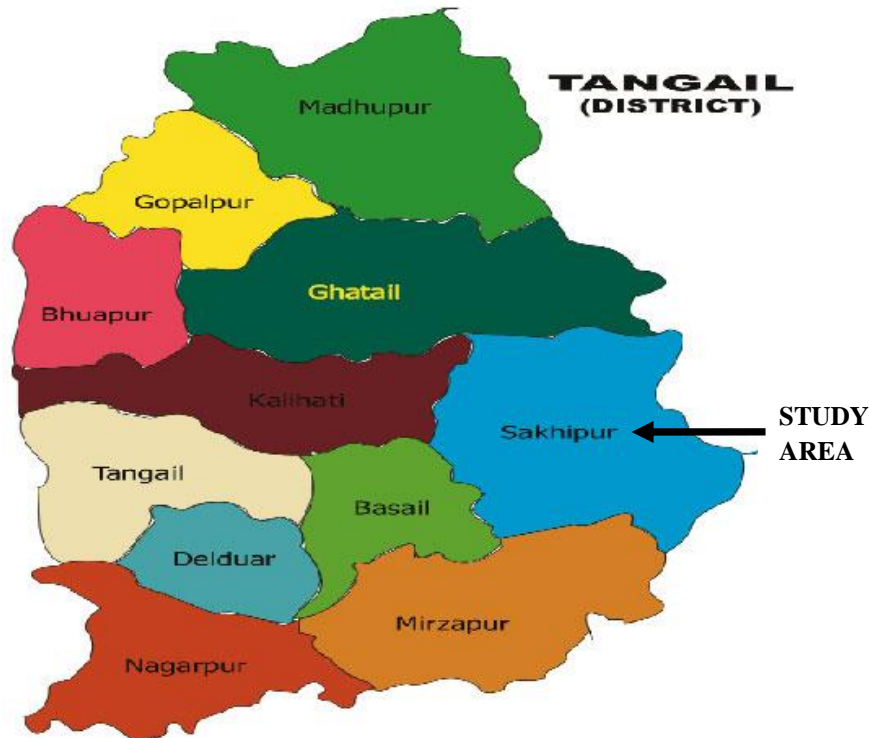
Figure 2. Map of Tangail district showing study area (source: GOB, 2015)

interviewed one representative from each household through structured questionnaire using face-to-face interview method during January to February 2016. The data were collected by the principal researcher himself with the help of two enumerators.

Our questionnaire originated from the questionnaire of Chen (2003), which examined local peoples' attitudes towards CBFM approach adhered to a five point Likert sacle: [1] = strongly disagree; [2] = disagree; [3] = neutral; [4] = agree; and [5] = strongly agree (Likert, 1932). Almost all of the attitudes related statements were close-ended, respondents selecting from a predetermined list of response categories. Other questions were framed to seek information on local peoples' personal and socio-demographic characteristics such as age, education, duration of involvement with CBFM project, family income, credit received, participation in training supported by the CBFM project, membership in local formal committee (s), knowledge on forest conservation issues. Questionnaires were written in Bengali and administered orally. The questionnaire was pre-tested and some questions were deleted and some modified based on the experience of pre-test for improving their clarity.

Quantitative data were analyzed using Statistical Packages for the Social Sciences (SPSS) version 20. Attitudes towards CBFM approach were measured by developing 15 relevant statements. The internal consistency of the scale was measured by the reliability coefficient of Cronbach's alpha (Cronbach, 1951), which ranges from 0 to 1; the larger the value the greater the reliability of the scale. Reponses to each of the statements were graded and summed, resulting in an overall score of each respondent on this attitudes scale. The scale was used for two inferential statistics. A two-sample t test was performed on the scale scores to ascertain whether there were significant differences in attitudinal statements between ethnic and non-ethnic category of local people. Logistic regression was also performed on the scale to determine whether personal and socio-demographic variables such as age, education, duration of involvement with the CBFM project, family income, credit received, participation in training supported by the CBFM project, membership in local formal committee (s), knowledge on forest conservation helped explain why some respondents held more favourable attitudes that others category toward CBFM approach. Logistic regression is a multivariate technique which assumes non-linearity and is used to predict binary dependent variable from a set of independent variables (Norušis, 1994).

RESULTS AND DISCUSSION

Characteristics of the selected sample

During the field study 36 household heads of ethnic (45%) and 44 household heads of non-ethnic families (55%) were interviewed (Table 3). Of these, 52% of the

Table 2. Total number of household and the number of sampled in each village.

Villages	Total number of households		No of sampled		Percent sampled
	Ethnic	Non-ethnic	Ethnic	Non-ethnic	
Hoteya	27	40	16	24	
Boheratoli	33	33	20	20	60
Total	60	75	36	44	

Source: Field Survey, 2016

ethnic respondents and 55% of the non-ethnic respondents were found between the age category of 31 and 50 years followed by 48% and 45% old aged (>50 years), respectively.

Almost two-third (67%) of the respondents under ethnic group went to primary school then dropped, and 19% went to secondary school, while half of the non-ethnic respondents (50%) went to primary school then dropped and 39% went to secondary school. The level of literacy was a bit higher for the non-ethnic group than ethnic one. Data concerning duration of involvement with CBFM project indicates that 40% of the respondents under ethnic category had 1 to 5 years of involvement and 35% had 1 to 10 years of involvement followed by long duration (25%). For non-ethnic participants, on the other hand, 29% of them had 6 to 10 years of involvement, and the highest proportion (49%) had more than 10 years of involvement with CBFM project. The overwhelming majority of the respondents from both the ethnic (91%) and non-ethnic (81%) were found with low to medium level of income with the average of 163.99 and 175.59 thousand BD Tk, respectively (1US$ = 80 BD Tk).

The rate of credit received had a bit higher for non-ethnic respondents (68.2%) than that of ethnic respondents (60.3%). Findings related to participation in training supported by the CBFM project reveal that about half of the sampled respondents under ethic category had received training, while 68.2% of the respondents from non-ethnic category received training. The majority of the ethnic respondents (62%) did not have membership in any local formal committee (s). On the contrary, a significant proportion of ethnic respondents (60%) were found with the membership in local formal committee (s) in the study areas.

The half of the ethnic respondents had moderate level of knowledge on forest conservation followed by high knowledge (22%), while 45% of the non-ethnic respondents had moderate knowledge followed by high knowledge (35%) with the average of 4.48 and 4.96, respectively.

Attitudes of the respondents towards CBFM approach

Statement-wise attitudes

Data in Table 4 represents the level of attitudes of both the ethnic and non-ethnic respondents towards 15 statements related to CBFM approach. The statements namely

'empowers local people and improves decision-making ability', 'personnel of local forest department often do not cooperate properly' and 'CBFM approach improves local people's income through dividend earned from partnership' got the highest mean values such as 4.11, 4.05 and 4.03, respectively based the opinion provided by the ethnic respondents. On the other hand, 'CBFM is a good approach for better forest management', 'provides opportunity to diversify local economy' and 'dishonest personnel of regional forest department often show reluctance to manage and conserve forest resources' statements received the highest mean values like 4.48, 4.18 and 4.11, respectively according to the opinion given by the non-ethnic participants.

Among 15 attitudes statements, the two statements namely, 'CBFM is a good approach for better forest management' and 'provides opportunity to diversify local economy' had significant difference between the responses of ethnic and non-ethnic participants. For both the categories of respondents, the statement 'increases local people's access to market' was found with the lowest average value. The non-ethnic respondents had found with a bit more eager to CBFM approach than ethnic respondents in the study areas. It may be because of some more facilities received by the non-ethnic participants compare to ethnic ones.

The above findings were supported by Ratsimbazafy, et al. (2012). However, the respondents from both categories had more or less favourable attitudes towards most of the statements concerning CBFM approach in the study areas.

Overall attitudes

The obtained overall attitudes scores of the respondents were classified into four categories such as unfavourable attitudes (0-30), neutral (31-45), favourable attitudes (46-60) and highly favourable attitudes (61-75). Data in Fig. 3 indicates that almost similar proportion of respondents from both ethnic and non-ethnic categories were found with unfavourable attitudes towards CBFM approach.

The percentage of ethnic participants with the response of 'neutral' category was higher (19.4%) than that of non-ethnic participants (9.1%).

Table 3. Salient features of personal and demographic characteristics of the respondents

Selected characteristics	Ethnic respondents (n= 36)			Non-ethnic respondents (n= 44)		
	%	Mean	SD	%	Mean	SD
Age (actual year)						
Middle aged (31-50)	52	50.04	7.78	55	52.00	7.91
Old aged (>51)	48			45		
Education (year of schooling)						
Primary level (1-5)	67			50		
Secondary level (6-10)	19	5.78	3.58	39	6.02	3.09
Above secondary level (>10)	14			11		
Duration of involvement with CBFM project (year)						
Short (1-5)	40			22		
Moderate (6-10)	35	5.61	4.40	29	7.49	4.60
Long (>10)	25			49		
Family income ('000' BD Tk) (1 US$ = 78 BD Tk)						
Low (up to 100)	66			64		
Medium (101-250)	25	163.99	92.14	17	175.59	101.65
High (>251)	09			19		
Credit received						
Yes	60.3			68.2		
No	39.7			31.8		
Participation in training supported by CBFM project						
Yes	49.12			68.20		
No	50.88			31.80		
Membership in local formal committee (s)						
Yes	38			60		
No	62			40		
Knowledge on forest conservation (scale score: 0-8)						
Low (1-3)	20			20		
Moderate (4-5)	50	4.48	1.13	45	4.96	1. 61
High (>6)	20			35		

Interestingly a bit higher percentage (36.1%) of ethnic respondents was reported with favourable attitudes compare to non-ethnic respondents. Findings concerning highly favourable attitudes of the respondents towards CBFM approach indicate that the highest proportion (43.2%) of the non-ethnic respondents had highly favourable attitudes than that of ethnic ones (30.6%). The average attitudes score for ethnic and non-ethnic respondents were 49.12 and 53.67, respectively. The difference of attitudes can be explained by the fact that the length of project involvement, credit received and extent of participation of training programme supported by the CBFM project was lower for the ethnic participants compare to non-ethnic ones. The higher the access of the above facilities might have higher chance to form more favourable attitudes. Mehta et al. (1998) reported more or less similarly in their study in Nepal.

Influencing variables upon respondents' attitudes

In assessing the degree of influence of some selected variables expected to affect the ultimate dependent variable (attitudes of local people towards CBFM approach), stepwise linear multiple regression technique was used. The dependent variable was regressed on respondents' age, education, duration of involvement with the CBFM project, family income, credit received, participation in training supported by the CBFM project, membership in local formal committee (s) and knowledge on forest conservation. Regression results (Table 5) show that credit received, participation in training supported by the CBFM project and knowledge on forest conservation had significant positive influence on ethnic respondents' attitudes towards CBFM approach.

Table 4. Comparison of attitudes of CBFM approach between ethnic (n=36) and non-ethnic (n=44) respondents

Statements	Ethnic	Non-ethnic	t	P
	Mean ± SD	Mean ± SD		
CBFM is a good approach for better forest management	3.94 ± 1.04	4.48 ± 0.82	- 2.561	0.012
Enhances forest conservation initiatives	3.94 ± 1.15	3.86 ± 1.03	0.445	0.658
Restricts local people's easy access to forest	3.83 ± 1.19	3.98 ± 1.11	- 0.463	0.645
Helps establish community-based organization	3.94 ± 1.04	4.07 ± 1.02	- 0.412	0.681
Creates employment opportunity for local people	3.87 ± 1.09	3.89 ± 1.04	0.126	0.900
Personnel of local forest department often do not cooperate properly	4.05 ± 1.00	4.05 ± 1.01	0.044	0.965
CBFM approach improves local people's income through dividend earned from partnership	4.03 ± 1.05	4.09 ± 1.18	- 0.134	0.894
Helps develop own responsibility and increase satisfaction of community people	3.94 ± 0.96	4.09 ± 1.03	- 0.526	0.600
Provides opportunity to diversify local economy	3.83 ± 1.13	4.18 ± 0.76	- 2.184	0.013
Local influential leaders and musclemen often make obstacles	3.86 ± 1.08	3.98 ± 1.11	- 0.357	0.722
CBFM helps build capacity of community people to manage forest efficiently	3.89 ± 1.00	4.05 ± 1.01	- 0.564	0.575
Dishonest personnel of regional forest department often show reluctance to manage and conserve forest resources	3.83 ± 1.00	4.11 ± 1.15	- 1.031	0.306
CBFM works fairly well for the development of local community	3.97 ± 1.16	4.07 ± 0.73	- 0.318	0.751
Increases local people's access to market	3.75 ± 0.97	3.77 ± 1.24	- 0.098	0.929
Empowers local people and improves decision-making ability	4.14 ± 0.90	4.09 ± 1.03	- 0.345	0.731

The remaining independent variables had some sort of positive influence upon respondents' attitudes expect two variables namely, education and membership in local formal committee (s) showed negative influence. Data in Table 6 represents the influence of independent variables upon dependent variable for non-ethnic respondents. The regression results indicate that duration of involvement with the CBFM project, credit received, participation in training supported by the CBFM project, membership in local formal committee (s) and knowledge on forest conservation had significant positive influence on the attitudes of non-ethnic respondents towards CBFM approach. Except the age of the respondents, other variables such as education and family income also had positive influence upon their attitudes.

The findings concerning influence of independent variables upon dependent variable for both ethnic and non-ethnic respondents could be attributed to the fact that training helps improve knowledge and skills and also change attitudes of individuals. Credit support plays a significant role to run the project activities properly by the participants. Furthermore, adequate knowledge of an individual is also important to form either favourable or unfavourable attitudes upon a particular issue.

Though the variables namely, duration of involvement with the CBFM project and membership in local formal committee (s) had significant positive influence on non-ethnic respondents' attitudes, these two variables did not show significant influence upon the attitudes of ethnic respondents. This could be explained by the fact that the highest proportion (40%) of the ethnic respondents had project involvement experience between 1 to 5 years and only 25 % of them had more than 10 years of experience (Table 3). The long duration of project involvement along with reception of different project facilities might help an individual to form positive attitudes towards that project (Mehta and Heinen, 2001). In the study areas, it was reported that 60% of the non-ethnic respondents had involved with local formal committee (s) as members, while 38% of the ethnic respondents had that opportunity. Mehta and Kellert (1998) opined that the opportunity of an individual to get involve with local formal committee (s) helps improve his/her managerial capacity, provides interactive environment, broadens knowledge base and develops mutual understanding that might lead to form a favourable attitudes.

CONCLUSIONS AND POLICY IMPLICATIONS

To summarize the findings, the study concludes that local people's (both ethnic and non-ethnic) attitudes towards CBFM approach were generally favourable and that, in general, these attitudes related to the people's perceived or real benefits from implemented community development and community forestry management programmes. The finding of non-ethnic respondents having better attitudes than ethnic respondents suggests
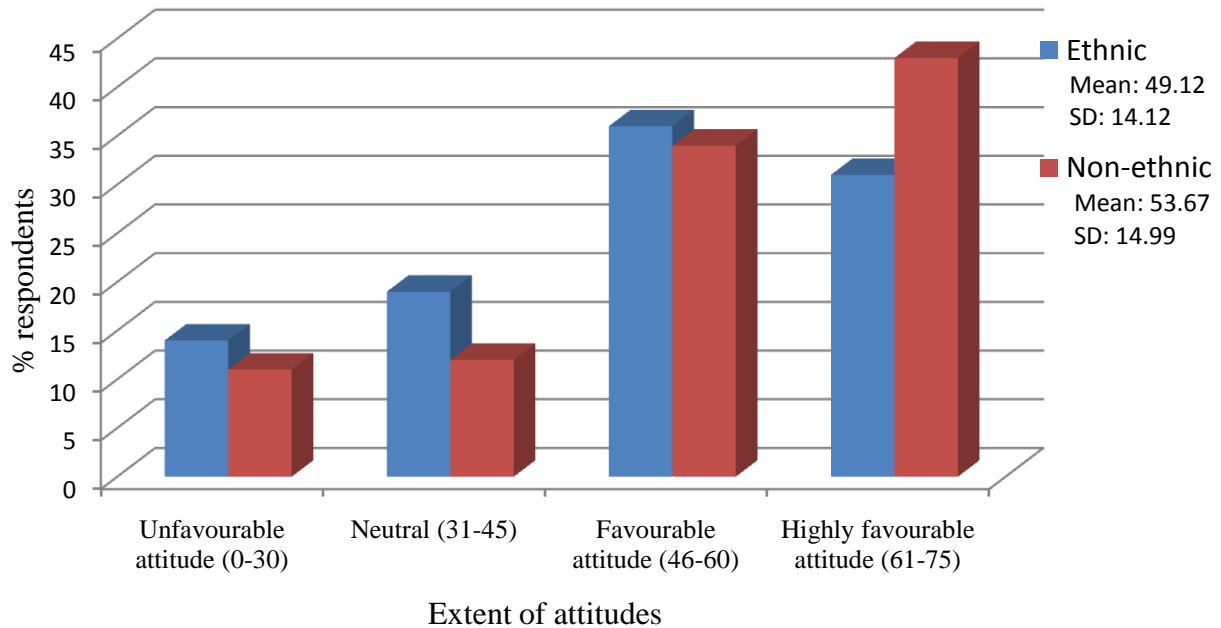
Figure 3: Distribution of respondents based on their overall attitudes

the possibility of improved local attitudes when people realize tangible benefits from intervention programme over the course of action. Results of multiple regression analysis indicated that three predictors - credit received, participation in training supported by the CBFM project and knowledge on forest conservations had significant positive influence upon attitudes of both categories of respondents towards CBFM approach. These results may be concluded in such a way that credit and training support for running project activities along with initiatives to increase knowledge on forest conservation might have positive influence to form favourable attitudes for both ethnic and non-ethnic respondents in the study areas.

During the field survey, it was reported by discussing with local elites and project staff that the non-ethnic respondents received a bit more benefits from CBFM approach than ethnic participants. However, the longer the duration of involvement with project activities, the higher the opportunity to form favourble attitudes by the participants on that project provided only when the project facilities are used in productive way. The opportunity of ethnic respondents to get involve with local formal committee (s) was lower than that of the non-ethnic respondents in the study areas. Hence, though the predictor - membership in local formal committee (s) showed significance positive influence upon non-ethnic respondents' attitudes, it did not show any significant influence on attitudes of ethnic respondents towards CBFM approach.

It is clear that the facilities of the CBFM project were unequally distributed, and that is inequality was recognized by the local people and those influences their attitudes towards CBFM approach. Since three decades, the people-oriented management approach has been emphasized in several forest management policies and projects in most of the forest areas of Bangladesh, attitudes and perception of forest community, securing active and equitable participation from all social layers remains a challenge for most of the forestry management projects (Sarker and Rodrigo, 2014,). As such to the extent possible, planners and managers must ensure fair and equal distribution of project benefits among the participants irrespective of caste/race in order to succeed. To achieve this, the criteria for selecting the local community representatives should be more expanded to enable all layers of the local people to be represented and so that their voice can be heard. The promotion of active, self-organized, and self-governed involvement of local people is also needed, which will allow all of the layers of local community to be involved. Finally, in order to be truly democratic and participative, the forest governing bodies should reflect the social diversity within a community and represent the interests of all users for sustainable management of Sal forest in Bangladesh

Table 5. Effects of variables on respondents' (ethnic) attitudes towards CBFM approach

Variables	Beta	Std. Error	t	Sig.
Age	0.059	0.104	1.041	0.307
Education	- 0.002	0.246	- 0.025	0.980
Duration of involvement with CBFM project	0.082	0.125	1.492	0.251
Family income	0.018	0.010	0.259	0.802
Credit received	0.537	2.659	6.147	0.000
Participation in training supported by CBFM project	0.471	2.741	5.083	0.000
Membership in local formal committee (s)	- 0.079	1.952	- 1.511	0.260
Knowledge on forest conservation	0.415	0.344	4.253	0.000

R square: 0.658,   Adjusted R square: 0.639

Table 6. Effects of variables on respondents' (non- ethnic) attitudes towards CBFM approach

Variables	Beta	Std. Error	t	Sig.
Age	- 0.093	0.090	- 1.954	0.307
Education	0.370	0.083	0 .727	0.474
Duration of involvement with CBFM project	0.508	0.384	4.310	0.000
Family income	0.028	0.008	0.495	0.624
Credit received	0.497	2.960	4.015	0.000
Participation in training supported by CBFM project	0.514	2.991	4.331	0.000
Membership in local formal committee (s)	0.424	2.813	4.171	0.000
Knowledge on forest conservation	0.475	2.843	4.291	0.000

R square: 0.743,   Adjusted R square: 0.715

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