

Status of rattan-based small scale cottage industries in urban and semi-urban area of Chittagong, Bangladesh

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Abstract—An exploratory survey using multistage simple random sampling was conducted by repeated visit of rattan-based small scale cottage industries in urban and semi-urban areas of Chittagong district of Bangladesh during July–September, 2001. Only four species of rattans were found to be used as raw materials in the study area of which *Calamus guruba* was identified as highest in quantity being used in the industries. Entrepreneurs were found mostly dependent on homestead forests and imported rattan for raw materials. Most of the entrepreneurs were found to manage their capital from their own sources and the ownership was single. On average, 7.4 number of labourers were found per industry of which the maximum number were skilled. The manufacturing process was identified as totally manual and traditional. A large variety of products were found to be made of rattans. The productivity of commodities was usually sustained throughout the year in the urban area but fluctuated in the semi-urban area depending on availability of raw materials and socio-economic conditions of the people. Net monthly income per rattan-based small scale cottage industry in urban area was about double of that net income in semi-urban area. Lack of raw materials, access to national and international market, advanced technology, training facilities and financial supports were the important problems and limitations identified.

Key words: Rattan industry; capital; ownership; labour force; raw materials; marketing; Bangladesh.

INTRODUCTION

Rattan, a climbing palm belonging to the Calamoideae, a large subfamily of Palmae or Arecaceae [1], has easily received more attention than all other non-wood forest products because of its important economic value [2, 3]. Rattan is one of the important natural resources throughout almost all Asian tropical rain forests and homestead forests, which is extensively used in the cottage industry as raw material [2, 4]. There are 13 genera of rattan in the world of

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which only two, *Calamus* and *Daemonorops*, are available in Bangladesh [2]. Though rattans are the most important natural resources of forests in Bangladesh, increasing deforestation has resulted in a severe shortage of raw materials in rattan-based cottage industries [5]. Since the last decade, the demand for the rattan products has been increasing tremendously and becoming an important income generating process contributing significantly in the non-farm sector of Bangladesh as well as other Asian countries. A number of works have been conducted on taxonomical characteristics and physical and mechanical properties of rattan in Bangladesh [3, 4]; but no information regarding status of rattan-based cottage industries is available. Thus the present study aims at generating database information for the utilization of rattan as a raw material in cottage industry and its potential for income generating, find out the problems and limitations, and finally provide recommendations to boost the rattan-based cottage industries in Bangladesh.

Background information

According to the Industrial Act of Bangladesh, an industry having less than 20 employees and less than Tk 10 lakh (US \$ 1785.71) investment, is called a small-scale cottage industry [12]. These small scale cottage industries are playing an important role in our national economy in terms of creating employment opportunities and supplying huge numbers of finished products to both national and international consumers. As there are few large scale rattan-based industries in our country, huge numbers of rattan-based small scale cottage industries in urban and semi-urban areas of Bangladesh are of quite some importance. As ours is a developing country, entrepreneurs are facing severe problems in terms of financial investment.

MATERIALS AND METHODS

The study was carried out over a period of 3 months by repeated visits to rattan-based small scale cottage industries during July–September, 2001 in urban and semi-urban areas of the Chittagong district of Bangladesh using a multistage simple random sampling technique. At the first stage, the whole of Bangladesh was divided into 6 administrative divisions and the Chittagong Division was taken randomly. From the Chittagong Division, the Chittagong District was selected purposively. At the second stage, Chittagong Metropolitan City was taken purposively as the urban area and Hathazari and Patiya Upazila (sub-district) were taken randomly as semi-urban areas in the district. At the third stage, a total of 20 rattan-based small scale cottage industries were selected randomly taking 10 from the urban area, 5 from Hathazari and 5 from Patiya Upazilla (sub-district). From the information provided by the Bangladesh Small-scale Cottage Industries Corporation (BSCIC), Chittagong, it was enumerated that a total of 74 small scale rattan-based industries were located in Chittagong district, out of which 19 were in

the urban area and the remaining 55 were in semi-urban areas of the district. There was no large-scale rattan-based cottage industry in Chittagong district. The number of population employed in the industries in the urban areas was ascertained through physical visits and the number in semi-urban areas was ascertained through discussion in the Upazilla headquarters of the district. According to the level of investment and number of labourers mentioned as above, all the industries in Chittagong district were small scale, so the industries were selected randomly from the urban and semi-urban areas of the district. A detailed survey was then conducted by deploying a semi-structured questionnaire to ascertain source of capital, ownership, labour force, raw materials used and its source, manufacturing process, productivity and profitability, marketing of products and problems and limitations of the industry.

RESULTS AND DISCUSSION

Source of capital and ownership

The study revealed that most of the entrepreneurs (70%) managed their capital from their own sources and the remaining entrepreneurs (30%) usually took capital from large-scale rattan-based industries to which they were compelled to sell their products with fixed and nominal prices. The respondents reported that due to lack of capital, entrepreneurs could not expand their activities to a larger scale. Most of the rattan-based small scale cottage industries (80%) had single ownership and the rest (20%) had multiple ownership. It was found that 75% of the industries were settled in rented houses and the remaining 25% were found settled in the entrepreneur's own house. Industries in the rented houses (91%) and own houses (85%) were mostly in the urban areas and semi-urban areas, respectively.

Labour force

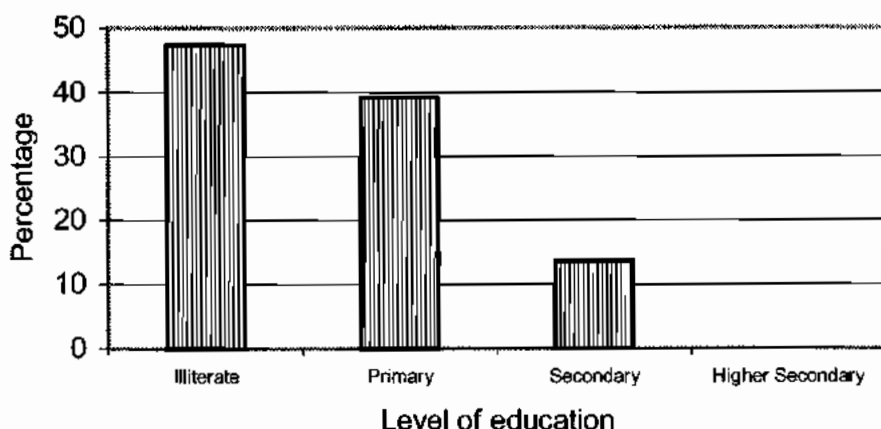
On average, 7.4 labourers were found per industry of which most of the labourers were skilled. Age is one of the important factors of an individual, which may be a determinant of their ability to work with zeal and drive. By the present age of labour engaged in rattan-based cottage industries, it was found that most employees (39.19%) were between 41–50 years of age followed by 31–40 years age group which comprised 31.08% of the labour force (Table 1). It was found that out of a total 148 labour force, 58.11% of the labourers were skilled and their average monthly wage was US \$ 110. Semi-skilled labourers comprised 31.08% of the workforce and their monthly average wage was US \$ 68; the remaining 10.81% were unskilled and earned only US \$ 28 per month. It was reported that most labourers were illiterate (47.39%) (Fig. 1) unlike the miserable literacy situation findings of Chowdhury and Naher [6] who reported that 73.33% of the respondents engaged in bamboo-based small scale industries in Comilla district, Bangladesh were illiterate.

Table 1.

Age distribution of labor force involved in rattan-based small scale cottage industry

Age class	Skilled labor	Semi-skilled labor	Unskilled labor	Total
≤30	0 (00)*	0 (00)	16 (10.81)	16 (10.81)
31-40	16 (10.81)	30 (20.27)	0 (00)	46 (31.08)
41-50	42 (28.38)	16 (10.81)	0 (00)	58 (39.19)
51-60	24 (16.22)	0 (00)	0 (00)	24 (16.22)
>60	4 (2.70)	0 (00)	0 (00)	4 (2.70)
Total	86 (58.11)	46 (31.08)	16 (10.81)	148 (100)

*Figures in parentheses indicate percentage values.

**Figure 1.** Educational status of family member involved in rattan-based small scale cottage industries in the study area.

Raw materials used and their sources

Daemonorops jenkinsiana (Gollabet), *Calamus viminalis* (Kirichbet) and *Calamus guruba* (Jalibet) were identified as raw materials in small scale cottage industries in both urban and semi-urban areas. It was revealed that, on average, the monthly quantities of *C. guruba* used in urban and semi-urban area were 6279 m and 2210 m, respectively; followed by *C. viminalis* 3506 m in urban area and 1257 m in semi-urban area; *D. jenkinsiana* 1677 m in urban area and 1029 m in semi-urban area per industry (Fig. 2). *C. latifolius* (Karakbet) (91 m) was found to be used only in urban areas, all of which came from the forest area. Only 24% *C. guruba* came from forest and the remaining 76% came from homesteads, and was naturally grown in that area. A large quantity (65%) of *D. jenkinsiana* was reported to come from the neighboring country, Myanmar. It was also reported that most of the imported quantities entered into Bangladesh illegally. Alam [2] also reported the smuggling of *D. jenkinsiana* from Myanmar to Bangladesh through Cox's Bazar border area. The rest of the quantity (35%) was reported to come from the natural forests of

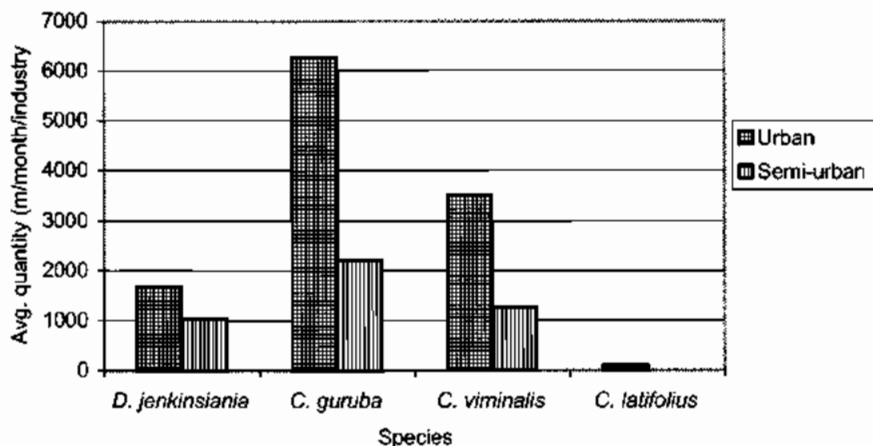


Figure 2. Average quantity of different types of rattan in meters per month per industry used in urban and semi-urban area.

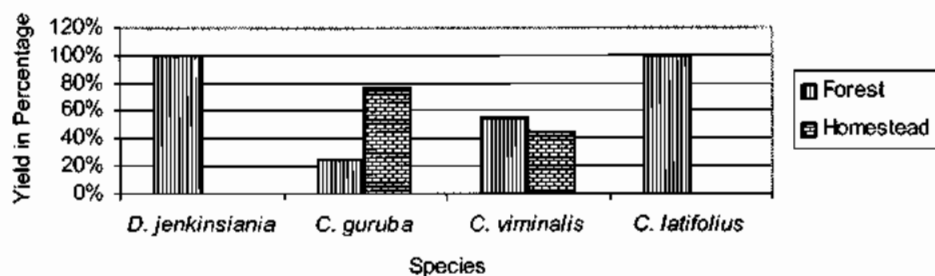


Figure 3. Sources of rattan as raw materials used in the small scale cottage industry.

Chittagong Hill Tracts. More than half of the *C. viminalis* (55%) was identified as collected from the forest area and the remaining 45% collected from homestead forests (Fig. 3).

Manufacturing process

Processing is the key issue for further development and utilization of rattan. Processing of raw rattan involves the removal of epidermis from the stem by a simple knife and chopper and then drying, which was usually undertaken in the open air in the study area. In the manufacturing process there was no use of any sophisticated tools in the surveyed industries. Manufacturing of different items was carried out mostly manually using some very simple tools like hammer, and framing tools made of wood, blow-lamp, chopper and knife. Rattans having larger diameter, like *D. jenkinsiana* and *C. latifolius*, were used to make frames of rattan furniture and other products while rattan with smaller diameter, *C. viminalis*, *C. guruba*, was used as struts in furniture, but more often split *C. guruba* were used for weaving and binding materials.

Table 2.

Cost and Income of rattan-based small scale cottage industry in urban area (G1) and semi-urban area of Chittagong

Category	Cost (US \$)*			Total cost (US \$)	Revenue (US \$)	Net income (US \$)
	Rattan	Labor	Rent and others			
Urban	900.11	802.59	105.00	1807.70	1931.70	124
Semi-urban	425.40	300.00	45.00	770.40	835.40	65

*Tk. 56 = 1 US \$.

Productivity and profitability

The productivity of commodities was usually sustained throughout the year in the urban area but fluctuated like other non-wood forest products depending on availability of raw material, socio-economics conditions of the people in the semi-urban area. Akther *et al.* [7] reported that a large variety of products were made of rattan in Bangladesh. Rattan products are used mainly for decorative purposes in Bangladesh. In the study area, all types of well decorated furniture like sofa set, chair, table, rocking chair, bed, *Mora*, cradle, decorative partition, bookshelf, different types of basket, and walking stick, were copiously produced in the industry.

The statement that productivity depends on the availability of raw material means that if raw materials are available throughout the year then, the production per month throughout the year remains constant. Bangladesh is an agricultural country; during the period of agricultural crop cultivation and harvesting most of the labour in the semi-urban area has to be engaged in that task, which is why production per month fluctuates. Because of the high price of the raw materials, the net income is so small. From the observation, it is apparent that this figure corresponds to all of the non-timber forest-based small scale cottage industries in urban and semi-urban areas in Bangladesh. Up to what level this figure is true must be subject to further economic study.

Profitability varies depending on quality of finished products, which in turns depends mostly on the quality of the raw material and the efficiency of the tools used. The present study revealed that raw materials used in the rattan industries were inferior in quality in terms of maturity, diameter and post-harvest treatment and seasoning. Monthly total cost, including raw rattan, labour, rent and other accessories in the urban area was US \$ 1807.70 and total monthly revenue was US \$ 1931.70, but in the semi-urban area the total monthly cost incurred was US \$ 770.40 and total monthly revenue was US \$ 835.40 (Table 2). Net income from the industry was estimated as US \$ 124 in the urban area and US \$ 65 in the semi-urban area. About 50% of total cost incurred in the industry was for rattan as a raw material whereas other costs include labour, rent and burnishing and other accessories.

Table 3.

The price structure of raw rattan

	Urban		Semi-urban	
	Amount (meter)	Cost (US \$)	Amount (meter)	Cost (US \$)
<i>C. guruba</i> (Jali)	6279.05	276.28 *(0.044)	2210.02	97.24 (0.044)
<i>C. viminalis</i> (Kiritch)	3505.56	221.47 (0.063)	1257.43	79.22 (0.063)
<i>D. jenkinsiana</i> (Golla bet)	1676.57	385.61 (0.229)	1028.81	248.94 (0.24)
<i>C. latifolius</i> (Karak bet)	91.45	16.75 (0.18)	00	00

*Figure in parenthesis indicates average price per meter in US \$.

Table 4.

Ranges of selling price of finished products

Items	Price (US \$)
Sofa set	70-210
Chair	5-21
Table	26-53
Rocking Chair	30-59
Bed	60-75
Bookshelf	9-15
Cradle	9-35
Decorative partition	53-107
<i>Mora</i>	2-17

The price structure of raw rattan is shown in Table 3. In the case of finished products, there is no specific revenue structure of items. It varies due to size and decorativeness of the products. The ranges of the revenue (selling price) of the finished products are shown in Table 4. The wage of skilled labour of rattan-based industries is better than other forest based cottage industries but, in the case of semi-skilled and unskilled labour, this figure is more or less the same as the other industries. In terms of minimum wage for the labour in Bangladesh, the wage of the labour in rattan-based small-scale industries is slightly greater than that as described as US \$ 26 per month [12].

Marketing of products

Marketing is often considered as the leading constraint to the development of small scale cottage industries in Bangladesh [8]. Smallness of the industries, poor financial positions of entrepreneurs along with scattered distribution of the enterprises pose serious problems for marketing of the products and raw materials procurement [9]. Marketing of rattan products in the urban area was carried out



Figure 4.

directly by entrepreneurs to the local and national market and to different local fairs, but the majority of the semi-urban entrepreneurs sold their products through middlemen to the urban market and the traditional cultural fairs. Each market place involves different influencing factors relevant to the product's promotion and price. Marketing of rattan products in the national market requires precise decoration of quality standards, sophisticated standard design and advertising, and incorporation of high rent costs into the product price. Figures 4 and 5 show some rattan products.

Problems and recommendations

Scarcity of rattan in the study area was the leading constraint in the rattan-based small scale cottage industries, which were struggling for existence. Renuka [5] reports that cane-based industries in Bangladesh are beginning to close because of shortage of raw materials. Especially, there is an acute shortage in the country, *D. jenkinsiana* mainly used for framing materials in the industry; most of the quantity of this species were imported from other countries like Myanmar, which incurred a high production cost. (There are no documented data in any concerned office as most of the supplies of rattans were coming illegally from the forest areas and the neighbouring countries. There are some data regarding gross demands of forest products and supply for that; but no specific information is available so far to highlight the demand and supply of the rattan as raw materials in these industries.)

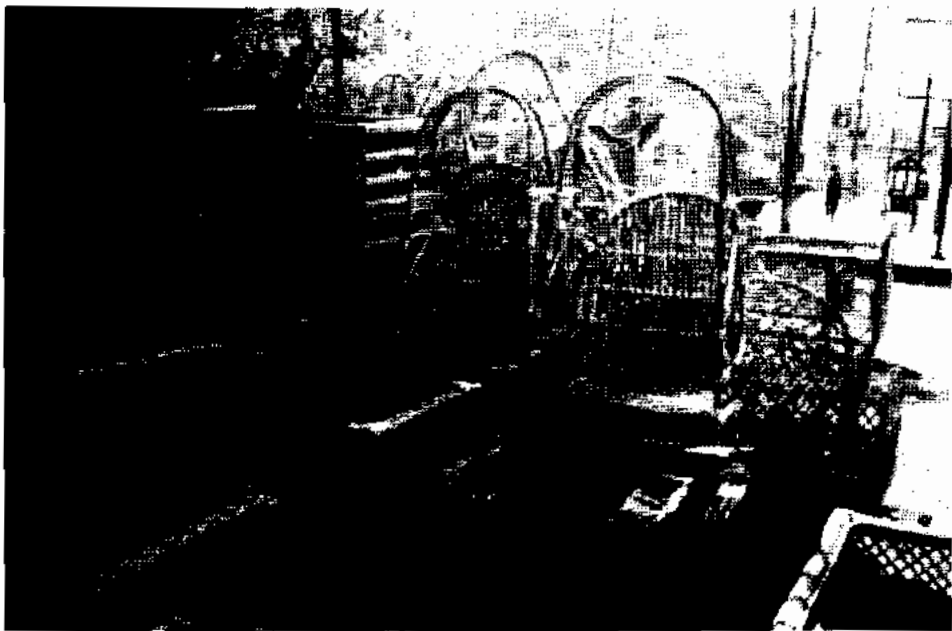


Figure 5.

To ensure a sustainable supply, rattan should be regenerated and cultivated in the forests and outside the traditional forestlands. Rattan cultivation could be a part of shifting cultivation, which is followed in Chittagong Hill Tracts by tribal people. Rattan may be a component in agroforestry practice, it may be intercropped with rubber (*Hevea brasiliensis*) trees as being practiced in Malaysia [10], and rattan may be an important component of other plantations.

Another major constraint faced by entrepreneurs as mentioned by the respondents was trade restrictions and high export levies, which restrict supply of rattan products to the international market. The main international markets for rattan are Europe, USA, Egypt, Japan, whose markets are currently occupied mainly by Indonesia, Malaysia, Viet Nam, and China. Philippines's rattan furniture manufacturing industry benefits from the existence of a regional market of South East Asia [11]. Rattan entrepreneurs of Bangladesh should be encouraged through sponsorship to attend international trade fairs to exhibit their product. Relaxation of export tax may be a great incentive to promote the export market, which will ultimately boost the country's fragile rattan industries.

It was observed that due to lack of improved storage facilities, collected rattan became discoloured; sometimes, fungal growth was also observed in rattan intended for use in the industries. Limited access to advanced technologies lowered the durability of products and ultimately their prices. It was reported that the entrepreneurs did not get financial support from any organization like Bangladesh Small Scale Cottage Industries Corporation (BSCIC) or from any Government and Non-government organization. The government and non-government organization

should provide training with advanced technology and financial support to the entrepreneurs or labourers. Sound national and international marketing facilities of the rattan products may be created with the special initiative of government and non-government organizations, which will develop and sustain the rattan-based industries and ultimately uplift the socio-economic condition of the country.

CONCLUSION

Prospects of any industry depend on availability of raw materials, its cheapness and proper marketing facilities. Entrepreneurs of the present study were mostly dependent on homesteads for rattan, which was inferior quality and also not sustainable. The combination of decreasing forest cover and over-exploitation of wild rattans threatens the survival of the commercial rattan industry in Bangladesh. Rattan-based cottage industries of the present study were highly dependent on imported *D. jenkinsiana*, which incurred high production cost and subsequently decreased net income. The present study shows that lack of access to international market, advanced technology, training facilities, national and international patronage and financial support have been interrupting the development of rattan-based industries. Government and non-government initiatives can solve this problem and develop small scale rattan-based cottage industries to contribute to the country at its best level. Further intensive research is needed with a view to explore the traditional management of rattan plantations and identify the various dynamics of rattan-based small and large scale cottage industries in Bangladesh and to find out means to improve the cultivation techniques so as to secure optimal productivity on a sustained basis to meet growing demand and to boost the country's fragile economy.

REFERENCES

1. J. Dransfield, Taxonomy, biology and ecology of rattan, *Unasylya* 52 (2), 11–13 (2001).
2. M. K. Alam. *Rattan of Bangladesh*, Bulletin 7, Plant Taxonomy Series. Bangladesh Forest Research Institute (1990).
3. FAO, *Tropical Palms*. Non-wood forest products 10, Rome, Italy (1995).
4. M. F. Kabir, D. K. Bhattacharjee and N. A. Satter, Variation of physical and mechanical properties of *Calamus erectus*, *Bangladesh Journal of Forest Science* 22 (1 and 2), 43–47 (1994).
5. C. Renuka, Uses of rattan in South Asia, *Unasylya* 52 (2), 7 (2001).
6. P. K. Chowdhury and B. N. Naher, *Women Entrepreneurs of Rural Industries in Some Selected Areas*. Bangladesh Academy for Rural Development (BARD), Kotbari, Comilla (1993).
7. S. Akther, A. M. Faisal, T. K. Nath and M. Jashimuddin, Impact of Forest based cottage industry on rural development of Bangladesh: The case study of Faticckhari Thana under Chittagong District, *Chittagong University Studies* 21 (1), 81–86 (1997).
8. Z. Bakht, Entrepreneurship in Bangladesh rural industries, *Bangladesh Development Studies* (1q&2), 25–58 (1984).
9. FAO, *Small-Scale Forest Based Processing Enterprises*. FAO forestry paper 79, Rome, (1987).

10. A. R. M. Ali and R. S. R. Barizan, Intercropping rattan with rubber and other crops, *Unasyiva* **52** (2), 9–10 (2001).
11. P. Cubberly, *Value Chain Information*, ATI Bulletin 26. Appropriate Technology International, Washington, DC, USA (1995).
12. A. S. M. Salauddin and K. M. Islam, *Economics of Bangladesh*. Hassan Book House, Dhaka, Bangladesh (1994).