

Rubber Plantation - A Sustainable Source Of Wood



By M K Balagopalan Nair

Wood has been used by man for construction purpose from time immemorial. As population increased the demand also increased. With the industrial revolution the demand further went up and continued deformation led to environmental degradation. As the source and technology progressed several alternate materials like metals, plastics and composites were developed with superior strength and working properties, but none of them had the feel of wood. The continued search for wood led to the utilisation of secondary species of wood like the 'rubberwood'.

Hevea brasiliensis, the natural rubber tree, a native of Brazil, grown in plantations in tropical regions of Asia, Africa and America is the most important commercial source of natural rubber. With over 530,000 ha under rubber, India is the third largest producer of natural rubber in the world. When the tree is 22 to 29 years old latex production becomes uneconomic and the trees are cut and replanted.

Rubber is predominantly a small crop (87 per cent). A rubber tree from small holding has about 0.57 cubic meter of timber and per ha yield is about 150 cubic meter. The present availability is estimated at 1.6 million cubic meter per year and it is estimated to be 2.5 times by the end of the decade. The stem wood of timber value is 60 per cent.

Rubberwood is a medium hardwood, with light colour (light straw), attractive grain structure and strength properties comparable to any hardwood. It has very good working and machining qualities, takes finishes well and can be bent in steam or in ammonia. Being light in colour it can be stained to the shades of teak, rose wood, mahagani, beech, cherry etc.

The properties of rubberwood in comparison with teak are given in the tables.

Rubberwood is juvenile when extracted and its girth (80 to 100 centimetre) and length (270 centimetre) are low compared to traditional hardwoods. Presence of tension wood and tapping marks and knots lead to deformations and defects. As received from the field the timber is susceptible to attack of fungi, borers, insects etc.

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Employing the developments in wood science and technology it is possible to make the wood durable and make a variety of value-added products. Thus rubberwood finds extensive application in furniture, flooring, partitions, interiors, building components and wood products. As a plantation timber of sustainable supply it is accepted in the world market as an eco-friendly timber although it is relatively new to the domestic market.

Major rubber producing countries like Malaysia, Thailand and Indonesia are advanced in processing and value addition and export of the products. The total

exports is about USD 2 billion. Over 71 per cent of rubberwood is used in furniture and the major consuming centres are USA, Japan, Europe. In India bulk of the stem wood is going as packing cases, safety matches, core veneers which are low value-added products. Rubberwood processing for value addition started in India only by the 80s and there are 52 units engaged in this. The industry is still in its infancy and only about 11 per cent of the available rubberwood is processed for value addition. The extent of value addition is also low compared to the major players in the field besides our exports are quite low as well. Utilisation of rubberwood is quite relevant for a timber deficit country like ours. As an eco-friendly timber it is well accepted in the world market. Thus, it is a foreign exchange earner and saver for the country.

In the post liberalisation period the processors will have to equip themselves to face competition from others in the domestic as well as export markets. The technology and product mix have to be improved to increase the recovery and to reduce wastage. Since the durability of the product will largely depend on the effectiveness of the primary processing (preservation

Rubberwood vs Teakwood

	Teakwood	Treated Rubberwood
Specific gravity*	0.604	0.557
Weight Kg/cm m*	676	624
Tensile stress, perpendicular to grain, Kg/cm ²	62	59.81
Compressive stress, parallel to grain, Kg/cm ²	532	374
Compressive stress, perpendicular to grain, Kg/cm ²	101	101
Shear strength, parallel to grain, Kg/cm ²	102.3	102.8
Hardness	504.7	680
(* at 21 per cent moisture content)		

and seasoning) it is very essential to formulate standards and to have a system for certification of quality. This will help to improve the quality and acceptability of the product. The processing techniques/equipment have to be improved to attain better quality, recovery and commercial viability. The domestic market itself is quite huge and there is vast potential to be tapped since ours is a timber deficit country importing wood and wood products. This requires extensive promotion work. Simultaneously steps should be taken to make known the products in the world market. To compete better in the domestic and world markets, timber harvesting techniques needs to be modernised.

Since most of the rubberwood processors are in the small scale sector they are not able to

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establish a national distribution channel on their own. This has to be addressed. From the logistics of the wood and its inherent features rubberwood processing and value addition will call for investment beyond that of an SSI unit. Furniture being the best product from rubberwood the manufacture of wooden furniture now reserved for the SSI sector should be delicensed to enable the domestic units to compete with imports in quality and price.

The furniture designs are to be rationalised and made KD (knocked down) type as in the west for national marketing. The industry is facing serious issues related to tax and duties. Processed rubberwood is being considered as densified wood by the Central Excise which has to be resolved. Although the government of Kerala has exempted the processing units from

sales tax and purchase tax for the first seven years this is not made available to the units by the implementing authorities. For transport of processed wood and products through the different state boundaries a forest pass is required to be produced. This is a hurdle and steps are required to overcome these.

Rubberwood is an important by-product of the rubber plantations. Processing and value addition of rubberwood will ensure a sustainable price for the grower making rubber cultivation more viable in the post liberalisation era. It will help to generate employment and income thereby strengthening the economy. Thus, because of these reasons, in the last five years the board has been engaged in the development of rubberwood processing industry. The invitations are briefly as follows:

Rubber Board has set up a rubberwood processing plant in joint venture with Rubber Producer Societies in 1996 and this has been partly expanded for value addition with share capital assistance from KSIDC. The board has demonstrated use of rubberwood in applications like furniture for schools, offices and hospitals etc and in buildings for doors and interiors.

The board has been promoting rubberwood in the national market by participation in exhibitions, conducting architects' meets, and through print and

Particulars	Teakwood	Rubberwood
Weight or Heaviness	100	93
Strength as a beam	100	62
Stiffness as a beam	100	77
Suitability as a post	100	52
Shock resisting ability	100	75
Shear	100	92
Surface hardness	100	74
Splitting coefficient	100	75

electronic media, and distribution of technical literature. It has been taking up issues related to duty and taxes with the authorities along with the processors.

A rubberwood testing laboratory in Kottayam has been set up by the board to make available testing facilities to the processors and consumers and also to impart training in testing and quality control. Besides, a state-of-the-art rubberwood treatment plant is also being set up in Kottayam with equity participation of KSIDC and private sector to provide training and

station in processing, value addition, control, waste utilisation and environmental protection systems and this will be commissioned shortly.

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