Commercial Exploitation of Ancillary Rubber Products

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With the International Rubber Agreement, the only existing commodity pact on the verge of collapse, the commercial exploitation of ancillary rubber products such as rubber wood, rubber seed and honey has assumed importance.

THE plight of plantation crops exported from developing countries in the postwar period is a well debated and documented subject. The controversy centred around two important points, viz, the short-run instability and secular trend in the prices and the desirability of an international initiative to stabilise prices. In spite of various commodity agreements and price stabilisation schemes, prices of all the non-fuel primary commodities registered a secular decline in real terms which is becoming more evident in the 1980s. During the 10-year period between 1980 and 1989 the decline in the real price indices of non-fuel primary commodities was 22 per cent [IMF 1990]. The primary commodity prices measured in dollar terms also declined by 11 per cent in 1991 [UNCTAD 1992].

The international initiative under the auspices of UNCTAD for stabilising prices of primary commodities gathered momentum with the acceptance of Integrated Programme for Commodities in 1976, and the establishment of the Common Fund in 1989 strengthened such efforts. However, the price stabilisation schemes that emerged during the post-war period lacked the active participation of the erstwhile colonial powers. This is in sharp contrast to the international commodity agreements and other price stabilisation schemes that prevailed earlier which had the active involvement and support of the colonial powers which had decisive control over production, processing and marketing of primary commodities exported from developing countries. The postwar period witnessed the collapse of many of these schemes and some were relegated to arrangements for consultation and data collection. The International Rubber Study Group (IRSG) and the International Tea Council (ITC) are two such examples [Corea 1992]. The International Natural Rubber Agreement (INRA) which is the only existing commodity pact is also on the verge of collapse mainly due to the conflicting interests of the producers and consumers.

The case of natural rubber (NR) is a classic example of the vulnerability of the developing countries to price fluctuations in the world market. The free market price indices of NR declined to the extent of 40 percentage points in 1990 from its 1980 level [UNCTAD 1990]. The uncertainty confronting the NR sector assumes greater significance due to certain specific factors encompassing its production and consumption sectors. The production sector is characterised by the geographical concentration of production in south-east Asia accounting for more than 92 per cent of the total world production [IRSG 1993], and the dominant position of the small holdings sector contributing 70 to 95 per cent of the production in the three major NR producing countries. The NR consumption sector is characterised by an oligopsony market structure dominated by the automotive tyre and tube manufacturing sector accounting for 65-70 per cent of the total NR consumption, and an average internal consumption of less than 10 per cent of the total production of NR in the three major producing countries [IRSG 1993]. The international initiative for the stabilisation of NR prices with the establishment of INRA in 1979 and its relative inefficiency in stabilising the prices at remunerative levels from the producers' angle is another important dimension of the problem. Conversely, a relatively well-protected regime of support prices for NR in India, a captive internal market and financial and institutional support provided at various stages of NR production in the country are theoretically different from the emerging international scenario. Nevertheless, the recent escalation in the prices of material inputs, erosion of relative profit margins and declining terms of trade of the NR sector have left only limited options for reorientation.

It is in this context that the response of the NR production sector has to be examined from a policy angle. The response, though varied across countries, is unique in capitalising available opportunities for squeezing the unit cost of production and exploring potential outlets for increasing the net income per unit of area. For instance, in Malaysia, the response consisted of switching over to relatively more profitable and less labour intensive oil palm, introduction of labour saving mechanisms at various stages of NR production, introduction of high yielding varieties of planting materials, value addition to processed rubber, commercialisation of NR processing wastes, intercropping during immature phase and commercial exploitation of ancillary products [Sulieman 1991]. In India, the net income augmenting measures are having an upper hand compared to cost saving methods. Adequate availability of labour, absence of relatively more profitable alternative crops in the rubber growing areas and comparative stability of NR prices in India appear to be the major differences. The growing popularity of intercrops such as pine apple, banana and ginger during the immature phase of the rubber plantations represents attempts to maximise the returns in the context of growing uncertainty. The efforts towards the commercial exploitation of ancillary products such as rubber wood, rubber seed and honey are at different stages of development. But it is important to note that there is a remarkable change in the conventional approach towards these ancillary products favouring value addition and exploring potential areas of exploitation.

Rubber Wood

Among the three ancillary products, rubber wood occupies an important position in terms of its growing market potential and the basic characteristic as a renewable by-product of rubber plantations. In an operational sense, rubber wood is inexhaustable as the plantations are maintained on a sustained yield rotation of 25-30 years. The two important factors responsible for the growing commercial importance of rubber wood in the world market since 1980s are the development of an appropriate processing technology and the fact depletion of supply of many hard wood varieties resulting in steady increases in prices. The processing technology of rubber wood mainly consists of a standardised preservative treatment and seasoning method for improving the inherent properties amenable to various industrial applications. The preservative treatment in the form of chemical impregnation safeguards it from fungal and insect attack on account of a relatively higher content of carbohydrates. The seasoning process re-

Table 1: Comparative Suitability Indices of Rubber Wood

(Teak = 100)

Property/Use	Suitability Index
Weight/Heaviness	93
Strength as a beam	62
Stiffness as a beam	77
Suitability as a post	52
Shock resisting ability	75
Shear	92
Surface hardness	74
Splitting coefficient	75

Source: Shukla, N K and Mohal Lal (1985)

duces the higher moisture content to the required minimum level [Sekhar 1989]. As treated rubber wood obtains tolerable dimensional stability and smooth machining properties it can replace hardwood varieties on a variety of enduses. Table 1 shows the comparative suitability indices of rubber wood.

At present, rubber wood processing facilities have been well established in all the major NR producing countries. In Malaysia, rubber wood is being used to manufacture a chain of wood products ranging from furniture and household articles to building components. In 1991, export earnings of Malaysia from furniture and other products of rubber wood was US $ 128 million [ITC 1993]. Rubber wood saw dust is being used to manufacture briquettes. Another research breakthrough in Malaysia is the experimental success to process activated carbon using branch wood [*Business Times* 1992]. It is also reported that a few large planting companies are exploring the possibilities of cultivating specific varieties of rubber exclusively for timber instead of latex so that quality timber can be obtained at a relatively shorter period of 15 years [*Business Times* 1992]. Japanese technology has successfully developed methods to use rubber wood in paper and pulp industry.

India is a net importer of wood and the annual requirement of wood is around 10 million cu m for industrial applications. During 1991-92, the total value of imports of wood and wood products was Rs 409.45 crore [DGCIS 1992]. Among different components of wood imported, the share of rough wood was 97.4 per cent. The present gross cultivated area under rubber in India is around five lakh hectare and in each year around 6,000 hectare are being replanted. It is estimated that in India the average availability of rubber wood per hectare at the time of felling is 200 cu m [Haridasan et al 1985]. The estimated rubber wood production during 1992-93 is 1.2 million cu m. Around 80 per cent of the supply is during the months from January to June. The estimated share of branch wood is 40 per cent which is mainly used for industrial and household firewood requirements. The remaining 60 per cent stem wood is utilised for various industrial applications as shown in Table 2.

TABLE 2: CONSUMPTION PATTERN OF STEM WOOD IN INDIA

Consuming Sector	Quantity Consumed ('000 cu m)	Relative Share (Per Cent)
Packing cases	450.0	62.5
Safety matches	120.0	16.7
Plywood	90.0	12.5
Treated wood	50.0	7.0
Others	10.0	1.3
Total	720.0	100.0

Source: Estimates of Rubber Research Institute of India (RRII), 1992.

The main consuming sector is the packing case manufacturing industry followed by safety matches sector which uses rubber wood to manufacture both veneers and splints. A large number of plywood manufacturing units use rubber wood treated through simple diffusion process. There are 26 processing units in the country with pressure impregnation treatment and seasoning facilities and five units are under construction. The consumption pattern of stem wood in India clearly indicates the scope for more value addition. Although a few processing units in India have downstream facilities to manufacture furniture and building components, a major share of the treated wood is sold as multi-purpose sawn planks.

Two recent developments in the construction components sector of the domestic market having long-term implications on the prospects of rubber wood are: (i) inclusion of rubber wood by the Bureau of Indian Standards for doors, window shutters and frames, (ii) ban of forest wood for the construction work undertaken by the central public works department (CPWD) since April 1993. In India, the growing commercial potential of rubber wood has to be assessed in the light of potential supply. Table 3 shows the projections on supply of rubber wood from 1992-93 to 1997-98.

Table 3 clearly indicates the steady growth in the potential supply of usable sawntimber till 1997-98 based on the projected replanting targets. However, the rubber wood processing industry is confronted with the twin problems of a lower level of capacity utilisation and the insignificant installed capacity in relation to the available sawntimber. For instance, in 1992-93 the estimated capacity utilisation of the industry was only 37 per cent while its total installed capacity was sufficient only to utilise 13.4 per cent of the usable sawntimber [RRII 1993]. The immaturity of the industry is very often attributed to the extent of acceptability of the rubber wood-based products in the domestic market, absence of a

TABLE 3: PROJECTIONS ON SUPPLY OF RUBBER WOOD ('000 Cu m)

Form	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98
Rubber wood	1200	1235	1376	1504	1607	1706
Stem wood	720	741	826	902	964	1024
Sawntimber suitable for processing	252	259	288	316	337	358

of the industry and the dominant roles of sawmillers and competing industries in the primary market.

The growing imbalances in the domestic and world wood markets demanding alternative sources of supply, the renewable and ecofriendly nature of rubber wood and its relatively cheaper prices are some of the positive indicators of the potential. The immediate requirements of this growing industry appear to be a strict quality control system for processing facilities and processed wood and a continuous monitoring mechanism for generation of data and market intelligence.

RUBBER SEED

Rubber seed is another important ancillary product of rubber plantations having various industrial uses. The availability of rubber seeds is estimated to be 150 kg per hectare. Around 10 per cent of the seed is required to raise stock materials and the rest is processed into rubber seed oil and cake. Under commercial conditions, the oil recovery is around 14 per cent of the weight of the seed or 35 per cent of the weight of the kernel [Haridasan 1977]. Rubber seed oil is a nonedible as hydrocyanic acid and other harmful elements are present. The estimated current production of rubber seed oil and cake is 4,300 MT and 8,000 MT respectively. Although about 86 per cent of the area under rubber in the country is located in Kerala, the processing activity is concentrated in Tamil Nadu, mainly due to favourable weather conditions and unutilised capacity in the groundnut oil processing industry [Tharian George et al 1992]. Rubber seed oil is mainly used to manufacture inferior quality soaps. Limited consumption is also reported in paint, varnish and leather tanning industries. The seed cake rich in protein is mainly used in the manufacturing of poultry and cattle feeds.

RUBBER HONEY

The rubber tree is a prolific producer of honey. It is estimated that in one hectare of rubber plantation 10 to 15 hives can be placed. Though experimental trials have reported up to 19 kg of honey/year as production per hive average productivity in India is much lower [Haridasan et al 1987]. In the rubber growing areas bee-keeping is mainly promoted by voluntary and co-operative agencies with financial and technical assistance from khadi and village industries commission. At present, there are about 50 honey collection and processing units in Kerala and the estimated production of honey is less than 9 per cent of a potential of around 35,000 MT per annum from the rubber sector. The major consuming industries of

honey in the domestic market are the ayurvedic and allopathic pharmaceutical firms, bakery, confectionary, dairy and tobacco manufacturing.

The emerging trends in the natural rubber sector at global and national levels in terms of viability of rubber as a monocrop and the extent of commercial exploitation of ancillary products vary considerably. In India, the growing uncertainty of rubber cultivation in the context of opening up of the economy calls for appropriate R and D efforts and promotional mechanisms to maximise the returns during the immature and mature phases of rubber plantations. In future, the potential sources of income from intercrops and ancillary products can play a decisive role in determining the viability of NR cultivation.

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Biological Parks, Forest Fires

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If the government is really concerned about protecting the remaining forests of Kerala, it should modify and improve the style of functioning of its forest staff.

KERALA had lost 3,450 sq km of forest between 1940 and 1970. The percentage reduction was from 51 per cent to 24 per cent of the geographical area. Continued propriation of natural forests land for iculture, irrigation and hydel projects, settlement programmes, and encroachment and consequent degradation have depleted the forests further to about 10 per cent of the geographical area.

In 1991, there was a plan to introduce selective felling of trees to earn Rs 25 crore as revenue. But due to wide protest the plan was dropped.

The destruction of forests has had a devastating effect on the rivers of the state. Many of the rivers including Bharathapuzha and Periyar are drying up. It is worth noting that one hectare of rain forest holds about 30,000 cubic metre of water and releases it through the perennial streams originating from the forests and high elevation grasslands.

Under these circumstances, the forest fires occurring every year throughout the state is of concern to all. The lack of funds for providing extra protection staff is said to be the reason for a rise in forest fires. At the same time, the government has come forward with a big project called 'Agasthyavanam Biological Park'. The park with an area of 25 sq km is situated in the southern end of the western ghats (near Thiruvananthapuram). Instead of protecting the remaining forest belt of the state, collection and preservation of specimens of forest species in a small area of 25 sq km with a huge budget does not make sense. Most of the money provided in the budget will be spent on construction work like offices, quarters, roads and check dams, and some on salaries. Already an office with a conservator and subordinate staff has started functioning. The park was inaugurated on the new year day of 1992 by the chief minister, without getting a clearance from the department of environment and forests.

More than 2,000 hectare of forests were destroyed in fires in 1991-92 summer season. These included very valuable forests in seven of the 14 sanctuaries and national parks. About 250 hectare of undergrowth and grasslands at Eravikulam National Park were destroyed. The protected 'shola' grassland ecosystem of the park is of exceptional importance from the point of view of ecology of high ranges and the endemic plants they harbour.

In the Thekkady Wild Life Sanctuary and Periyar Tiger Reserve fires have consumed more than 500 hectare of the area. Miscreants entering from the Tamil Nadu border for collection of forest products are responsible for the fires in this area. Similarly, in Chinnar Wild Life Sanctuary, Idukki Wild Life Sanctuary and Thattekkad Bird Sanctuary 100, 200 and 15 hectare of area, respectively, has been destroyed in fires. About 300 hectare of land was damaged in Achankovil range near the Shendurny Sanctuary.

The core of the Agasthyamalai biological park has also been heavily damaged due to fire. According to environmentalists, these forest fires were artificially created by forest guards to clear the area for their plantation activities. The areas damaged included evergreen forests and the shola grasslands of Chemmunji hills. These hills and grasslands were repeatedly destroyed by the social forestry department trying in vain to create plantations.

Agasthyamalai area is considered to be of exceptional importance from the point of view of genetic diversity and endemicity. At least 140 plants are reported to be endemic to this area and many of them endangered. This area is considered a 'hot spot' from the point of view of genetic erosion by the International Union for Conservation of Nature and Natural Resources (IUCN) in its report on the threatened protected areas of the world (1990).

The decision of the government to construct a biological park is of great concern with regard to the natural regeneration and protection of the area. The project is looking forward to cash in on the expansion of tourism industry. The existing tourism in the hills is creating a real threat to the plants and wild life in many sanctuaries, and 'potential tourism' is sure to destroy the whole area. Indirectly, the incidence of forest fire in the nearby areas will get a boost due to the high tourism potential of the park. If the government is really concerned about protecting the remaining forests of the state, it should think in terms of modifying and improving the style of functioning of the forest staff and making the public alert about the dangers of forest fire. The political gimmickry of creating 'tourist parks' or 'disney lands' is not going to touch even the surface of the problem.