

Role of Sugarcane in Poverty Reduction and Employment Generation for Char Dwellers

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Abstracts

This was a follow up study of an action research conducted during 2011 to 2016. The main objective of the study was to estimate the role of sugarcane and its subsidiary products like juice and goor making as poverty reducer by increasing farmers' income in extreme poverty affected Rangpur areas of Bangladesh which enhances the quality of life and livelihood of the riverine char-areas. During action, a series of activities were done to train-up and transfer the sugarcane cultivation technologies. These were arrangement of training for 6885 numbers. of farmer, extension officer/worker of DAE, organization of 25 farmers field day, demonstrations of 541 numbers goor varieties, 206 numbers on Goor preparation & preservation, 576 numbers on chewing cane and 435 numbers on intercrop with sugarcane. In spite of that, 1406 tons seed of early maturing high yielding chewing varieties those can be harvested and marketed in lag period (September-November) were distributed in char homestead for cultivation of 150 ha. A good response was observed among the beneficiaries. They were able to change their economic conditions. It was found that average family income at the end of the project was increased by 180.79%. Average family income per month at the end of the project was taka 10800.00 which was during benchmark taka 5973.77. It was also found that average family expenditure at the end of the project was increased by 173.60%. Average family expenditure per month at the end of the project was taka 9814.74 which was during benchmark taka 5653.59. Average income of char dwellers women had also increased by 1097.47%. Average income of char dwellers women were increased from taka 292.25 to taka 3207.37 per month from benchmark to end of the project respectively. Peoples housing condition and other indicators of livelihood were also improved significantly. Sandy fallow lands of river banks were utilized by sugarcane and intercrops. Most of the farmers preferred winter vegetables for intercrop with sugarcane followed by potato and tobacco for the intercrop with sugarcane. Second intercrop was not practiced.

Keywords: Poverty reduction, Char dwellers, sugarcane

Introduction

Bangladesh has made significant development both in economic and social front in 2015, It was elevated (according to the WB's classification) from a low income to a lower middle income country status.

However two among others unfinished agenda of MDGs are '1) Environmental sustainability is under severe threat and 2) Rural-urban gaps persist' claiming still more attention Anonymous (2015).

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This was due to the slower progress in some areas, especially the northern region of the country. The region was lagging behind many others in development and available economic opportunities. In the greater Rangpur region, incidence of poverty remained unusually high and chronic food shortage and hunger remain an enduring phenomenon of rural life. According to Household Income and Expenditure Survey 2005 (HIES), of Bangladesh Bureau of Statistics (BBS), the poverty head count rate for the entire country was 40% while in the greater Rangpur region (Rangpur, Gaibandha, Nilphamari, Kurigram and Lalmonirhat) poverty rate was 57%. Similarly, extreme poverty rate was 25% nationally, compared to 43% in the greater Rangpur region.

The region is situated in the Tista and Jamuna basin and contains many tributaries of these. Topography and climate made these areas ecologically vulnerable. Thus floods, river erosion, drought and cold waves occur frequently and intensely than other regions. Char is a deposit of silt mostly sand of varying sizes in a river channel and is created by the forces of erosion and accretion in the rivers of Bangladesh.

The flooding, if it comes early, can damage the crops in the fields. Thus most of the farmers do not take risk to cultivate crops in the char-land. The island chars are found to be flooded more extensively almost every year. As a result, the char farmers can not produce crops round the area. Specially, in years with particular negative weather

conditions like drought, cold spells or floods.

Sugarcane is the only cash crop which is not affected by the flood, drought and water logging. The wild cane *Kash* is famous for char land and known to all as tolerant plant from its long history. However its economic return is very negligible. BSRI have developed and recommended different high yielding drought and flood tolerant sugarcane varieties. As a result, sugarcane cultivation can be easily expanded in 2.0 lakh hectare char-lands that can contribute national gross production and helps proper utilization of fallow lands due to environmental stress. It provides employment opportunities for the labourer as well as land owners. BSRI has also developed early maturing high yielding chewing varieties which may be harvested and marketed round the year. Thus the study was undertaken to estimate the role of sugarcane as poverty reduction crop which can increase farmers' income in poverty affected areas of the underprivileged people living in the riverine char areas. The ultimate target of the project was to increase income of extreme poverty affected char dwellers, particularly, the low-income farmers and labourer. Poverty reduction was, thus, the target for which necessary additional employment and high value crops were produced so that landless labour households can earn better wage and small farmers can earn more cash income through producing and selling high value crops at high price.

Methodology

The following major activities were undertaken to achieve the target of popularizing BSRI developed high yielding, insect-pests, diseases resistant and flood tolerant goor and chewing varieties in the selected extreme poverty affected districts.

Programme were undertaken to familiarize newly released BSRI high yielding goor and chewing varieties and to create awareness among char dwellers in selected extreme poverty affected districts through field demonstration, training, field days and by other means with the BSFIC or DAE. Promotion of hydroses free goor making and preservation programme was carried out by demonstration of goor preparation and preservation. These were arrangement of training for 6885 numbers of farmer,

extension officer/worker of DAE, organization of 25 farmers field day, demonstrations of 541 numbers goor varieties, 206 numbers on Goor preparation & preservation, 576 numbers on chewing cane and 435 numbers on intercrop with sugarcane. In spite of that, 1406 tons seed of early maturing high yielding chewing varieties those can be harvested and marketed in lag period (September-November) were distributed in char homestead for cultivation of 150 ha. It covered 16 Upazillas of Rangpur (Ganghachara, Kaunia), Lalmonirhat (Sadar, Aditmari, Hatibandha), Kurigram (Sadar, Rowmari, Rajibpur, Nageswari), Nilphamari (Dimla, Jaldhaka, Domar) and Gaibandha (Sadar, Fulchhari, Shaghata, Sundarganj).

Description	Quantity
Demonstration	1758
Demonstration on goor varieties and production technologies	541
Demonstration on chewing cane	576
Demonstration on char adopted intercrop with Sugarcane	435
Demonstration on gur preparation & preservation.	206
Seed Distribution (Chewing variety) for homestead cultivation	
a) Seed purchase (ton)	1406
Training	6885
Extension Officer (5 days)	25
Extension Worker (5 days, 30 nos./batch) & (2 days 40no./batch)	260
Farmers (1 Day, 40 nos./batch)	6600
Seminar/Workshop	18
Farmers field day	25

Seed Distribution (chewing variety) for Homestead Cultivation

To expand early maturing high yielding chewing varieties (BSRI Akh 41, BSRI Akh 42 etc.) those can be harvested and marketed in lag period (September-November). Thus, sugarcane farmers are earning money in that period. One thousand four hundred six (1406) ton seeds were distributed in char homestead for cultivation of

150 ha. Which were expanded more than 500 hectares of land.

Data Collection

Benchmark Survey: This was done through Pre-structured and pre-tested questionnaire from different group of respondents like DAE officials, BSRI scientists, Farmers and Local elites. They used interview and Focus

Group Discussion (FGD) techniques for data collection from 1600 respondents.

Final Data and Comparison: Final data was collected with the similar but short questionnaire used for the benchmark study. They also used interview and FGD

technique during their activities. Simple statistics like mean, range, percentage etc. were used for data analysis.

Limitation of the final study: Final study was limited only within the beneficiaries.

Results and Discussion

Only salient features of benchmark survey were presented here for the comparison of previous and present conditions of the project areas.

It was found that average family income at the end of the project was increased by 180.79%. Average family income per month at the end of the project was taka 10800.00 which was during benchmark taka

5973.77. Again during benchmark most of the farmers (31.13%) were in low income group of taka upto 4000. But after the project most of the farmers (31.16%) were in the group of earning taka 10001-12000. This simply means that farmers earning were increased by the intervention of the project (Table 1).

Table 1 Monthly Family Income of the Respondents

Sl. No.	Monthly Income (Taka)	Benchmark		At the end of the project	
		Number	Percentage	Number	Percentage
1	Upto 4000	498	31.13	10	2.11
2	4001-6000	474	29.63	31	6.53
3	6001-8000	343	21.44	62	13.05
4	8001-10000	179	11.19	126	26.53
5	10001-12000	43	2.69	148	31.16
6	12001-14000	40	2.50	98	20.63
7	Not mentioned	23	1.44	0	0.00
	Total	1600	100.00	475	100.00
	Average	5973.77		10800.00	
	Percent changed	180.79			

Chi-square = 789; p=.000

It was also found that average family expenditure at the end of the project was increased by 173.60%. Average family expenditure per month at the end of the project was taka 9814.74 which was during benchmark taka 5653.59. During benchmark most of the farmers (35.19%) were in low expenditure group of taka upto 4000. But at the end of the project most of

the farmers were (29.89%) in the group of earning taka 10,001-12,000. This simply means that farmers earning as well as expenditure were increased by the intervention of the project (Table 2). Similarly, their average savings were also increased from (5973.77-5653.59) taka 320.18 to (10800.00-9814.74) taka 985.26. Thus they were buying new household

items (like improved dresses, housing materials etc.) for their livelihood. Table 3 also supported this argument.

It was found from Table 3 that at the end of the project most of the respondents (32.43) have completed C.I. Sheet houses which

during benchmark was CI Sheet with Bamboo fence (45.12%). Again 26.06% respondents are now using semi pucca houses, during benchmark it was only 10.82%.

Table 2 Monthly Family Expenditure of the Respondents

Sl. No.	Monthly Income (Taka)	Benchmark		At the end of the project	
		Number	Percentage	Number	Percentage
1	Upto 4000	563	35.19	20	4.21
2	4001-6000	429	26.81	39	8.21
3	6001-8000	326	20.38	57	12.00
4	8001-10000	201	12.56	130	27.37
5	10001-12000	24	1.50	142	29.89
6	More than 12000	28	1.75	74	15.58
7	Not mentioned	29	1.81	13	2.74
	Total	1600	100.00	475	100.00
	Average	5653.59		9814.74	
	Percent changed	173.60			

Chi-square =759; p=.000 df= 6

Table 3 Types of Dwelling houses

Sl. No.	Types of Dwelling houses	Benchmark		At the end of the project	
		Number	Percentage	Number	Percentage
1	Pucca	57	3.39	35	6.76
2	semi pucca	182	10.82	135	26.06
3	C.I. Sheet	471	28.00	168	32.43
4	CI Sheet with Bamboo fence	759	45.12	154	29.73
5	Thached house	140	8.32	14	2.70
6	Made of Clay	39	2.32	9	1.74
7	No response	34	2.02	3	0.58
		1682*	100	518*	100.00

*Multiple responses. Chi-square value 123; p=.000 df=6

A remarkable change was observed in earning sources of the Char-Dwellers. During benchmark most of the respondents did not answer because of their vulnerability. But at the end of the project most of them (25.26%) were share-cropper. We found, the landless people cultivated sugarcane in a group basis. They made their

own co-operative group and made their farm by gathering land of their own and others as lease. During benchmark only (14.24%) were share-cropper. Labour market situation was also improved in Char land. During benchmark, only 4.71% respondents were able to sell their labour. At the end of the project 23.52%

respondents can sell their labour as day labourer. Another one aspect of small business was also improved. It was possible because of their extra earning. They can make capital by saving them. Other senerio

was changed slightly except the practice of rearing cow/goat, which was decreased. May be it was due to vulnerability of disease and lack of communication in char-land.

Table 4 Common Sources of Earning

Sl. No.	Sources of Earning	Benchmark		At the end of the project	
		Number	Percentage	Number	Percentage
1	Cultivation in own land	119	7.37	29	5.05
2	Sharing Cropping	230	14.24	145	25.26
3	Service	38	2.35	34	5.92
4	Small business	135	8.36	105	18.29
5	Artisan	99	6.13	19	3.31
6	Pulling Rickshaw/Van	102	6.32	34	5.92
7	Rearing Cow/goat	321	19.88	38	6.62
8	Rearing Chicken/Duck	115	7.12	35	6.10
9	Working as day labourer	76	4.71	135	23.52
	No Response/others	380	23.53	0	0.00
		1615*	100.00	574*	100.00

*Multiple responses. Chi-square = 239; p=.000 df=8

Average income of char dwellers women had also increased by 1097.47%. Average income of char dwellers women were increased from taka 292.25 to taka 3207.37 per month from benchmark to end of the project respectively. Most of the respondents (40%) perceived that women

are now earning taka 3000-4000 per month (Table 5). In-fact the rest 11.58% respondents perceived that their monthly income was more than taka 5000. Women are working in the sugarcane field as well as goor making.

Table 5 Monthly Income of Woman Perceived by the Respondents

Sl. No.	Income (Taka)	Benchmark		At the end of the project	
		Number	Percentage	Number	Percentage
1	Upto 500	842	52.63	5	1.05
2	501-1000	63	3.94	12	2.53
3	1001-1500	77	4.81	32	6.74
4	1501-2000	22	1.38	79	16.63
5	2001-3000	0	0.00	102	21.47
6	3001-4000	0	0.00	190	40.00
7	4001-5000	0	0	55	11.58
	Not mentioned	596	37.25	0	0.00
	Total	1600	100.00	475	100.00
	Average	292.25		3207.37	
	Percent change	1097.47			

Chi-square value 0.123; p=.000 df=6

Adoption level of some sugarcane production technologies have also improved. Use of recommended varieties was increased upto 59%, use of sugarcane planting method and recommended spacing was increased upto 18%, use of recommended intercrop was increased upto 22% use of recommended doses of fertilizers was increased upto 78 % in chewing cane and 27% in goor cane.

Similarly, use of recommended ways of pest control was increased upto 76% in chewing cane and 32% in goor cane. Recommended ways of ratooning was also increased upto 36% (Table 6). This was the effect of training, demonstration and field days organized in their locality. Although the trends are increasing but there are the scope to improve the situation more. Thus a follow-up work is necessary.

Table 6 Use of Some Sugarcane Production Technologies

Sl. No.	Technologies	Percentage at Benchmark	Percentage at the end of the project
1	Recommended Varieties	37	59
2	Planting Method and Spacing	2	18
3	Use of Recommended intercrop	3	22
4	Use of Recommended Fertilizer		
	Chewing Cane	14	78
	Gur Cane	5	27
5	Use of Recommended Pest Control		
	Chewing Cane	32	76
	Gur Cane	6	32
6	Use of Recommended Ratooning	7	36

Average daily wage of labourer at the period when there were agricultural works were also increased by 142.89%. Average daily wage of labourer at the period when

there were agricultural works were taken 232.84 which were taken 163.00 at benchmark (Table 7).

Table 7 Daily Wage of Labourer at the period when there are Agricultural Works

Sl. No.	Daily Wage of Labourer (Taka)	Benchmark		At the end of the project	
		Number	Percentage	Number	Percentage
1	Upto 150	8	32.00	32	6.74
2	151-200	8	32.00	147	30.95
3	201-250	8	32.00	248	52.21
4	251-300	1	4.00	48	10.11
	Total	25	100.00	475	100.00
	Average		163.00		232.84
	Percent change	142.89			

Chi-square = 21.8; p=.000 df = 3

Cultivation of intercrop was another one income generating technique within a short period of time in sugarcane field. But it needs extra care. Thus about 35% respondents informed that they were

cultivating intercrops which at benchmark were less than two percent. Different types of vegetables are the first preference for the intercrop followed by potato and tobacco (Table 8).

Table 8 Cultivation of Intercrops with Sugarcane

Sl No	Name of Intercrops	Benchmark		At the end of the project	
		Number	Percentage	Number	Percentage
1	Chilli	7	0.44	22	4.63
2	Lentill/other pulses	3	0.19	24	5.05
3	Tobacco	2	0.13	31	6.53
4	Vegetables	6	0.38	39	8.21
5	Potato	4	0.25	31	6.53
6	Mustard/Other oil crops	3	0.19	21	4.42
7	No Intercrop	1575	98.44	307	64.63
	Total	1600	100.00	475	100.00

Chi-square = 499; p=.000 df = 6

Conclusion

A good response was observed among the beneficiaries. They were able to change their economic conditions. Farm labourers got work for whole year. Entrepreneurships were also developed on goor preparation, goor business, juice and chewing cane business. Women income was also raised remarkably. Average family income at the end of the project was increased by 180.79%. Average family income per month at the end of the project was taka 10800.00 which was during benchmark taka 5973.77. Average family expenditure at the end of the project was increased by 173.60%. Average family expenditure per month at the end of the project was taka 9814.74 which was during benchmark taka 5653.59. Average income of char dwellers women had also increased by 1097.47%. Average income of char dwellers women were increased from taka 292.25 to taka 3207.37 per month from benchmark to end of the project respectively. Peoples housing

condition and other indicators of livelihood were also improved significantly. Most of the respondents (32.43) have completed C.I. Sheet houses which during benchmark was CI Sheet with Bamboo fence (45.12%). Again 26.06% respondents are now using semi pucca houses, during benchmark it was only 10.82%. The earning sources of the Char-Dwellers or the landless people were increased. They were now cultivating sugarcane in a group basis. They made their own co-operative group and made their farm by gathering land of their own and others as taking lease. During benchmark only (14.24%) were share-cropper. Labour market situation was also improved in Char land. During benchmark, only 4.71% respondents were able to sell their labour. Average daily wage of labourer (at the period when there were agricultural works in their field) were also increased by 142.89%. Average daily wage of labourer before starting the project were taka 232.84

which were taka 163.00 at benchmark. Sandy fallow lands of river banks were utilized by sugarcane and with different intercrops. Most of the farmers preferred winter vegetables for intercrops with

sugarcane followed by potato and tobacco for the intercrop with sugarcane. Second intercrop was not practiced.

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