

Will the Indian Natural Rubber Industry Weather the Asian Crisis ?

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INTRODUCTION

Asian financial crisis since July 1997 has been one of the major economic disasters seriously damaging the world economy in general and Asian region in particular during the post-war era. The polemics on the crisis are centered around three important issues, viz., identifying the root causes, assessing the economic consequences and prescribing the remedial measures. However, the economic reverberations of the Asian financial crisis on the eve of the next millennium are saddled with a number of economic, social and political issues which will influence the form and content of the strategies of various economies and the constituent sub-sectors for many years to come. Although the immediate consequence of the crisis has been a sudden and steep devaluation of local currencies of the affected countries in terms of dollar, it affected the performance of real sector and various sub-sectors of Asia in particular and world economy in general. The most discernible distortions evident in the real sector of the crisis-ridden economies are a perceptible decline in GDP growth rates and export earnings. A common feature found in most cases has been persistent current account deficit, huge borrowing in dollar for investment without sufficient infrastructure, weak local market and large dependence on external market. At the global level, estimates of the International Monetary Fund (IMF) indicates that the net output loss on account of spreading of the financial and economic crisis is around US \$ 600 billion (The Hindu, 1998).

Another important aspect confounding the global economic scenario in the 1990s has been the perceptible changes in the trade and organisation of production with the signing up of the General Agreement on Tariffs and Trade (GATT) in April, 1994 and the subsequent emergence of the World Trade Organisation (WTO) in 1995 to implement and monitor the objectives of the treaty. One of the main objectives of the treaty has been to reform a highly distorted world trade characterised by direct and indirect subsidies resulting in a deceptive comparative advantage and inefficient use of world resources. The resultant policy changes in the global economic scene cutting across national and ideological frontiers consisted of decontrol, deregulation and liberalisation. These three policy inputs have been the harbingers of the ongoing process of market integration and globalisation of economic activities. The economic consequences of the crisis on various economies and sub-sectors have to be viewed in this background.

From a policy angle the most important aspect increasingly becoming evident since the establishment of the WTO has been its inherent rigidities in controlling the distortions in world trade. In fact, recent US-EU banana face-off exposed WTO's shortcomings and posed fundamental questions about the professed multilateral system of trade. Another important dimension of dispute is the high tariff on products that developing countries export and the tariffs rise as the countries move further up in the processing chain. This practice is equivalent to indirectly discouraging value

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addition to product exported from the developing countries. This is obvious in the case of import duties that the developed countries levy on food, textiles, footwear and leather products.

On the other hand, the world economic structure itself has been undergoing significant changes consequent to globalisation in the background of the Asian financial crisis. The steady increases in the number of mergers and acquisitions among national and multinational companies since mid 1990's are broad indicators of the basic tenets of the emerging structure of global economic scenario in the next millennium. The mantra and the motto for success for an entrepreneur or a firm in the 21st century is "globalise or perish". In the emerging scenario, it is interesting to note that the three worst-hit victims of the current crisis are the three major natural rubber (NR) producing countries, viz., Thailand, Indonesia and Malaysia. The combined share of these three countries in total world trade production and exports are around 72 percent and 87 percent respectively. Logically, the developments in these countries since mid 1997 may have serious implications on the world rubber economy as well as other major NR producing countries like India. Therefore, this paper is conceived within the backdrop of market integration and Asian crisis to analyse the specific issues of Indian NR industry in the larger framework of the world NR economy.

WORLD NR PRODUCTION SECTOR

Any serious attempt to delineate the potential implications of the emerging trends in the global economy on the world NR sector has to primarily focus on the production sector. Logically, the major impact of the structural adjustments consequent to the challenges arising from the new economic order is expected to take place in this sector. The three cardinal features of world NR production sector are a very high degree of geographical and sectoral concentration of production and the export orientation. Table 1 illustrates the major characteristics of the world NR Production Sector.

As evident from Table 1, world NR production is geographically concentrated in Asia which accounts for about 92.8 percent of the total production. In fact, the four largest producers, viz; Thailand, Indonesia, Malaysia and India control more than 80 percent of the world NR production. The sectoral concentration of production shows that 72.6 percent of the total production is from the dominant smallholdings sector although there are significant variations across the major producing countries in the relative share of this sector. The domestic consumption of NR is a crude indicator of the extent of rubber based industrialisation and value addition in the producing countries. The share of domestic consumption of NR (40%)

TABLE 1. MAJOR CHARACTERISTICS OF THE WORLD NR PRODUCTION SECTOR (1997)

Region	NR Production (000' tonnes)	Relative share in world NR production (%)	Relative share of smallholdings in NR production (%)	Domestic consumption of NR as a percentage of production
Asia	5955.3	92.8	NA	38.1
Others	464.7	7.2	NA	65.1
World Total	6420.0	100.0	72.6	40.0

Source: International Rubber Study Group (1998), Rubber Statistical Bulletin, Vol-53, No.3, December, London.

in the producing countries indicate that even after a century, the crop is basically dependent on export markets and the share of Asia (38.1%) is lower than the world average. However, there are substantial differences in the extent of absorption of NR in the major producing countries. Table 2 shows the extent of domestic consumption in the six major NR producing countries.

TABLE 2. DOMESTIC CONSUMPTION OF NR IN THE MAJOR PRODUCING COUNTRIES (1997)

Country	Domestic Consumption of NR (000' tonnes)	Domestic Consumption of NR as a percentage of production
Thailand	182.0	9.0
Indonesia	141.0	9.4
Malaysia	326.9	33.7
India	571.7	98.5
China	900.0	202.7
Vietnam	48.0	23.9
Total	2169.6	37.8

Source: Same as Table 1

Table 2 shows the extent of variation in domestic consumption of NR among the major NR producing countries and it varies from 9 percent in the largest producing country (Thailand) to more than 202 percent in the fifth largest producer (China). Even though Table 2 is illustrative of the differences in the extent of rubber based industrialization in relation to the raw material base in the major NR producing countries, it is obvious that these countries have well defined limits in absorbing the shocks and responding to the challenges in the emerging global economic scenario. This is primarily due to three factors, viz; (1) a high degree of dependence on the export markets and the resultant vulnerability to economic changes in the major NR consuming countries, (2) negligible value addition in the NR

producing countries and (3) inherent constraints of the dominant smallholdings sector in adapting and adjusting to the changes.

An important feature of world NR consumption is that not only the developed industrialised countries are consuming a major share (60%) but also it has been concentrated in the tyre and tyre products manufacturing sector over time. Table 3 shows the relative share of the tyre and tyre products sector in total NR consumption among the major non-NR producing countries.

TABLE 3. RELATIVE SHARE OF TYRE AND TYRE PRODUCTS SECTOR IN TOTAL NR CONSUMPTION (1997)

Country	Total NR Consumption (000' tonnes)	Relative share of Tyre and Tyre Products Sector (%)
USA	1044.1	76.9
Japan	713.0	86.0
Germany	212.0	81.5
France	192.3	91.9
UK	121.0	82.1
Italy	117.0	75.2
Total	2399.4	81.4

Source: Same as Table 1

Table 3 highlights a very high dependence of NR on the dominant tyre and tyre products manufacturing sector in the major non-NR producing countries. Even in the major NR producing-cum-consuming countries such as China (the 2nd largest consumer) and India (the 4th largest consumer), the tyre sector is the single largest consuming industry. Therefore, to a large extent, the prospects of the NR production sector is largely dependent on the fortunes of the tyre and tyre products sector which is controlled by a handful of multinational companies. The mergers and acquisitions

among the tyre companies since the mid 1980's have only increased the concentration of global tyre production. The most recent trends tend to indicate that compared to the indigenous tyre companies the multinationals are better equipped to face the challenges of the ongoing global recession because of the latter group's world wide links.

NR PRICES

The potential implications of the emerging trends have to be assessed in the context of the major structural characteristics of the NR production and consumption sectors outlined in the previous section. NR is one among the ten core commodities covered by the Integrated Programme for Commodities (IPC) under the auspices of UNCTAD for assistance. However, its case is a clear example illustrating the vulnerability of the developing countries to price fluctuations in the world market inspite of the market interventions by the International Natural Rubber Organization (INRO) since the 1980's to stabilise the NR price. Although volatility of prices of the major agro-based products exported from the developing countries has been a common feature during the post-colonial era, the extent of fluctuations and uncertainly assumed serious proportions since the 1980's. The free market price indices of NR declined to the extent of 40 percentage points in 1990 from its 1980 level (George and Sethuraj, 1996). During the 19 year period from 1980-98, the trend growth rate of world NR price has been only 0.17 percent in nominal terms. However, the most important issue seriously debated on world NR market has been the steep fall in the prices (in dollar terms) since 1996 after achieving a record peak level in 1995 during the 19 year period. The negative annual growth rates recorded in 1996 (-12.5%), 1997 (-28.4%) and 1998 (-28.4%) are confounded by

the Asian financial crisis. The recent fall in world petroleum prices may further worsen the situation with commensurate decline in synthetic rubber (SR) prices. Though the net impact of the price fall vary across the major NR producing countries, the gravity of the crisis is evident from the estimated loss of US \$ 115 million in the case of Thailand during the period between 1997-98 (World Bank, 1998). The INRO has in-built constraints to intervene in the market not only because the benchmark price is denominated by the Singapore dollar and Malaysian ringgit but also due to inadequacy of funds. The available forecasts on NR prices are revolving around the perception that recovery from the ongoing crisis is possible only with sustained economic growth in the South-East Asian region and the industrialised countries in Europe, USA and Japan. In this context, there are well defined limits to inter and intra-sectoral adjustments in the world NR economy to offset the negative impact of the crisis. Nevertheless, future NR scenario is likely to be dictated by the comparative competitiveness in cost of production, quality and value addition.

INDIAN ECONOMY: KEY ECONOMIC INDICATORS

An overview of Indian economy in the aftermath of the Asian crisis is relevant as the basic characteristics of the Indian NR sector is a very high degree of inward market orientation compared to the major NR producing countries. Despite the fact that Indian economy has not been affected to the extent to which East Asian economies are crippled by the crisis, there have been significant economic consequences on the economy mainly in terms of the industrial recession. Table 4 summarises the performance of the Indian economy during the period 1995-96 to 1998-99.

TABLE 4. ANNUAL GROWTH RATES OF KEY ECONOMIC INDICATORS

Economic indicators	Annual growth rates (%)			
	1995-96	1996-97	1997-98	1998-99
Gross Domestic Product (at 1993-94 prices)	7.6	7.8 (P)	5.0 (Q)	5.8 (A)
Agricultural production	-2.7	9.1	-6.0	3.9 (P)
Industrial production	12.8	5.6	6.6	3.5 (#)
Imports (at current prices)	36.4	13.2	9.0	23.2 (#)
Exports (at current prices)	28.6	11.7	6.3	11.7 (#)
Foreign currency assets	-11.5	37.5	27.5	13.7 (B)
Exchange rate (Rs/ US \$)	-6.1	-5.8	-4.5	-11.5 (C)

Q - Quick estimates, A - advance estimates, P - Provisional

- April-December 1998, B - At the end of January 1999

C - April-January 1998-99

Source: Economic Survey 1998-99, Government of India

Among the seven economic indicators given in Table 4 the trends in the annual growth of industrial production and exchange rate assume relatively more importance in any serious discussion on the performance of the Indian NR sector. The trends in the industrial production are of paramount importance to the NR sector since the fortunes of the sector are primarily dependent on the absorption of rubber by the Indian rubber products manufacturing industry which is intrinsically related to the performance of the larger industrial segment of the country. As evident from Table 4 the deceleration of industrial growth in the country during the last three years has serious implications on the NR sector. Therefore, the analysis of the prospects and policy imperatives of Indian NR sector has to be viewed in the context of the deceleration of industrial growth and decline in the exchange rate value of the Indian currency.

THE PRODUCTION SECTOR

Indian rubber production sector consists of three segments: the NR, Synthetic Rubber (SR)

and Reclaimed Rubber (RR). As in the case of the three major NR producing countries, NR producing sector has been the dominant segment from the very beginning in terms of its relative share (81%) in total rubber production in the country. However, the unique feature of the Indian rubber production sector is its internal market orientation arising from a captive domestic market compared to the export orientation of the three major NR producing countries. In 1996-97, the relative share of exports of rubber in the total production was less than one per cent which is in sharp contrast to the respective shares of Thailand (91%), Indonesia (89%) and Malaysia (60%). Among the three constituent segments of the Indian rubber production sector, the NR production segment demands further elaboration in terms of the economic and social dimensions involved in the context of the Asian crisis.

The two cardinal features of Indian NR production sector are: a relatively high degree of regional and structural concentration. Regional concentration of NR production in the country is characterised by a near monopoly

TABLE 5. CLASSIFICATION OF AREA UNDER RUBBER (1997-98)

Size Class (ha.)	No. of units	% share	area (ha)	% share	average size (ha)
Upto 2	935456	97.64	394412	72.13	0.42
> 2 -4	17210	1.80	44104	8.10	2.56
> 4-20	5058	0.53	36364	6.68	7.19
Holdings total	957724	99.97	474880	87.21	0.50
Estates total (Above 20 ha)	322	0.03	69654	12.79	216.32
Grand total	958046	100.00	544534	100.00	0.57

Source: Rubber Board, Statistics and Planning Department, Kottayam.

position of the state of Kerala in terms of control over the area under the crop (85%) and production (93%). The structural concentration is characterised by the dominance of the smallholdings sector in area under the crop (87%) and production (87%). In the context of the Asian economic and financial crisis, the structural dimension of the Indian NR production sector assumes relatively more importance in terms of vulnerability as about 0.96 million units of the smallholdings with an average size of about 0.50 ha accounts for a major portion of the area under the crop and production.

The evolutionary dynamics of the NR production sector in the country leading to major structural changes and culminating into the dominance of the smallholdings sector since late 1950's is relatively well documented and discussed (George et al. 1988 and George 1998). An important milestone in the history of the rubber plantation industry in the country has been the active intervention of the government since independence at the levels of cultivation, production, processing and marketing of NR. This process has been effectively supplemented by a very high degree adoption of modern technology by the smallholdings comparable to the estate sector and a growing internal market for the crop (George et al, 1988). In 1996-97, about 96 per cent of the total area under the smallholdings was cultivated with HYV plant-

ing materials and the smallholders are highly receptive to the recommended package of practices propagated by the Rubber Board.

TABLE 6. PRODUCTIVITY OF ESTATES AND SMALL HOLDINGS (KG/HA)

Year	Estates	Holdings	Total
1990-91	1217	1048	1076
1991-92	1255	1107	1130
1992-93	1296	1171	1191
1993-94	1331	1277	1285
1994-95	1343	1366	1362
1995-96	1434	1420	1422
1996-97	1535	1498	1503
1997-98	1571	1546	1549

Source: Same as Table 5

The average reported productivity of 1549 kg/ha in 1997 in the country is the highest among the major NR producing countries. The cumulative effect of R&D programmes and well co-ordinated extension schemes initiated by the Rubber Board, a positive price policy followed by the Government since independence and an enlightened outlook of the planters have enabled the country to achieve impressive results in the NR production sector.

The country has achieved excellent progress

in area, production and productivity of rubber. Currently, India is the fourth largest producer, next to Thailand, Indonesia and Malaysia, sharing about nine per cent of world's NR output. Table 7 depicts the trends in area, production and the yield per ha. of NR in India.

The other two segments in the Indian rubber production sector, viz; SR and RR, occupy relatively insignificant positions in terms of the relative shares in total elastomer production and consumption. To a large extent, the three types of elastomers have been complementary to each other compared to the competition between SR and NR in the international market. Though during 1996 and 1997 prices of various grades of SR were subjected to sharp downward revisions, the prices remained considerably higher than NR prices. Despite the production of eight different types SR in the country, the requirements of butyl rubber and polychloroprene rubber for the domestic manufacturing industry are met by imports. In 1997, the total imported quantity of 78103 tonnes of SR was higher than

the domestic production of 71993 tonnes. Among the nine SR processing units in the country eight are in the private corporate sector and the remaining one is in the public sector.

There are 38 units engaged in the processing of RR in India. RR is used in the manufacturing of rubber products, usually in blends with either NR or SR. During 1997 the total production and consumption of RR in the country were 69,840 tonnes and 70,085 tonnes respectively. The proportion of total NR, SR and RR consumption by the rubber products manufacturing sector during the year was 71:20:9. Conversely, the international elastomer consumption pattern is characterised by a dominant share of SR (61%) compared to NR (39%).

THE MANUFACTURING SECTOR

Though the estimated relative share of rubber products manufacturing sector in the

TABLE 7. TRENDS IN AREA, YIELD AND PRODUCTION OF NR

Year	Area ('000 ha)	Yield (kg/ha)	Production (tonnes)	Annual growth in production (%)
1950-51	75	284	15,830	
1960-61	144	365	25,697	
1970-71	217	653	92,171	
1980-81	284	788	153,100	
1990-91	475	1076	329,615	
1991-92	489	1130	366,745	11.3
1992-93	499	1191	393,490	7.3
1993-94	508	1285	435,160	10.6
1994-95	516	1362	471,815	8.4
1995-96	524	1422	506,910	7.4
1996-97	533	1503	549,425	8.4
1997-98	545	1549	583,830	6.3
1998-99 (E)	557	1563	605,000	3.6

E - Estimate

Source: Same as table 5.

total value of industrial output in India is estimated to be only less than 2 per cent (CMIE, 1998), two distinct features of this sub-sector compared to other three major NR producing countries are : a comparatively wider and larger manufacturing base and the inward market orientation. India is the fourth largest consumer of NR in the world and it also occupies fourth rank in total rubber consumption. In fact, the manufacturing sector has played a pivotal role in the growth of the production sector by absorbing the steady increases in the production of rubber.

The genesis of the dynamic growth of this sub-sector has been the colonial patronage to cater to the increased industrial requirements during the inter-war years (George et al, 1997). During this period, domestic consumption of NR was the highest in India compared to other major NR producing countries (McFadyean,

1944) and as early as in 1947 domestic consumption of NR outstripped its production in the country (Rubber Board, 1991). This marks the graduation of Indian rubber production sector from its initial position of a net exporter to the status of a net importer exhibiting the characteristics of a widening manufacturing base. Table 8 shows the recent trends in the domestic rubber production, consumption, import and export of NR.

Table 8 is illustrative of the recent trends exhibiting a deceleration in rubber consumption. A significant decline in growth of the consumption appears to be mainly rooted in the recent industrial recession in the country and partly due to the structural characteristics of this industrial sub-sector. The evolution of Indian rubber products manufacturing sector as a supplementary segment catering to the requirements of the large industrial base in the

TABLE 8. PRODUCTION, CONSUMPTION, IMPORT AND EXPORT OF NR (TONNES)

Year	Production	Consumption	Import	Export
1990-91	329615 (10.9)	364310 (6.6)	49013	---
1991-92	366745 (11.3)	380150 (4.3)	15070	5834
1992-93	393490 (7.3)	414105 (8.9)	17884	5999
1993-94	435160 (10.6)	450480 (8.7)	19940	186
1994-95	471815 (8.4)	485850 (8.0)	8093	1961
1995-96	506910 (7.4)	525465 (8.0)	51635	1130
1996-97	549425 (8.4)	561765 (7.0)	19770	1598
1997-98	583830 (6.3)	571820 (1.8)	29389	1415
1998-99*	605000 (3.6)	592000 (3.5)	26000	1669

* Estimate

Note: Figures in brackets are annual growth rates.

Source: Same as table 5.

country rather than as a relatively independent export oriented sector as in the case of Malaysia is the most important structural characteristic of the industry. This strong linkage between the Indian industrial sector and the rubber products sub-sector appears to be the major factor behind the steep decline in the rate of growth in NR consumption.

FOREIGN TRADE

Despite an insignificant share of rubber products (0.96%) in India's total export earnings, the country has been enjoying a favourable balance of trade in the foreign trade of rubber products during the 27 year period between 1971-72 to 1997-98. In fact, the surplus has been registering a steady increase as the total value of imports expressed as a percentage of the value of exports has declined from 40 percent in 1971-72 to 34 percent in 1997-98. To a large extent, Indian rubber products exports is an horizontal extension of the structure of its rubber products manufacturing sector. Table 9 shows the recent trends in the exports and imports of rubber products.

TABLE 9. VALUE OF INDIAN RUBBER PRODUCTS EXPORTS AND IMPORTS (MILLION US \$)

Year	Value of Exports	Value of Imports	Imports as a % of exports
1990-91	146.63	55.31	37.72
1991-92	128.07	49.40	38.57
1992-93	229.12	47.42	20.70
1993-94	282.50	57.88	20.49
1994-95	300.30	65.10	21.68
1995-96	327.44	104.89	32.03
1996-97	345.11	94.16	27.28
1997-98	359.97	122.49	34.02

Source: Same as Table 5.

IMPACT OF THE CRISIS

The assessment of the major implications of the east and south-east Asian crisis and the institutionalization of world trade with the establishment of WTO on the Indian rubber sector have to be viewed in the specific context of the inward oriented production of NR and the rubber products manufacturing sector. One of the immediate consequences of the crisis has been devaluation of the local currencies in the affected countries and the country to be hit first was Thailand. Downtrend in the Thai currency had a contagious effect in the ASEAN and subsequently Malaysian ringgit as well as Indonesian rupiah were devalued. Table 10 shows the extent of devaluation of local currencies in Thailand, Indonesia, Malaysia and India vis-a-vis dollar during the period between June, 1997 and September 1998.

TABLE 10. EXTENT OF DEVALUATION VIS-A-VIS DOLLAR

Country	Currency	Percentage change from June, 1997 to September, 1998
Thailand	Baht	(-) 35.90
Indonesia	Rupiah	(-) 77.10
Malaysia	Ringgit	(-) 33.60
India	Rupee	(-) 15.80

Source: Compiled from Business Line (various issues)

Though the currencies of the three major NR producing countries have partially recovered ranging from 14 percent to 30 percent during the period between January 1998 to January 1999 (EIU, 1999) the emerging trends in the financial sector had a cascading effect on the various segments of the economies. Among the various segments, the trends in the export segment assume more importance for two reasons: (i) the glittering growth performances of the NICs since 1980's has been based on

the export-led growth strategy and (ii) the net impact of the crisis on Indian economy and its rubber sector will be mainly transmitted through the external trade channel.

Theoretically, the exports from the crisis-ridden countries now have to be super-competitive and extraordinarily cheaper mainly on account of the higher rates of devaluation. In fact, the affected countries are India's competitors in several major markets for products ranging from primary commodities to engineering goods. However, it is reported that at least in the short run apprehensions on this issue are unlikely to be realised for three reasons: (i) a relatively higher interest rates consequent to tight monetary policy have pushed up the exporter's costs, (ii) a higher import-intensity of exports from these countries and (iii) difficulties of exporters in securing letters of credit through local banks (Bhalla et al, 1998).

There are other potential sources of threat on India's performance emanating from the financial and trade sectors. However, all major crisis indicators (Bhalla et al, 1998) of India vis-a-vis the affected countries suggest a comparatively stronger position of the country except the government budgetary deficit. Nevertheless, controls on capital account convertibility is the single major reason for insulating India from the serious consequences of the Asian crisis. Similarly, the direct trade impact of the Asian crisis on India is also likely to be limited as the major destinations of Indian exports are European Union and USA. Table 11 illustrates the point.

As bulk of India's exports are accounted for by the developed industrial countries, the direct impact of the crisis on Indian exports would be marginal atleast in the short run. However, the case of rubber products exports demands further analysis since the relative share of Asia is about 50 per cent of the total value of exports

TABLE 11. RELATIVE SHARES OF MAJOR TRADING BLOCKS (1997-98)

Trading Blocks	Total Value (Rs Million)	Relative Share (%)
European Union	329078	26.06
USA	246406	19.51
Asia*	197856	16.67
ASEAN	87423	6.92

* Includes Japan, China, Singapore, Malaysia, Thailand, Indonesia, South Korea and Philippines.

Source: Centre for Monitoring Indian Economy, (August 1998), Foreign Trade, Bombay.

from this sector. Conceptually, there are three important sources of indirect or 'echo' effects on the rubber sector in the context of the current crisis. The three potential sources are : (i) impact of the declining world NR prices on India's NR production sector, (ii) indirect and direct effects on the rubber products manufacturing and export sectors on account of Asia's dominant share in exports and (iii) competitiveness of the latex products manufacturing and export in the backdrop of the decline in raw material prices consequent to devaluation of currencies.

The declining trends in world market prices of NR assume importance due to a very high degree of export-orientation of NR production in Thailand, Indonesia and Malaysia and its indirect effect on Indian NR prices since early 1990's. Despite a higher price of NR in Indian and world markets compared to the 1992 level, there has been a substantial decline in both the prices since 1996. To a certain extent, the comparability of the prices is circumscribed by the exchange rate variations in the relevant local currencies vis-a-vis the US dollar. However, an important trend having serious implications on the Indian NR production sector has been a more or less synchronised movement of prices in both the markets since 1992. Table 12 illustrates the point.

TABLE 12. COMPARISON OF WORLD AND INDIAN PRICE OF NR

Year	World price RSS (Rs/100kg)	Indian price RSS 4 (Rs/100kg)	Ratio of Indian to world price
1990	1425	2147	1.51
1991	1796	2128	1.18
1992	2457	2463	1.00
1993	2538	2546	1.00
1994	3455	3107	0.90
1995	5030	5059	1.01
1996	4764	5122	1.07
1997	3614	4091	1.13
1998	3012	2844	1.05

Source: Same as table 5.

A plausible explanation for the observed trend since 1992 is the policy changes on the procedural formalities regarding the channel of imports. Since 1991-92 the canalised imports through the State Trading Corporation has not only been dropped but also more than 97 percent of the total quantity of imported NR till 1997-98 (1,61,781 tonnes) was exempted from import duty under the Export Incentive Scheme and Public Notification Scheme. In spite of the serious limitations in quantifying the net impact of the policy change, it is increasingly

becoming evident that with the liberalisation of the procedural formalities the Indian manufacturers-cum-exporters of rubber products will be inclined to import NR if the domestic prices are higher than the C.I.F value of the imported rubber. Therefore, the repercussions of the declining world NR prices and the liberalised export-import policies appear to have serious impact on the dominant NR production sector in India as there are limitations in pursuing a protected price policy regime.

The potential issues arising from Asian Region's share (49.5%) in the total rubber products exports from India suggest an analysis of the destination-wise composition of exports. Table 13 shows destination-wise composition of major product groups.

The composition of exports shows that except the EEC among the four trading blocks, the major product exported to all the other three regions is truck and bus tyres and Asia's share is the highest (67.9%). The relative share of latex products group is the highest in the EEC followed by other countries group and USA. However, the most striking feature of composition of the exports is a higher degree of diversified exports to the EEC compared to other regions. The net impact of the current

TABLE 13. DESTINATION-WISE COMPOSITION OF EXPORTS (1996-97)

Major Product Groups	Relative Share (%)			
	Asia	USA	EEC	Others
Trucks & Bus Tyres	67.9	55.2	10.7	36.1
Other Tyres	7.9	10.2	11.9	14.1
Latex products and Apparel & Clothing				
Accessories	4.0	16.9	26.8	21.8
Others	20.2	17.7	50.6	28.0
Total	100.00	100.00	100.00	100.00

Source: DGCI&S (Calcutta), Ministry of Commerce, Government of India, Monthly Statistics of Foreign Trade (Annual Number, 1996-97), Vol. 1, Exports and Re-exports.

export structure will be centered around the truck and bus tyre segment due to its share in total exports (55%) and Asia's share in the total exports of this product (61%). Apparently, the implications of the destination-wise and product-wise compositions of the truck and bus tyre segment would not be significant as only 22 percent of the total production is exported. This segment is heavily dependent on the trends in the internal market which in turn is closely related to the rate of industrial growth and commercial vehicles production.

The slow down of industrial growth in 1996 and 1997 and negative growth in the production of commercial vehicles (-6.9% and -33.2% respectively) have reflected in a negative growth rate (-0.4%) in the production of truck and bus tyres in 1997. Despite a large captive internal market and prevalence of protectionist policies, the tyre sector is on the verge of significant shake-ups with the entry of multinational corporations in the field of vehicle and tyre manufacturing in the country consequent to policy changes in recent years (Rubber Trends, 1998).

The potential impact on the latex products sector consequent to the crisis in Malaysia, Thailand and Indonesia has implications for the export and NR production sectors in India. The currency devaluation in these countries leading to a comparatively cheaper raw material base enable the latex products manufacturers to compete with an inherent initial advantage. The issue assumes importance since it is reported that between 1992-94 India has made the highest increase in exports of gloves (156%) offering stiff competition to other NR producing countries in the world market (Bachik, 1997). This product group is considered as the booming segment as it nearly doubled its value of exports during the period between 1970-71 to 1996-97. An important dimension of the issue is the net effect of a deceleration in the exports and production of latex products on the

NR production sector in India. As the NR content of latex products is relatively higher a reversal in the exports will have serious implications on the NR production and latex processing sectors in India.

To summarise, the analysis of the impact of the Asian crisis on the Indian rubber sector indicate the following:

(i) in the short run the direct impact of the crisis would be limited on India's financial sector and exports due to controls on capital account convertibility and destination of exports,

(ii) the impact on the NR production sector is mainly confined to the synchronisation of domestic prices vis-a-vis world market prices due to policy changes,

(iii) the trends in the dominant dry rubber products sector would be mainly influenced by the growth indicators in the Indian economy rather than the exports to Asian Countries, and

(iv) the emerging trends indicate a comparatively higher potential impact on the export-oriented latex products manufacturing sector.

PROJECTIONS ON NR PRODUCTION AND CONSUMPTION IN INDIA

In the backdrop of the emerging trends in the Indian NR sector, projections have been done on the annual planted area, tapped area, productivity, production and consumption of NR till 2010-11 AD (Tables 14 and 15).

The estimated area under rubber at the end of 1998-99 is 5.57 lakh hectares with 3.87 lakh hectares under tapping. The targets proposed for new planting and replanting during the five year period 1997-2001 are 60,000 and 30,000 hectares respectively. Out of the proposed new planting 58 per cent is in non-traditional region especially in the North-East.

TABLE 14. PROJECTIONS ON AREA, TAPPED AREA AND PRODUCTIVITY OF RUBBER IN INDIA

Year	Area (^{'000} ha)	Tapped area (^{'000} ha)	Productivity (kg/ha)
1999-00	569	395	1588
2000-01	581	403	1615
2001-02	593	411	1640
2002-03	603	418	1661
2003-04	613	427	1679
2004-05	623	433	1697
2005-06	633	436	1715
2010-11	683	470	1790

Source: Same as table 5

The outlook for future is that of a widening demand-supply gap. The estimated deficit may increase from 13000 tonnes in 2000-01 to 376000 tonnes in 2010-11.

POLICY PERSPECTIVES ON THE INDIAN RUBBER SECTOR

The hitherto insulated status of the Indian rubber sector has been undergoing significant changes since 1991-92 consequent to the implementation of liberalised economic policies. The major identifiable consequence is a

considerable dilution in the extent of protection given to the NR production and the rubber products manufacturing sectors. To a certain extent, this has affected the growth prospects of the industry as a whole as evident from the emerging trends. Therefore, the future priorities and strategies of Indian rubber sector shall be focussed on the basis of the issues confronting the NR production, rubber products manufacturing and export sectors.

The focus on the production sector is confined to the NR sector due to its dominant position in total rubber production and consumption in the country. In spite of the achievement of the highest reported productivity of NR in the world, there exists marked differences in productivity among the different rubber growing regions to the extent of more than 40 percent. Among the dominant small-holdings the observed differences in productivity is to the extent of 681 percent indicating the tremendous potential for productivity enhancement.

The major issues in the traditional rubber growing region of Kerala are: increasing share of part-time farmers, growth of homestead farms and operational level problems associated with the availability of hired labour. In the emerging scenario, there are serious constraints

TABLE 15. PROJECTIONS ON PRODUCTION AND CONSUMPTION OF NR IN INDIA

Year	Consumption (^{'000} tonnes)	Growth rate (%)	Production (^{'000} tonnes)	Growth rate (%)	Deficit-/surplus+ (^{'000} tonnes)
1999-00	624	5.4	627	3.7	3
2000-01	664	6.4	651	3.8	-13
2001-02	710	6.9	674	3.6	-36
2002-03	760	7.0	694	3.0	-66
2003-04	813	7.0	717	3.3	-96
2004-05	866	6.5	735	2.5	-131
2005-06	921	6.4	748	1.8	-173
2010-11	1217	5.4	841	2.4	-376

Source: same as Table 5

TABLE 16. CLASSIFICATION OF SMALLHOLDERS ACCORDING TO YIELD

Yield Groups (kg/ha)	No. of Smallholders	Tapped Area (ha)	Production (Tonnes)	Yield/ha (kg)	(%) to total tapped area
Upto 500	6242	3289	1110	337	11.8
501-750	7424	3792	2429	641	13.6
751-1000	8801	4319	3828	886	15.6
1001-1250	8693	3822	4347	1137	13.7
1251-1500	7666	3296	4530	1374	11.8
1501-1750	6288	2762	4492	1626	9.9
1751-2000	5078	2047	3823	1868	7.4
Above 2000	12034	4517	11900	2634	16.2
Total	62226	27844	36459	1309	100.00

Source: same as Table 5.

in pursuing expansion of NR cultivation in marginal areas where the realisable productivity is below the national average. Simultaneously, R&D inputs and specific extension packages are required to enhance productivity in such regions as competitiveness and quality are the prime guiding factors determining the feasibility of NR production in the context of globalization.

An important area strength of the Indian NR production sector has been its pattern of processing dominated by the sheet rubber (table 17).

The operational level significance of the dominance of the sheet rubber stems from two sources: (i) the sheet rubber has been processed at the producers' level to cater to the requirements of the captive domestic market and (ii) the reported share of farm gate price in the terminal market price is higher than the relative shares in other major NR producing countries.

The attainment of the short-term and long-term targets and realisation of the projections depend to a great extent on the potential issues

TABLE 17. GRADEWISE PRODUCTION OF NATURAL RUBBER IN INDIA (TONNES)

Grades	1996-97		1997-98	
	Production	% share	Production	% share
RSS-1X & 1	3680	0.67	3720	0.64
RSS-2	8100	1.47	8400	1.44
RSS-3	21000	3.82	24700	4.23
RSS-4	202700	36.89	223375	38.26
RSS-5 & Offgrade	160680	29.25	176365	30.21
Sheet total	396160	72.10	436560	74.78
Latex (DRC)	61550	11.20	55400	9.49
Block rubber	51960	9.46	49910	8.55
Crepe & others	39755	7.24	41960	7.18
Grand total	549425	100.00	583830	100.00

Source: same as Table 5

influencing the relative profitability of NR production in the country. The strategies employed to achieve the desired results are: squeezing unit cost of production of NR and increasing net income per unit of area. The promotion of the practices of discriminatory fertilizer application, low frequency tapping systems and group processing of raw rubber are expected to yield considerable savings in the operational cost components of NR production. At the same time, earnest attempts are being made to increase the ancillary sources of income by popularising intercropping in the immature phase and commercial exploitation of the by-products, viz., rubber seed, rubber honey and rubber wood in the mature phase of rubber plantations. The primary objective is exposing the NR sector to globalised production.

Though a comparatively large industrial base ensuring a captive domestic market has a "cushioning effect" to the manufacturing sector at times of crisis in the export market, it is important to note that the industrial base itself is undergoing significant transformation process. Therefore, matching efforts to modernise and upgrade the manufacturing sector are vital for maintaining the share in the domestic market as well as sustaining the growth in exports. Already, substantial investments have been made by the dominant tyre sector for the production of radial tyres consequent to the entry of MNCs in the commercial vehicles and tyre manufacturing sectors. Nevertheless, the prevailing differences in the nature and quality of products required for the internal and export markets call for policy prescriptions from a long term perspective. While equipping the manufacturing sector for global production with cost competitiveness and quality in the long run, the immediate concerns are centered around identification and promotion of products suited for the domestic and export markets with an inbuilt option for flexibility in restructuring the production process. The guiding principles in this endeavour shall be optimum allocation of

the available resources in the rubber sector and comparative advantage in the manufacturing and export of rubber products.

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