Impact of BRAC social forestry program as perceived by the women beneficiaries

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Abstract: The aim of the study was to determine the extent of perceived impact of social forestry program by the women beneficiaries of BRAC. Attempt was taken to explore relationships of eleven selected characteristics of women beneficiaries and their perceived impact of social forestry program. The study also investigated the direct and indirect effects of the selected variables on women beneficiaries' perceived impact of social forestry program. Data were collected by interviewing from 105 randomly selected women beneficiaries of Bochagonj and Kaharole upazila of Dinajpur district during 24 November 2007 to 17 December 2007. About 66 percent of the respondents had high impact followed by 23 percent moderate and 11 percent low perceived impact of social forestry program. Out of eleven selected characteristics, only constraints faced in social forestry program had negative significant relationship while the others eight had a positive significant relationship with their perceived impact of social forestry program. Knowledge on social forestry, participation in social forestry program and attitude towards BRAC had positive and substantial total indirect effects on women beneficiaries' perceived impact and the constraints faced in social forestry program had negative and indirect effects.
Key words: Impact, Perception, Social forestry and Women

Introduction

Bangladesh has a total land area of 24 million hectare of which 14.3 million hectare is under forests (BBS, 2006). Every year the country is badly affected by the adverse environmental disasters, such as drought, extreme temperature, flood, tornado and other natural hazards. For achieving rapid progress of civilization, forests are destructed; urban areas are expanded; industries are erected and environment is being polluted with harmful and noxious materials. All these activities done by man have led to a widespread exploitation of environment causing almost unrecoverable damage to it.

A survey conducted by USAID and CIDA revealed that 50 percent of the forests of Bangladesh has been destroyed during the last two decades and per capita forest is 0.01 hectare, which is the lowest in the world (BCES, 1997). However, according to the Forestry Master Plan and surveys by multilateral donor agencies, a total of 769,000 hectares (6%) of the country's landmass have actual tree coverage (BCES, 1999). But, to cope with the environmental crisis and enjoy the benefit of nature, we should have at least 25 percent forest coverage.

NGOs have added a new dimension to forest management, which has ensured community participation and protection of the forests. BRAC's social forestry program, launched in 1988, increases awareness about the necessity of planting trees in rural areas, creates a sustainable supply of high quality seedlings, and reduces the adverse environmental effects of deforestation while creating income and employment opportunities for rural women.

Almost half of the population of Bangladesh is women. Therefore, development of country is impossible without active participation of women. Socially and economically, women are more vulnerable. Social forestry can be used as a tool to reduce their vulnerability. Bangladesh has taken some measures for inclusion of poor women in its forestry and development program under the banner of social forestry, woman and development. The present study is, therefore, an effort to unearth the role of social forestry in improving the poor and vulnerable women's socio-economic and cultural conditions in Bangladesh.

Materials and Methods

The Locale of the Study: Dinajpur district was selected purposively as because extensive works of BRAC including social forestry program were taken place in this district since last two decades. The two Upazilas namely, Bochagonj and Kaharole were selected randomly as the locale of the study.

Population and Sample of the Study: An updated list of BRAC women beneficiaries of the two selected Upazilas having at least one-year participation of social forestry program (SFP) was collected. The entire women beneficiaries (697) of BRAC social forestry program were considered as population of the study. From the population 15 percent women beneficiaries were selected randomly as the sample of the study. Thus, the actual size of the sample was 105.

The Research Instrument: A structured interview schedule was prepared for data collection from the women beneficiaries of BRAC social forestry program. Prior to final data collection, the schedule was pre-tested with 16 respondents. Corrections, alterations and adjustments were done in the schedule on the basis of the pre-test results.

Data Collection: Data were collected through personal interviewing by the researchers. Collection of data took 24 days ranging from 24 November 2007 to 17 December 2007. Afterward the collected data were compiled, tabulated and analyzed for interpretation.

Variables and their measurement: The researcher selected 11 characteristics of the respondents as the independent variables. These were age, level of education, family size, farm size, annual family income, duration of involvement in social forestry program, participation in social forestry program, training exposure, knowledge on social forestry, attitude towards social forestry program and constraints in participating social forestry program. Impact of social forestry program as perceived by the women beneficiaries of BRAC was considered as the dependent variable.

Impact of social forestry program as perceived by women beneficiaries of BRAC was measured by using 12 socio-economic items along with a 4-point rating scale. The respondent was asked to indicate her degree of change by

checking any one of the responses – large change, moderate change, little change and no change. Weights were assigned to the response as 3, 2, 1 and 0 respectively for each item. The perceived impact score of a respondent was determined by adding up the weights for responses against 12 items. Thus, perceived impact score of a respondent could range from 0 to 36, while 0 indicating no impact of social forestry program and 36 indicating high positive impact of social forestry program.

Statistical techniques: The computer software SPSS 11.5 version was used to analyze the data. The Descriptive statistical such as frequency, range, mean, standard deviation, number and percentage, coefficient of variation, categories etc. were used to describe and interpret the data.

Correlation analysis, linear regression analysis, step-wise multiple regression analysis, path analysis etc were done to find out relationship and contribution between the variables.

Results and Discussion

Impact of Social Forestry as Perceived by the Women Beneficiaries: Scores of impact of social forestry program as perceived by the BRAC women beneficiaries ranged from 15 to 31 against the possible range of 0 to 36. On the basis of observed scores the women beneficiaries were classified into three impact categories namely, low impact category, moderate impact category and high impact category (Table 1).

Table 1. Distribution of BRAC women beneficiaries according to their perceived impact of social forestry

Categories (with respective scores)	Women beneficiaries		Mean	Standard deviation	CV (%)
	Number	Percent			
Low impact (15 - 20)	12	11.4			
Moderate impact (21 - 25)	24	22.9	25.70	4.02	15.64
High impact (26 - 31)	69	65.7			
Total	105	100.0			

Source: Author survey 2007

The results show that, about two-third (65.7 percent) of the women beneficiaries had perceived high impact, compare to 22.9 percent moderate impact and 11.4 percent low impact of social forestry programAs the respondents perceived social forestry program as low to high impact oriented program, the concerned NGOs as well as the related GOs should highlight this view in the community for well expansion of social forestry program.

Selected Characteristics of the Respondents: A summary of ten selected characteristics of the women beneficiries has been presented in the Table 2. However, it was found that young aged women beneficiaries constitute the highest proportion (44.8 percent). The highest proportion (62.9 percent) of the women beneficiaries were under 'can sign name only' category and no women beneficiary was found under above secondary level of education.

The medium sized family constitutes the highest proportion (61.0 percent). Marginal farm holder constituted the highest proportion (46.7 percent) and there was no large farm holders in the present study. Low income constituted the highest proportion (46.7 percent). Majority (80.9 percent) of the women beneficiaries under BRAC social forestry program were involved for low duration. Because, benefit of social forestry program become visible to the community people as well as to the participant very recently as a result they could not perceive it earlier.

The highest percentage (87.6 percent) of women were under moderate participation category. About 82 percent of the women beneficiaries had low training exposure. One of the major causes is lack of training facilities. Majority (49.5 percent) of the respondents had a moderate knowledge on social forestry because; they learned the knowledge by doing the work. A greater part (67.6 percent) of the respondents had medium favorable attitude towards BRAC. About two-third (67.6 percent) of the respondents faced low constraint in social forestry

program of BRAC. This implies that the program ran smoothly and had a great impact to the women beneficiaries and they perceived it as well.

Relationships of Selected Characteristics of the Women Beneficiaries with the Impact of BRAC Social Forestry Program as perceived by them: The correlation analysis shows that out of eleven selected characteristics of women beneficiaries, 8 selected characteristics show positive significant relationship with the perceived impact of BRAC social forestry program, these are level of education, family size, annual family income, duration of involvement in social forestry program, participation in social forestry program, training exposure, knowledge on social forestry and attitude towards BRAC. Other two variables age and farm size showed negative non-significant relationship with the impact of BRAC social forestry program as perceived by them (Table 3).

Education of the women beneficiaries had significant relationship with the impact of BRAC social forestry program as perceived by them. This indicates that increased level of education results increase of impact of BRAC social forestry program as perceived by the women beneficiaries. Wahaduzzaman (2004), Ali (2003), and Hanif (2000) also found similar findings in their respective studies.

Family size of the women beneficiaries had significant relationship with the impact of BRAC social forestry program as perceived by them. This indicates that increased family member of the women beneficiaries results increased involvement in social forestry program and ultimately increased impact of the same by them which is supported by Islam (2001).

Annual family income of the women beneficiaries had significant relationship with the perceived impact of BRAC social forestry program. This indicates that farmers with higher income had better economic and social status in the community, as a result they can involve with the social forestry program as the best course of their

capability and ultimately they perceived more impact. Asaduzzaman (2003) and Islam (2001) opined the same opinions.

Duration of involvement in social forestry program had significant relationship with their perceived impact of BRAC social forestry program. This indicates that farmers with more duration of involvement had perceived more impact of social forestry program. The finding is further supported by Ali (2003).

Table 2. Salient feature of the BRAC women beneficiaries with their selected characteristics

Selected characteristics	Categories	Respondent		Scoring method	Range		Mean	SD
		No.	%		Observed	Expected		
Age	Young (≤ 30)	47	44.8					
	Middle aged (31 -50)	40	38.1	Years	19 -60	-	34.44	12.71
	Old (> 50)	18	17.1					
	Illiterate (0)	3	2.9					
Level of education	Can sign name only (0.5)	66	62.9	Years of schooling	0-10	-	2.36	2.95
	Primary level (1 -5)	19	18.1					
	Secondary level (6 -10)	17	16.2					
Family size	Small family (< 4)	30	28.6					
	Medium family (4 -6)	64	61.0	Number	2-8	-	4.50	1.48
	Large family (> 6)	11	10.5					
farm size	Marginal farm holder (< 0.20)	49	46.7					
	Small farm holder (> 0.20 – 1.00)	37	35.2	Hectare	.036-1.77	-	0.517	0.513
	Medium farm holder (>1.00– 3.00)	19	18.1					
Family annual income	Low family income (≤ 50)	49	46.7	000' Tk	2-199.5	-	68.56	39.77
	Moderate family income (>50-100)	36	34.3					
	High family income (> 100)	20	19.0					
Involvement duration in program	Low duration (3 - 6)	85	80.9					
	Medium duration (7 - 10)	15	14.3	Years	3-14	-	5.13	2.43
	High duration (11 - 14)	5	4.8					
Participation in social forestry program	Poor participation (1 - 7)	8	7.6	Rated score				
	Moderate participation (8 - 14)	92	87.6		2-21	0-21	10.36	2.95
	High participation (15 - 21)	5	4.8					
Training exposure score	No training exposure (0)	8	7.6	Rated score				
	Low training exposure (1-2)	86	81.9		0-4	0-4	1.32	0.88
	Medium training exposure (3 -4)	11	10.5					
knowledge on social forestry	Poor knowledge (15 - 17)	7	6.7	Rated score				
	Moderate knowledge (18 - 21)	52	49.5		15-29	0-24	21.00	1.94
	Adequate knowledge (22 - 24)	46	43.8					
Attitude towards BRAC	Medium favorable attitude (32 - 37)	71	67.6	Rated score	34-44	0-44	36.79	3.20
	High favorable attitude (38 - 44)	34	32.4					
Constraints in social forestry program	Low constraints (6 - 8)	71	67.6	Rated score				
	Medium constraints (9 – 11)	25	23.8		6-13	0-30	8.42	1.63
	High constraints (12 - 13)	9	8.6					

Source: Author survey 2007

Table 3. Coefficient of correlation between the selected characteristics and impact of BRAC social

Selected characteristics	Correlation coefficient (df=103)
Age	-0.054[NS]
Level of education	0.201*
Family size	0.250*
Farm size	-0.148[NS]
Annual family income	0.204*
Duration of involvement in social forestry program	0.390**
Participation in social forestry program	0.568**
Training exposure	0.260**
Knowledge on social forestry	0.463**
Attitude towards BRAC	0.346**
Constraints faced in social forestry	-0.280**

* Significant at 0.05 level of probability, ** Significant at 0.01 level of probability

Increased training exposure of the women beneficiaries results increased impact of social forestry program as perceived by them. The study of Wahaduzzaman (2004), Asaduzzaman (2003) and Kabir (2001) supported the present result. Knowledge on social forestry of the respondents had significant relationship with their perceived impact of BRAC social forestry program. Respondents with more knowledge on different issues of social forestry might get more impact of social forestry program. Similar findings were reported by Amin (2002) and Islam (2001).

Table 4. Regression coefficient of perceived impact of social forestry program with their selected characteristics

Selected characteristics	Regression coefficient	Significant level
Level of education	0.016	0.850
Family size	0.093	0.268
Annual family income	-0.087	0.335
Duration of involvement in social forestry program	-0.004	0.966
Participation in social forestry program	0.398**	0.000
Training exposure	-0.058	0.503
Knowledge on social forestry	0.296**	0.001
Attitude towards BRAC	0.254*	0.012
Constraints faced in social forestry	-0.221**	0.006

Notes: * Significant at 0.05 level of probability, ** Significant at 0.01 level of probability
Source: Author survey data 2007

Attitude towards BRAC had significant relationship with their perceived impact of social forestry program. This indicates that women beneficiaries with more favorable attitude towards BRAC might have a high-perceived impact of social forestry and vise versa. In developing a favorable or unfavorable attitude toward any object or idea or practice, the individual may mentally apply the new idea to his present or anticipated future situation before deciding whether or not to try it and this might be thought of as a vicarious trial. Thus, more favorable attitude might helps to get and perceived more impact of social forestry program of BRAC. Ali (2003), Kabir (2001) and Rashid (2001) had similar observations in their study.

Constraints facing of the women in participating social forestry program had a negative significant relationship with their perceived impact of social forestry program of BRAC. Repeated constraints make an unfavourable attitude towards any activities or idea or object. That's why the women beneficiaries, who faced high constraints in participating social forestry program, had perceived less impact from social forestry program. This finding is further supported by Kabir (2001).

Contribution of selected characteristics of women beneficiaries to their 'perceived impact of social forestry of BRAC': Linear multiple full model regression analysis was done to determine the contribution of various characteristics of women beneficiaries to their perceived impact of social forestry. Only those variables which had significant relationship with 'perceived impact of social forestry' in correlation analysis were included in the regression analysis model.

The regression coefficient of four characteristics of the women beneficiaries namely, participation in social forestry program, knowledge on social forestry, attitude towards BRAC and constraints in participating social forestry had significant contribution to women beneficiaries' perceived impact of social forestry program of BRAC. The remaining characteristics had no significant contribution to the women beneficiaries' perceived impact of social forestry program of BRAC.

The coefficient of multiple determinations (adjusted R^2) in the stepwise regression model was 0.474, which indicated that the three independent variables in the model explained 47.4 percent variation to women beneficiaries' perceived impact of social forestry program (Table 5). Thus, it can be said that women beneficiaries who had more participation in social forestry program, more knowledge on social forestry, more favorable attitude towards BRAC and less constraints faced were found to have more impact of social forestry program as perceived by them.

Table 5 indicates that the participation in social forestry program had the highest contribution of 31.6 percent to the total explained variance of 47.4 percent. Among the remaining variables knowledge on social forestry contributed to 7.3 percent, attitude towards BRAC contributed to 3.5 percent and constraints faced in social forestry program contributed to 5.0 percent to the explained variance.

Table 5. Summary of stepwise multiple regression analysis contributed to perceive the impact of BRAC social forestry program by the women beneficiaries

Variables entered	Standardized partial 'b'	t-Value (with probability)	Adjusted R^2	Increase in R^2	Variation explained in percent
Participation in social forestry program (X_7)	0.378	4.732 (0.000)	0.316	0.316	31.60
Knowledge on social forestry (X_9)	0.269	3.480 (0.001)	0.389	0.073	7.30
Attitude towards BRAC (X_{10})	0.254	3.357 (0.001)	0.424	0.035	3.50
Constraints faced in social forestry (X_{11})	-0.238	-3.241 (0.002)	0.474	0.05	5.00
Total				0.474	47.4

Notes: Multiple R = 0.703, R^2 = 0.494 , Adjusted R^2 = 0.474, F- ratio = 10.778
Source: Author's survey data 2007

Path analysis for measuring direct and indirect effects of selected independent variables on the women beneficiaries' perceived impact of social forestry program of BRAC: To measure the direct and indirect effects of selected four independent variables that were entered into the stepwise regression analysis model, path analysis was run. Analysis shows that out of four variables, three had positive direct effect on women beneficiaries' perceived impact of social forestry program of BRAC. Participation in social forestry program had highest positive direct effect (0.378) while knowledge on social forestry and attitude towards BRAC had a positive direct

effect of 0.269 and 0.254 respectively. On the other hand, constraints faced in social forestry program had a negative direct effect of -0.238 on women beneficiaries' perceived impact of social forestry program of BRAC. Likeurse, the total indirect effects of the above mentioned four independent variables ranged from -0.042 in constraints faced in social forestry program to 0.194 in knowledge on social forestry (Table 6).

Table 6. Path coefficient showing the direct and indirect effects on the 'perceived impact of social forestry program'

Independent variables	Direct effect	Total indirect effect	Variables through which indirect effects are channeled (with respective indirect effect)
Knowledge on social forestry	0.269	0.194	Participation in social forestry program (0.1150) Constraints faced in social forestry (0.0596)
			Attitude towards BRAC (0.0193)
Participation in social forestry program	0.378	0.190	Knowledge on social forestry (0.0925)
			Attitude towards BRAC (0.0767) Constraints faced in social forestry (0.0207)
Attitude towards BRAC	0.254	0.092	Participation in social forestry program (0.112)
			Knowledge on social forestry (0.016) Constraints faced in social forestry (-0.036)
Constraints faced in social forestry	-0.238	-0.042	Attitude towards BRAC (0.038) Knowledge on social forestry (-0.050) Participation in social forestry program (-.030)

Source: Author's survey data 2007

Increasing population and increasing food demand is creating continuous pressure on nature. Every year Bangladesh is seriously facing adverse environmental effects. Social forestry can play a vital role in this context. This is an approach to meet the basic needs of the rural people such as food, fuel wood, timber etc and amelioration of forest resources through active participation in tree plantation programs. Following this continuity, majority (65.7 percent) of the women beneficiaries perceived high impact of BRAC social forestry program. Out of eleven selected characteristics of the respondents, only 9 selected characteristics showed significant relationship with the impact of BRAC social forestry program, However, this program could be more persuasive to the women beneficiaries of BRAC as well as to the common people if active participation of stake holder in social forestry program is ensured, knowledge and attitude about social forestry is improved by non-formal education, mass media, training or any effective means and if there is no constraints in participating the program. Hence, it is time demand for both the government and the private sectors to take an effective social forestry program with view in mind that 'people are the best resources' therefore; they should be properly addressed in perceiving the benefit of the program.

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