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RUBBER WOOD PROCESSING INDUSTRY IN INDIA : AN ANALYSIS ON THE COMMERCIAL EXPLOITATION AND OPERATIONAL LEVEL CONSTRAINTS

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Study on the performance of the rubber wood processing sector in India was based on the field survey conducted during 1995-96 covering Kerala, Tamil Nadu and Karnataka. Most of the units have been set up during early 1990's and 72 per cent were in Kerala due to obvious locational advantages. Primary log market is characterised by the dominance of intermediaries resulting in a higher proportion of indirect procurement and relatively higher price. Most of the units used indigenous technology while only 43 per cent of the units had downstream manufacturing facilities and the products manufactured were generally low value-added items. The industry is oriented towards internal market where lack of acceptance is a major hurdle. The operational level constraints faced by the industry were reflected in a lower capacity utilisation at 51 per cent. Policy options related to technology, marketing and institutional intervention which are necessary to attain maximum commercial exploitation of eco-friendly by-product of rubber plantations are discussed.

INTRODUCTION

Emergence of rubber wood as an alternative to the conventional timber species has been on account of various economic and environmental factors. Major factors include the changing structure of timber exports from rough wood to processed/finished products, geographical concentration and growth in demand from EEC, Japan and USA since 1980's, fast depletion of the tropical hardwood varieties and steady rise in the prices (George and Joseph, 1993). Growing environmental concern has also been instrumental in the realisation of the potential of rubber wood as an eco-friendly source of timber. Renewable nature of this by-product and the availability of an appropriate processing technology catering various industrial applications have rendered rubber wood the status of an industrial raw material. Among the major natural rubber producing countries, rubber wood processing and the downstream products manufacturing sector are relatively more developed in Malaysia. In Malaysia, out of the 289 rubber wood processing factories existed in 1995, 43 per cent were manufacturing furniture and furniture components (Shafie, 1995). Moreover, rubber wood constituted approximately 80 per cent of the total wooden furniture exports in 1994, (Tong, 1995).

Availability of rubber wood in India is expected to increase from 1.27 (1997-98) to 3.24 million cu.m. by 2014-15 (George and Joseph, 1998). Though annual availability of rubber wood is expected to increase substantially, logs of higher girth would diminish absolutely due to the significant increase in the planting stock of high

yielding varieties with higher latex production and lower timber yield. Consumption pattern of rubber stem wood indicates the dominance of the packing case sector (58.5%) followed by plywood (24.5%) and safety matches (3%) while processed wood sector accounts only for 12 per cent (Joseph *et al.*, 1998). Production and processing of rubber wood is mostly concentrated in Kerala however, value addition is constrained by various factors. The diverse issues confronted by the industry are documented.

MATERIALS AND METHODS

This study is a part of major techno-economic survey conducted as an extension of an earlier studies (George and Joseph, 1993 ; Joseph and George, 1996). The main objective was to document the performance of the processing units in terms of scale of operation, procurement and processing, capacity utilisation, range of products manufactured and market orientation. Accordingly, information on the above aspects were collected from 42 processing units (out of 50 units) located in Kerala, Tamil Nadu and Karnataka. For the analysis purpose, the units are classified as "small" and "others" (medium and large-scale units) based on the impregnation and seasoning capacity per batch. Accordingly, 17 units are classified as "small units" (with impregnation and seasoning capacity below 500 cft per batch) and the remaining 25 units as "others" (above 500 cft per batch).

RESULTS AND DISCUSSION

Rubber wood processing sector has been expanded only during the early 1990's as 29 out of the 42 units surveyed were set up during the period (Table 1.) Emergence and growth of the rubber wood processing units during early 1990's can be attributed to a host of factors, viz., the accessibility to indigenous/imported technology facilitated by the emergence of firms which undertook consultancy and projects on a turn key basis, acceptability of rubber wood in international market, export prospects and the promotional activities initiated by institutional agencies.

Annual average installed capacity (impregnation and seasoning) of the industry is 1115 cft per batch. Altogether 22 units have attached sawmills and 16 units have planing machines. Wastage due to rejection at sawing and seasoning processes varied across the regions (Table 2). Lowest sawing rejection in Tamil Nadu was due to the higher girth of the logs procured from Kanyakumari region. Recovery at sawing is mainly determined by the girth of the logs, pattern of tapping cuts/wounds and the efficiency of machinery. Higher seasoning rejection observed in Tamil Nadu may be explained in terms of higher share of sawn planks of lower thickness, which increases shrinkage.

Clonal differences in the presence of tension wood, which also would raise seasoning rejection significantly. Usage of chemical preservative is generally considered to be the most popular. Results indicated that only about 43 per

Table 1. State-wise distribution and growth of rubber wood processing sector in India

State	No. of units in operation	Period of establishment		Category of units		
		1960-90	1990-96	Small	Others	All units
Kerala	36 (72)	11	17	19	9	28
Tamil Nadu	9 (18)	2	7	6	3	9
Karnataka	5 (10)	—	5	0	5	5
Total	50 (100)	13	29	25	17	42

Figures in parenthesis denote per cent

Table 2 Characteristics of the secondary processing industry in India

Characteristics	Kerala	Tamil Nadu	Karnataka	Small units	Others	All units
	Per cent					
Sawmills attached	82	55	80	80	70	76
Chemical preservative#						
a) CCA	14	-	-	12	8	9
b) CCB	61	67	100	59	72	67
c) CCA/CCB	14	22	-	29	16	21
d) Others	11*	11	-	-	4	3
Planing machine						
a) Indigenous	46	33	-	24	59	38
b) Imported	10	22	-	-	29	11
c) Both	14	11	-	-	29	11
Average rejection						
a) At sawing (%)	47	40	-	43	46	46
b) At seasoning (%)	22	33	22	26	25	25
Downstream processing facilities	53	33	-	52	29	43
Total number of units	28	9	5	17	25	42

CCA: copper chrome arsenic; CCB: copper chrome boric; Others: INJECTA (a boron based preservative);
* Not specified

cent of the units have downstream manufacturing facilities and the proportion was much higher in the case of relatively small units (52%).

Functioning of the raw material market is characterised by the predominance of intermediaries consisting of timber traders based in the plantation belts and brokers in the auction centres. This is in sharp contrast to the higher degree of vertical integration achieved in Malaysia and Thailand. Primary market of rubber wood in India is mainly based at weigh bridges located in Nagercoil (Kanyakumari) and Perumbavoor, Ollur and Nilambur (Kerala). However, Perumbavoor market controls the entire raw materials in terms of grade wise price fixation. It was evident that only the units in Kerala and Tamil Nadu could procure the raw material in log form mainly due to their locational advantages (Tabie 3). The existing rules that prohibit the transportation of raw material in log form outside Kerala are also an important factor. Prevalence of intermediaries in the raw material market is well explained by the higher proportion of indirect procurement even in Kerala (70%). While indirect procurement of logs and sawn timber constitutes about 66 and 82 per cent, respectively, in other units, it is 91 and 94 per cent in small units.

The predominance of indirect procurement is also reported by a recent study on primary processing of rubber wood (Joseph and

Table 3. Pattern of raw material procurement

Region/ Category	Procurement			
	Total (cu.m.)		Indirect (%)	
	Logs	Sawn timber	Logs	Sawn timber
Kerala	18832 (98)	5784 (40)	70	56
Tamil Nadu	458 (2)	6766 (47)	100	100
Karnataka	0	1857 (13)	0	100
Small	3674 (19)	2958 (21)	91	94
Others	15616 (81)	11449 (79)	66	82
All Units	19290	14407	58	78

Figures in parenthesis denote per cent value

Table 4. Physical performance of the industry (cu.m/ batch)

Estimates	Kerala	Tamil Nadu	Karnataka	Small units	Others	All units
Annual installed capacity	38775	6477	1592	9459	37385	46844
Sawn timber processed	14614	7642	1814	4422	19648	24070
Production of treated wood	10973	6588	1564	3812	15313	19125
Capacity utilisation (%)	38	118	113	47	52	51

George, 1996). The study revealed that the procurement pattern is positively related to the scale economics, type of end products, manufacturing facility and proximity to the plantations. Existing system of indirect procurement though expensive, benefits the processing units in terms of obtaining the raw material as per their specifications which reduces wastage significantly. The results on sawing loss indicated that indirect procurement could reduce the sawing wastage by about 12.9 per cent.

Secondary processing consists of chemical impregnation, kiln seasoning was in most cases, and indigenous technology is being adopted. Though there is not much difference in the capacity of the indigenous vis-a-vis imported machinery, the latter is reported to be more effective in reducing the duration of the impregnation and seasoning processes. It was found that the impregnation time (measured in hours) was remarkably lower in the case of other units (3.7 hours) compared to small units (5.7 hours). With respect to seasoning time (number of days per batch) the other units (12.5 days) have had definite edge over the small units (14.8 days).

Kerala, though possessed almost 72 per cent of the processing units, the capacity utilisation of the industry was only 38 per cent (Table 4) while it was above 100 per cent in Tamil Nadu and Karnataka. The study indicated that these units procure only sawn timber with lower thickness, which required lower impregnation and seasoning time. Moreover it was reported that several units do not confirm to the standard size specifications or timings while processing.

With respect to marketing of treated sawn planks/finished products, both small and other units have similar pattern, except the export-oriented units. The industry is highly internal market oriented and the products include treated sawn timber for different purposes (Table 5). The major outlets are Madras, Bangalore, Maharashtra, Pune, Punjab and Hyderabad. Only 13 units reportedly having exports and the products include S4S materials (Table 6). Currently, the extent of value-addition in Indian rubber wood sector is only 296 per cent against the potential extent of 1561 per cent (George and Joseph, 1998). However, the export market would be attractive for the industry, if proper steps are taken for quality improvement, product diversification and value addition.

Main constraint faced by the units in the internal market is lack of acceptance which is mainly due to the lack of awareness, existence

Table 5 Type of products manufactured

Type of products manufactured	No. of Units	Share (%)
Furniture and furniture components	17	40
Paneling, shutters, doors, windows and door frames	13	30
Flooring tiles		
Brush backs/handles, block boards and table tops	11	26
Surface planed sawn planks (S4S materials)	9	21
Other products	11	26

* include items like toys, Ice cream sticks, guitar, frame, kitchen wares, kitchen cabinets & picture frames

Table 6. Type of products exported and destination

Product type	Destination
Flooring tiles, Toys Brush/broom handles, Flush doors, Paneling, Block boards, Furniture & furniture components, Kitchen wares/ cabinets Picture frames, Parquet flooring, S4S Materials	USA, Russia, UK, Spain, Italy, Sweden, Belgium and other European Countries, Middle East, Japan & Sri Lanka

of spurious sellers and noncompliance of quality standards by the processors. In the absence of any information on the absolute volume and quantity of products exported by each of the units, it is rather difficult to estimate the net earnings and thereby to predict the future export potential of the industry.

Indian rubber wood processing industry is characterised by lower scale of operation, technology, vertical integration and value addition. Higher log price, emergence of intermediaries in the primary market and shrinkage of logs of higher girth are yet other constraints. The industry is oriented towards internal market where lack of acceptance is a major hurdle and the export potential could not be exploited. The operational level constraints faced by the industry at procurement, processing, downstream manufacturing and marketing are reflected in a lower capacity utilisation. In order to make the industry globally competitive and to raise the acceptance of rubber wood based products in the internal market, certain policy options are to be considered, viz., 1) setting up of a statutory promotional agency with proper research and development support to enforce quality standards at primary/secondary processing and downstream manufacturing, 2) provision of intelligence on internal/external markets on a continuous basis and launching of market promotion activities in the internal market, 3) adoption of the appropriate technology at all levels, 4) orientation of research and development activities towards small dimension timber technology and the development of a panel products sector to consume the processing wastes and branch wood and 5) formulation of a perspective plan for the systematic and regulated growth of the industry. The outlined policy options are necessary to attain maximum commercial exploitation of this eco-friendly by-product of rubber plantations.

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