

Role of bamboo-based cottage industry in economic upliftment of rural poor of Chittagong, Bangladesh

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Abstract: A survey was conducted on households engaged in bamboo-based cottage industry in the Chittagong District of Bangladesh to evaluate socio-economic status of the households, sources of raw material, economics, gender role, marketing of the products and problems of the industry. Most of the members were illiterate and had very small land holdings. The main sources of raw materials were the local market and homesteads. Altogether eleven types of articles were made from bamboo. The total expected annual income from making bamboo articles to a family in the study area was USD 1,078. Out of the members engaged in bamboo-based cottage industry 66 per cent were women.

Key words: Bangladesh, bamboo cottage industry, economics, rural poor, gender role.

INTRODUCTION

From time immemorial, bamboo has played a vital role in the lifestyle of rural communities (Banik, 1994). Rural households depend on bamboo in many ways like house construction, handicrafts and utility items and agricultural implements. A wide variety of handicrafts like flower pots, lamp stands, painted curtains, fans, brooms, containers, umbrella handles, vanity bags, etc. are made from bamboo culms, splits and strips (Hsiung, 1987). Bamboo supports a number of cottage industries such as basket making, furniture and handicrafts (Vishwakarma *et al.*, 1998). The importance of non-wood forest products (NWFPs) at the national economy lies in the large number of people involved in gathering, processing, trading and other aspects of their production and use (Arnold, 1994).

The economy of Bangladesh is principally agrarian where about 57.1 per cent of rural households are effectively landless (Anon, 2004). Therefore, rural people need to seek supplementary employment opportunities for enhancement of their income on a

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sustained basis to support their livelihood (Anon, 1991). The collection, processing and marketing of NWFP provide employment for an estimated 300,000 rural population in Bangladesh (Khan, 1994). Among NWFPs, bamboo has the potential to generate significant level of employment in rural and urban areas. Various authors (Bakht, 1984; Hossain, 1984a; 1984b; Akther *et al.*, 1997 and Alamgir *et al.*, 2005) have studied rural industries in Bangladesh. Alamgir *et al.* (2005) studied employment generation and economics of rattan-based furniture enterprises of Bangladesh. But information on role of bamboo-based industry in the country is scanty. So, the present study was conducted to evaluate the bamboo-based cottage industry in Bangladesh from socio-economic perspective.

MATERIALS AND METHODS

The study was carried out in Fatickchari Upazilla under Chittagong District of Bangladesh. This Upazilla consists of 20 unions among which three unions were selected for the study. These were Pinedong, Dhurung and Rangamatia. In these unions there were 80 families involved in bamboo-based industry. Among these families, 22 were selected randomly for survey with the help of a semi-structured questionnaire.

The quantity of bamboo and mandays required for producing the following items used for different household uses, selling price, profit, etc. were evaluated.

<i>Dhara</i>	- Drying rice and spices before husking
<i>Wirja</i>	- Rearing chickens and ducks
<i>Khacha</i>	- Carrying vegetables and betle leaves
<i>Anta</i>	- Washing rice before cooking
<i>Lai</i>	- Carrying rice and shopping purposes
<i>Kula</i>	- Winnowing cereal crops like rice, wheat, etc.
<i>Chaloni</i>	- Sieving rice from husks
<i>Dol</i>	- Storing cereal crops
<i>Ora</i>	- Carrying mud, wastage
<i>Bera</i>	- Housing purposes in the rural area.

Some formulae used for analysis were as follows:

Net average profit per article = Average selling price – Cost of raw materials.

Net average profit per man day = (Average selling price - Cost of raw materials)/man-days.

Expected annual income from bamboo products = Net average profit per article × Number of articles sold per year.

RESULTS AND DISCUSSION

Demographic features of the study area

The total population of the surveyed households was 129 of which 55 per cent were female and rest were male. Among the population, 34 per cent of the members were within the age group of 21-30 years (Table 1). The results are in agreement with the findings of Nath *et al.* (2000) that the percentage of females in a bamboo-based cottage industry in Comilla, Bangladesh was 53 per cent. The results also support the demographic data reported by Bangladesh Bureau of Statistics (BBS) (2002) that male to female ratio in Bangladesh is 100:104.

Table 1 shows that 64 per cent of the members were directly engaged in the bamboo-based cottage industry. Rest of the villagers were mostly agricultural or casual labourers or engaged in other services. Of the former, 66 per cent were female and rest were male. The age was found much variable. It was found that 46 per cent of the members entered into this industry at an age ranging from 11-30 years and 10 per cent entered into the industry at their childhood (<10 year age) (Table 2). The probable reason for this early entry into the industry is poverty coupled with illiteracy (Table 3). Results

Table 1. Family size of the households in the study area

Sex	Age (year) group						
	<10	11-20	21-30	31-40	41-50	51-60	>60
Male N = 58 (45)*	10	11	15	9	5	6	2
Female N = 71 (55)	8	10	19	14	8	7	5
Total N = 129	18 (14)	21 (16)	34 (26)	24 (19)	13 (10)	12 (9)	7 (5)

* Figures in the parentheses indicate percentage value

Table 2. Distribution of family members in the study area engaged in bamboo-based cottage industry by age of entry into industry

Sex	Age (year) group						
	<10	11-20	21-30	31-40	41-50	51-60	>60
Male N = 28 (34)*	3	10	8	5	-	1	1
Female N = 55 (66)	7	11	17	12	5	3	
Total N = 83	10 (12)	21 (25)	25 (30)	17 (20)	5 (6)	4 (5)	1 (1)

* Figures in the parentheses indicate percentage value

Table 3. Educational status of family members involved in bamboo-based cottage industry in the study area

Level of education	Number	Percentage
Illiterate	54	65
Primary	17	20
Secondary	9	11
Higher Secondary	2	2
Graduate	1	1
Total	83	100

from small enterprise surveys in six countries in southern and eastern Africa indicate that an estimated 408,000 forest product enterprise activities provide employment for 763,000 persons at an average rate of 16 persons per thousand in the population (Arnold *et al.*, 1994). In the present study also it was found that bamboo-based cottage industries provided employment opportunity for all age groups of people in Bangladesh. About 77 per cent of the households had holdings less than 20 cents {0.08 ha} (Table 4). Thus the early entry into the industry could also be attributed to the lack of alternative jobs and poverty. The situation of literacy also agrees with the findings of Chowdhury and Nahar (1993), who found that about 73 per cent of the respondents engaged in bamboo and rattan works in Comilla region were illiterate. Nath *et al.* (2000), also found about 93 per cent illiteracy in the same region within bamboo-based cottage industry.

Availability of bamboo

Green bamboo was usually used for various articles. The main sources of raw material were local market and homesteads, the former providing 90 per cent of the raw material and homesteads providing the rest. Raw material in the local market came from Chittagong Hill Tracts (CHT) and Teknaf by road or river transportation. Bamboo from CHT came at Bibirhat Bazar, Fatickchari from middle men or the entrepreneurs could directly buy the bamboo. Bamboo reached from Teknaf to Kalurghat, then to Rajghat and Fatickchari. From here, through stockists and middlemen, bamboo reached the entrepreneurs. The main species of bamboo used in the industry were bhajija

Table 4. Total land holdings of the entrepreneurs in the study area

Land holdings (cents)*	Entrepreneurs	
	Number	Percentage
<20	17	77
21-40	3	14
41-60	1	5
>61	1	5
Total	22	100

*247 cents = 1 ha.

(*Bambusa vulgaris*), muli (*Melocanna baccifera*) and orah (*Dendrocalamus longispatus*). Among the different species of bamboos, 65 per cent was bhajija, 28 per cent muli and seven per cent orah bamboo. In the local market the price of bamboo was high for bhajija (USD 1.5 per culm) followed by muli (USD 1.0 per culm) and orah (USD 0.24 per culm).

Economics of the industry

Table 5 shows the requirement of raw material and labour for making each article, average selling price, net average profit per man day and per article in the study area. Economics of the bamboo industry were worked out considering these factors according to Vishwakarma (1998) and Nath *et al.* (2000). Raw material and labour requirement was the highest for *bera* followed by *dol* and *dhara*. The selling price was the highest for *bera* followed by bookshelf, *dol* and *dhara*. The remaining products were sold at less than a dollar each. Highest net average profit was found for *bera* followed by bookshelf and *dol*. The net average profit per man days for other products was less. The net average profit per article was the highest for *bera* followed by bookshelf, *dol* and *dhara*. The net average profit per article was the lowest for *wirja* and *anta* (Table 5). It has been estimated that rural non-farm work provided 20-45 per cent of full-time employment in rural areas and 30-50 per cent of rural household income (Kilby and Liedholm, 1986; Haggblade and Hazell, 1989). A study conducted by Liedholm and Mead (1993) has shown that in the small enterprise sector, forest-products activities account for a substantial proportion of the total income. From the

Table 5. Requirement of bamboo, man days in making each article, average selling price per article, net average profit per man day and net average profit per article in the study area

Articles	Bamboo requirement per article (No. of culm)	Man days required to produce	Average selling price per article (USD)	Net average profit per man day (USD)	Net average profit per article (USD)
<i>Dhara</i> (size length 3.7 m width 1.8 m)	4.5	0.86	1.67	0.48	0.42
<i>Wirja</i> (top dia 55 cm, bottom dia 40 cm, depth 33 cm)	0.16	0.26	0.17	0.26	0.07
<i>Khacha</i> (Dia 46 cm, depth 25 cm)	0.22	0.38	0.23	0.39	0.15
<i>Anta</i> (dia 36 cm, depth 17 cm)	0.08	0.20	0.13	0.33	0.07
<i>Lai</i> (dia 43 cm, depth 33 cm)	0.28	0.32	0.37	0.26	0.08
<i>Kula</i> (56 cm × 46 cm)	0.15	0.35	0.40	0.57	0.20
<i>Chaloni</i> (dia 48 cm)	0.10	0.28	0.43	0.60	0.17
<i>Dol</i> (dia 1.01 m, depth 1.4 m)	7.85	0.90	4.67	1.11	1.00
<i>Ora</i> (top dia 75 cm, bottom dia 52 cm)	0.08	0.30	0.23	0.39	0.12
<i>Bookshelf</i> (1.16 m × 66 cm × 25 cm)	1.00	0.70	5.33	1.79	1.25
<i>Bera</i> (length 22.86 m, width 1.86 m)	35.50	1.16	15.00	2.87	3.33

average profit per article it can be predicted that the bamboo-based cottage industry can play a significant role in the field of supplementary employment during off-farm work.

Table 6 shows the number of articles sold annually and expected annual income from each article. The highest number produced is *wirja* followed by *khacha*, *dhara* and *lai*. These products are the daily necessities for the rural population of Bangladesh and also require lower man days to produce. According to the respondents, usually each family in the rural areas requires three to five numbers of the above articles, the main cause of the higher demand for these products. Rest of the articles either last for a long time or have only a seasonal demand; hence their sale was low. The total annual income from making bamboo articles to a family in the study area was USD 1,078 which is the combined income of two to four family members of the household. In Bangladesh the per capita income is only USD 444 (BBS, 2002). Thus the net profit from bamboo-based products is much higher than the average per capita income.

Marketing of the products

In most cases, producers sold their products in the local market. Only seven to eight per cent products were sold through middlemen. The middlemen bought the products from rural market and sold them at the nearby town. The middlemen were interested in decorative handicrafts only. Articles of daily use were mostly sold at the village market. The latter were transported by the producer themselves from the cottage site to the market.

Gender role in the industry

Gender played a key role in the bamboo-based cottage industry in Bangladesh. Out of 83 members engaged in bamboo-based cottage industry, 66 per cent were female (Table 2). Study conducted by Arnold *et al.* (1994) in the six African countries revealed

Table 6. Average number of articles sold annually and expected annual income

Articles	Number of articles sold annually	Expected annual income(USD)
<i>Dhara</i>	670	279.17
<i>Wirja</i>	960	64.00
<i>Khacha</i>	850	127.50
<i>Anta</i>	320	21.33
<i>Lai</i>	665	55.42
<i>Kula</i>	264	52.80
<i>Chaloni</i>	300	50.00
<i>Dol</i>	72	72.00
<i>Ora</i>	340	39.67
Bookshelf	125	156.25
<i>Bera</i>	48	160.00
Total		1078.14

that 42 per cent of the proprietors and 41 per cent of the total workforce in small forest product enterprises were women. In rural industries based on grass, cane and bamboo, these proportions rose to 76-79 per cent. Women also dominated forest products trade (57-62%). Women's role in the cottage industry is significant all over the world (Anon, 1991). The responsibility of women in rural Bangladesh includes looking after the household and children, tending poultry and cattle, collecting fuel wood and cowdung and maintaining homegardens (Mostafa, 1997). Besides these tasks, the women of poor families are also engaged in bamboo-based cottage industry. Though men play a significant role in raw material collection and marketing of the products, women play a key role in manufacturing of products. Women also have the contribution in raw material collection and marketing of the products. After household work they collect splits and dried bamboo and store them for rainy season when raw material is in short supply. The male and female ratio in Bangladesh is 100:104 (BBS, 2002). The rural women in Bangladesh are usually illiterate and bamboo-based cottage industry can be utilized as a potential sector for their employment.

Problems of the enterprises

The bamboo-based cottage industry in Bangladesh has various problems. The main problem is the scarcity of raw material during rainy season when the prices are two to three times higher. Further there is no adequate training facility for artisans working in the industry. As the government initiatives are rather limited in this regard, some NGOs are making efforts to provide incentives and assured market prospects although in a limited way.

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