1061

Opinion

K.J. Mathew

New trends in global NR consumption

Natural rubber will continue to gain market share based on its use in radial tyres and in a wide variety of latex medical goods

The world rubber products manufacturing industry grew significantly over the last three and a half decades. There has been more than a three fold increase in rubber consumption from 4.42 million tonnes in 1960 to 15.16 million tonnes in 1995.

Alongside, a structural shift is observed in rubber products manufacturing from OECD countries to the Asia/Pacific region in general and resource based countries in particular. The major underlying factors appear to be the sustained economic growth of this region and locational advantages associated with the production of selected products. The process of growing relocation of manufacturing activity is also an effort to harness the advantages of fast growing markets in this region and consequently major product groups without obvious locational advantages are also being manufactured on a large scale.

Remarkable shift

An important consequence of the relocation of the manufacturing activity has been a remarkable shift in the distribution of global elastomer consumption during the 35-year period from 1960-95. During this period the relative shares of the major rubber consuming regions such as North Amercia (31%) European Union (23%) and Eastern Europe (21%) have declined to 23 per cent, 17 per cent and 8 per cent respectively. Conversely, the Asia/Pacific region's rubber consumption grew steadily during this period and its relative share has increased from 12 per cent in 1960 to 44 per cent in 1995. Among the Asian countries the growth rates in rubber consumption of China and India are remarkable compared to other major rubber products manufacturing countries during the last decade (Table 1)

Products boom

The boom for rubber products manufacturing activity in the Asia/Pacific region is also prompted by factors such as locational advantages in the manufacture of products with higher natural rubber content, cheaper labour, comparatively free flow of capital and faster growth of regional markets. This has led to relocation of manufacturing units to this region. It is also reasonable to expect that the offtake of rubber in this region is likely to increase to more impressive figures, considering the low per capita rubber consumption compared to the levels achieved in developed countries. It is also worth noting that the Asia/Pacific, region has the world's highest ▶

The writer is Chairman of the Rubber Board, India

economic growth rate during the last decade. The trend towards tariff reduction and free trade areas and economic cooperation has been gaining momentum since the Uruguay Round and the strengthening of this globalization process will further prompt the significance of the Asia/Pacific region.

Another important development is the steady decline in the intra-regional trade among the OECD countries while the imports of rubber products into this economic block from the developing countries have registered an increase to the extent of 41 per cent. Selected NR producing countries have increased the export to OECD countries by 64 per cent. The trend in South-South trade in rubber products is also characterised by a steady upward swing. The comparative performance of the resource based countries in terms of exports to OECD countries are shown in Table 2.

Tyre and non-tyre products

It is generally believed that 50-60 per cent of rubber consumption goes into the tyre sector and the rest into the non-tyre or general rubber goods (GRG) sector. In a recent IRSG study on tyre and non-tyre rubber consumption it was found that for the major countries, the tyre sector is larger than the GRG sector and that its declining trend has been reversed since the mid 1980s. By 1995, this relative share have further moved above 50 per cent in the case of major consuming countries.

It may also be noted that many of the general rubber products in the non-tyre sector are used in vehicles, making the vehicle sector clearly the most important area of application for rubber. The predominance of this sector in countries such as India is a matter of concern. Any setback in vehicle sector significantly affects the prospects of the rubber industry. As the GRG sector in general generate more employment opportunities, it could be argued that the developing countries shall strive to arrive at a balance between the tyre and the GRG sectors, more in favour of the latter.

Structural changes

A decomposition of the dominant automotive tyre and allied products sector shows significant structural changes in terms of geographical dispersion of control and pattern of production and growing oligopoly power in spite of the fact that OECD countries account for a lion's share of the production and consumption even today. For instance, the relative share of the USA in the world production of car tyres declined from 73 per cent in 1950 to 28 per cent in 1990 and the share of truck tyre has declined to 16 per cent from 57 per cent during the same period.

Table 1

Annual average growth rate during 1985-95 (%)

Country	Growth rate
USA	1.5
Germany	0.4
CIS*	13.3
China	8.8
India	7.9
Japan	1.8
Other countries	2.7
World	1.3

* Commonwealth of Independent States (CIS) data and as Russian Federation data only available from 1982

The growing oligopoly power is evident from the steady increase in the market share of the leading multinational firms such as Michelin, Bridgestone and Goodyear which together controlled about 53 per cent of the world tyre market in 1993 compared to 23 per cent in 1979. At this juncture, it becomes imperative to point out that in the major shake-up that took place in the 1980s multinational tyre companies based in Western Europe and Japan have gained at the expense of American companies which involved mergers and amalgamations. Although developing countries have improved their relative shares in the automotive tyre sector, substantial changes in the near future are ruled out due to the pivotal position of the multinational companies in controlling the production and marketing of tyre and allied products as well as the major petro-based inputs.

On a global scale, the percentage of NR in the total rubber consumption decreased from 55.9 per cent in 1955 to 29.6 per cent in 1979, before rising to 39.0 per cent in 1995. The main reasons behind the declining share of NR in the earlier period, may have been the steady increase in total rubber demand vis-a-vis increase in NR production and the patronising policy of the tyre MNCs to promote captive supply.

The improving quality and variety of the SR industry's products were also factors influencing the rise in the share of SR during the period. Increased availability of SR and relative NR/SR prices also played a role in determining the relative shares. Technical reasons also were factors if the relative prices were reasonable. In the case of SBR, cold polymerisation, oil extension and development of furnace type carbon blacks improved its quality and cost advantage. At the other end, substitution of NR by SR involves complex technology and more significantly NR has certain properties which cannot be duplicated by SR.

Decline in SR share

The decline in the share of NR started to reverse in the 1980s. This could be attributed to the increased usage of truck tyres, the effect of oil price shocks, which resulted in both an acceleration of the radialization process and a move to a rubber with low rolling resistance. The oil crisis also caused a rise in SR price helping to raise the NR share. The collapse of the economies in the former Soviet Union and Central and Eastern Europe has further promoted the decline in SR share both in production and consumption. In the non-tyre sector, the movements in the relative NR-SR share are due to economic rather than technical reasons. ▶

There are many reasons why a country consumes more of a particular type of rubber than others. There may be technical and economic or technological progress within the NR or SR industries themselves. There are wide differences in percentage share of NR consumption between countries, as low as 3 per cent in the Russian Federation and as high as 84 per cent of Malaysia.

The major factors behind the disparity are : Differences in the type of rubber products produced, market orientation and structure, degree of protection/ competition and technology of manufacturing. The Asia/Pacific region has a much higher NR share than the world average. The countries in this region have a relatively high and positive NR preference factor because they are either NR producing countries or are located close to the producing region. Moreover, many of these countries produce more NR rich products such as truck tyres and latex products.

Future demand

The average growth in demand for rubber has been nearly 3.8 per cent during the last four decades. However, it picked up momentum in 1995 when the growth rate was 4.6 per cent, the highest since 1984 and significantly higher than the 3.0 per cent achieved in the previous year. This has then slowed down in 1996. IRSG's view on rubber industry for two years from 1996 was one of steady, but not spectacular growth. It was expected that the world rubber industry would not grow as rapidly during 1996 as in 1995, because of slower economic growth in rubber consuming countries, including those in the fast growing Asian economies.

As a result, it was expected that growth in rubber consumption would be around 2.75 per cent for NR and 1.75 per cent for SR. The forecast of an increase of over 3 per cent for 1997 is still achievable as there are signs that the slowdown in the major industrialized economies was temporary. Resumption of growth in the transition economies and a return to the long-term trend of export growth in Asia could then be expected.

Table 2

Imports of rubber products from selected NR producing countries to OECD economies

(Value in US $ million)

Countries	1989		1992	
	Value of imports	Percentage share	Value of imports	Percentage share
Malaysia	353.46	35.50	730.49	44.60
Thailand	167.92	16.90	273.17	16.70
Brazil	186.57	18.70	216.43	13.20
Mexico	120.02	12.10	103.16	6.30
China	58.67	5.90	85.61	5.20
India	35.61	3.60	73.59	4.50
Sri Lanka	27.37	2.70	72.50	4.40
Indonesia	36.34	3.70	73.83	4.30
Philippines	9.48	1.00	14.72	0.90

NR will continue to gain market share based on its use in radial tyres and in a wide variety of latex medical goods, such as medical examination gloves. The NR sector might show an increased use in engineering and construction industries, as well as through developments such as polymer blends and alloys, thermoplastic NR and epoxidised NR.

Green strength

The higher green strength and elastic modulus of NR are advantages over its synthetic equivalent, isoprene rubber (IR). Above all NR is the product of a sustainable biological process which has a very low overall impact on environment and which helps in minimising the greenhouse effect. This is in sharp contrast to SR, produced from depleting sources of hydrocarbons in an energy intensive process which add to the earth's CO_2 levels. In terms of ease and consistency in processing, ordinary NR is at a disadvantage. For this reason technically specified and other tailored forms of NR better meet consumer requirements.

In the case of SR, SBR will continue to dominate the market. However, there could be increasing preference for solution SBR over the common emulsion type. The fastest growth among SR is likely to be with EPDM rubber and possibly butadiene rubber (BR). Other types of SR are expected to show relatively slower growth.

Future supply

A forecast on NR output is generally based on variables such as price, yield, acreage, etc. However, high price and high yield do not necessarily guarantee increased supply of rubber. A high price of rubber can only 'temporarily' raise the output level. The most important factor determining the availability of rubber is its relative profitability vis-a-vis the competing alternatives. Simultaneously, the opportunity cost of labour engaged in the rubber sector also has gone up considerably among the major producing countries, especially Malaysia.

For example, there were very few other opportunities in Malaysia, apart from producing rubber and other commodities, 20-30 years ago and wages in the city were not high enough to attract tappers away from plantations. As a result Malaysian rubber output increased rapidly and enabled her to continue to be the top producer. However, during the last ten years opportunity cost of labour has increased due to rapid industrialization and the resulted rise in wages. In this process large number of workers have migrated to industrial centres from plantations. Consequently, Malaysian ▶

output has declined. The trend is likely to continue and will only temporarily be interrupted by high prices, Increasing opportunity costs will be faced by all rubber growing countries at appropriate stages of economic development. Next could probably be Thailand, then Indonesia and so on.

NR shortage

The implication of the rising opportunity costs in major NR exporting countries is that the supply of NR is likely to decline as demand continues to increase. NR consumers might eventually face shortages. NR is an export commodity and as major producing countries continue to increase their rubber consumption, only a declining volume of rubber will be available in the global market. Sustained R&D efforts on NR production and the consequent increase in yield levels and extension of rubber cultivation in emerging NR producing countries like Vietnam might have some sobering effect, but not much significant.

In the case of SR, production is likely to be in tune with consumption with the capacity in the developed countries beginning to saturate and new and increased capacity being developed in the Asia/Pacific region. Most of the major NR producing countries are planning to either start production of SR or increase existing capacities. This will ensure adequate supply of SR for the growing rubber industry in the region at least for the immediate future. However, availability of SR in the long-term would be influenced by the availability of petroleum feed stocks and environmental considerations.

Environmental issues

At a global level, there are serious environmental issues such as damage to the ozone layer and increasing levels of carbon dioxide. Unsustainable land use causes solid erosion and water pollution. Production and consumption of commodities involves 'social costs' such as pollution. UNCTAD and other agencies realized the importance of internalization of environmental costs and the use of economic and other measures for achieving sustainable development. The prices of both NR and SR could reflect environmental costs.

UNCTAD believes that NR stands to gain from internalization if is it were carried out in the entire rubber industry. It is likely that SR causes more negative environmental impacts than NR and may have externalized (subsidized) cost components. Internalization of costs for both NR and SR would cause both prices to rise, particularly for SR, for example, through tax on energy consumption. As NR is more environmentally friendly than SR, cost internalization would favour the former more. ■