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NATURAL RUBBER PRODUCTION AND DEMAND

The paper was presented at the two-day National Seminar on 'Rubber Industry by 2000 AD-A perspective Plan' organised by the All India Rubber Industries Association in New Delhi on 4 and 5, February 1987. Shri M. Arunachalam, Union Minister of State for Industrial Development inaugurated the seminar. The deliberations of the seminar highlighted various problems of the Association and it streamlined various measures for planning and decision making for the better development of the Rubber Industry.

In his paper presented there, Shri PC Cyriac IAS, Chairman, Rubber Board discussed in detail significant progress made by rubber producing sector and rubber using sector. The paper reveals that India has become the 10th largest consumer of rubber in the World. By the end of the century it may even attain the 7th position. Regarding the consumption, the Chairman said India's progress is linked with fast growth rate between now to 2000 AD according to the International Rubber study Group. Shri George Jacob Dy. Director (Marketing) who attended the seminar along with the Chairman gave a brief talk on the role of technically specified and speciality rubbers in the days to come.

Following is the paper presented by Shri P.C. Cyriac.

PC CYRIAC IAS

Introduction

The Rubber Industry which comprises mainly of the rubber producing sector and the rubber using sector has recorded commendable progress during the last 25 years. The production of natural rubber which in 1960-61 was 25,697 tonnes has increased to 200,465 tonnes in 1985-86. Estimated production during 1986-87 is 220,000 tonnes. The area under rubber has increased from 130,000 hectares in 1960-61 to 362,000 hectares in 1985-86. Productivity measured in terms of yield per hectare during the period has gone up from 365 kg. to 898 kg. Rubber plantation industry in India has been well recognised for its outstanding performance viz-a-viz other agricultural industries.

Production of synthetic rubber was started in 1963. At present two factories are producing synthetic rubber with a total capacity of 52,000 tonnes. The total output of synthetic rubber in 1985-86 was of the order of 35,000 tonnes.

Consumption of rubber (Natural and Synthetic) which is considered as the index of performance for the rubber goods manufacturing sector, has gone up from 55,545 tonnes in 1960-61 to 305,475 tonnes in 1985-86. During 1986-87 consumption is estimated to touch 326,000 tonnes. The average annual compound growth rate in consumption during the 1970's was 6.0% During 1980's it has beNn 6.6% so far. As a result of the tremendous progress, India has become the 10th largest consumer of rubber in the world and by the close of the current century the country could rise to the 7th place according to the demand forecast of the International Rubber Study Group (IRSG). India is ranked as one among the four countries which are expected to have the fastest growth rate in rubber consumption between now to 2000 according to the IRSG.

Demand potential

Demand for rubber depends on the production of various rubber goods. India is claimed to be producing 35,000 different manufactured rubber products. The present pattern of use of rubber is as shown below:-

Automobile tyres & tubes	52%
Cycle tyres & tubes	12%
Tread rubber	5%
Footwear	11%
Belts & hoses	6%
Latex foam	4%
Others	10%
Total	100%

From the above it is evident that tyres are by far the biggest single outlet for rubber. Therefore, economic, environmental

or technological changes which influence the design, performance or output of tyres will have important effects on the demand for rubber.

The major economic and technological changes in the Indian tyre industry in recent times have been the following:-

1. Replacement of cross ply construction of tyres by radial ply construction can have a negative effect on rubber consumption. A reduction in the rubber consumption to the level of 50% in car tyres and 55% in truck tyres per running km is possible due to the change over. During 1984, 42% of the world production of truck tyres was of the radial ply category. By 1995 the proportion is estimated to go upto 90%. In the case of car tyres the proportion is estimated to change from 72% to 95%. Almost the entire production of tyres in India is in cross ply category. However, a small beginning has been made in the production of radial tyres for passenger cars by a few manufacturers. Many of the tyre companies have been planning to switch over to radial tyres. The Satyapal Committee on tyres and tubes recommended that "early measures should be taken to speed up the pace of introduction of radial tyres within the country on account of the significant advantages from this improved variety of tyres to the economy".

2. Introduction of the cold cure technology for retreading of tyres in a massive way can result in the extension of the life of the tyres by about 50% or more.

3. Continuous improvement in the casing design of tyres favouring remoulding will have a dampening effect on replacement demand for new tyres.

4. Downsizing of both automobiles and automobile tyres is yet another factor that will have a negative effect on the use of rubber. In this context the introduction of a number of Japanese vehicles in the country need noticing.

As a result of the above developments in the tyre manufacturing sector, consumption of rubber in future may not increase as it did hitherto. Liquid injection moulded tyre (LIM) developed by Polyair Maschinenbau GmbH is also worth mentioning in this context. While this is a potentially significant development and is likely to be the forerunner of similar developments, it is unlikely to effect any impact in rubber demand during the next few years. Development of thermoplastic natural rubber on the other hand opens up new exciting vistas including recovery of ground already lost to plastics. Application of rubber in new areas is also being explored.

Considering all these developments and also taking into account the good potential in non–tyre sector, the demand for natural and synthetic rubber is estimated to go up to 395,000 tonnes by 1989-90 and to 650,000 tonnes by 2000 A.D. This closely agrees with the projection of the IRSG which is 648,000 tonnes for the year 2000.

CONSUMPTION OF RUBBER

(Qnty. in tonnes)

Year	Natural	Synthetic	Total
1960–61	48,148	7,397	55,545
1965–66	63,765	21,553	85,318
1970–71	87,237	33,160	120,397
1975–76	125,692	32,452	158,144
1980–81	173,690	47,050	220,680
1985–86	235,440	70,035	305,475
1989–90 (Projection)	315,000	80,000	395,000
2000 (-do-)	520,000	130,000	650,000

Production potential

The main factors of production are:-

1. Area under rubber
2. New planting and re-planting
3. Planting materials
4. Cultural practice and tapping system
5. Price

New planting and re-planting

According to the present assessment, area available for expansion of rubber cultivation up to the year 2000 is estimated as 300,000 hectares, the break-up of which is as follows:-

Kerala, Karnataka and Tamil Nadu	–	85,000 ha.
Assam & Meghalaya	–	60,000 ,,
Tripura	–	30,000 ,,
Orissa	–	50,000 ,,
Andamans & Nicobar Islands	–	20,000 ,,
Goa & Maharashtra	–	30,000 ,,
Other States/ Territories	–	35,000 ,,
Total	–	300,000 ,,

Development of rubber plantations in all these lands, particularly in non-traditional area would no doubt require immense efforts. Progress in non-traditional areas will be weighed down heavily by various constraining factors. Considering the need for fast development and the importance assigned to non-traditional areas in future expansion of the programmes, the Government of India had approved a project for accelerated development of rubber plantations in North Eastern Region. It is under implementation from 1984. The project envisages providing necessary infrastructure for the development of rubber plantations in the region, including establishment of a Research Complex and a large Training and Demonstration farm. Similarly projects for other parts of the country are being prepared for the approval of the Government of India. A Rubber Plantation Development Scheme is under implementation from 1980-81 onwards for

encouraging extensive newplanting and replanting and by granting financial and technical assistance.

The extent likely to be brought under rubber during the 7th Plan period is estimated as 55,000ha. as against 52,000 ha. achieved during the 6th Plan period. During the 8th Plan period expansion of rubber area is contemplated in an extent of 75,000 ha. Plantations raised after 1994 will not be mature for tapping till the year 2000 and they are not taken into consideration in this paper.

Plantations raised upto 1970-71 will outlive their economic life period by the turn of the century and will require systematic rehabilitation. The present aim is to replant 25,000 ha. during the 7th Plan period as against 18,000 ha. achieved during the previous Plan period. Further programme is to raise the replanting rate to 50,000 ha. each during the 8th and 9th Plan periods so as to complete the entire area requiring replantation.

Productivity

There is possibility to step up productivity substantially as a result of the popular use of high yielding varieties, widespread use of fertilisers based on soil and leaf analysis, application of yield stimulants and rainguarding, reduction of immaturity period adopting modern planting techniques and better exploitation and processing practices. The yield potential of newer clones developed and released by the Rubber Research Institute of India (RRII) and now in large scale use is 2,000 to 2,500 kg. per ha. as against the materials with yield range of 1,000 to 1,500 kg. per ha. used during the 1960s and 1970s. By 1989-90 the average productivity in rubber plantations is estimated to reach 1000kg. mark from 900 kg. during 1985-86. By the turn of the current century productivity could be further increased to 1400 kg.

Price

A steady and remunerative price is essential for the sustained growth of the rubber plantation industry. Small holders who account for about 77 per cent of the total rubber area react very quickly to price changes. A good degree of price stability had been achieved during 1985 and early 1986 with the periodical monitoring of supply, demand and price trends and release of imported rubber at a fixed price by adjusting suitably the import duty. The trend in market price during the last four years was as shown below:-

Average price of RMA-4 in Kottayam market (Rs/quintal).

1983	1672
1984	1689
1985	1694
1986	1670

Of course there has been short term fluctuations during the last few years. In February 1986, Government had approved a bufferstocking scheme with a view to maintaining a stable price for rubber which is remunerative to the rubber growers and fair to the manufacturers. For giving necessary guidance to the State Trading Corporation, which is operating the scheme, the Government have recently constituted a small committee consisting of a representative each of the Ministry of Commerce, Ministry of Industry, the RubberBoard and the STC.

The plantation industry in India has been often dubbed as a high cost producer of rubber. It is true that the cost of production in India is to an extent higher than that of Malaysia, Indonesia, Thailand and Sri Lanka. However, it is less than that of countries like China, Brazil, and Nigeria. There are various reasons for this. It is relevant to mention the most important ones:

The geographical handicaps,

Rubber tree flourishes and yields best in warm, equable and tropical climate. Such conditions are normally obtained at low elevations in certain regions of the world lying within 10° latitude on either side of the equator. In India, Kanyakumari District of Tamil Nadu and Nicobar Group of Islands are the only regions falling within this geographical limits. Areas lying outside this belt experience pronounced seasonal variations in climate such as excessive rainfall, extended drought, cold winter etc., which are all factors affecting growth and yield of rubber to varying extents depending upon the severity of the incidence of each or all these climatic variations. Most of the rubber growing areas in India lie in marginal and submarginal locations and suffer from high incidence of diseases necessitating expensive control measures, rain interference of tapping which calls for rainguarding, loss of tapping days which reduces yield and lengthening of immaturity period which results in increase in capital investment. Rubber plantations in India also exist mostly on slopy lands where the relative absence of easy workability and the need to have effective soil conservation measures become responsible for higher costs and reduced labour output.

- High cost of such essential inputs as fertilisers, weedicides, plant protection chemicals, coagulating acid, petroleum fuels and fuel wood.

- Low productivity of tapping labour. While in Malaysia, for instance, the daily tapping task for a worker is 500 to 600 trees, it is only 250 to 300 in India.

There is also a wrong impression that the abnormally low prices which prevail in South East Asian markets during the last few years represent a fair level of world price. Actually even for the higher productivity obtained under the favourable climatic conditions of Malaysia, the price realised by the Malaysian farmer is not considered fairby him and naturally he is not working hard to improve the production and productivity. No wonder, the Malaysian rubber production and productivity are not going up. The Government has appreciated this situation and have decided to make available a steady and stable price which is remunerative to the

growers and reasonable and affordable for the manufacturing industry. From the point of view of the manufacturing industry also, price stability at a reasonable level and the ready availability of rubber of the appropriate quality are the important considerations.

Coming back to the production figures, for projecting the production, the tappable rubber area in each year has to be worked out, based on the year of planting. This area has to be distributed among the different age/yield groups as the yield of the rubber tree increases gradually from the 1st year of tapping to the 5th to 7th year of tapping, then remains more or less steady upto the 17th to 20th year of tapping and thereafter starts declining. Production is then computed by multiplying the tappable area in the different groups by the corresponding yield per hectare. The loss of production due to replantation and the increase in production as the newplanted and replanted areas reach tappable age, are also taken into account. Based on these parameters, the production of natural rubber upto 2000 A.D. has been estimated as follows:

Year	Total Area ('000 ha.)	Tappable Area ('000 ha.)	Yield per ha. (kg.)	Production ('000 tonnes)
1985–86	365	223	898	200
1989–90	405	280	1000	280
1999–2000	570	410	1400	575

I can see two doubts in your minds. One, will the rubber plant grow well and yield rubber at a reasonable cost, in the non-traditional areas which do have many adverse climatic factors? Here, we do not have to live on hopes alone, Rubber tapping has already begun in about 430 ha. in Tripura and 130 ha. in Assam. Considering the poor quality of the early planting in Tripura the yield obtained now is very encouraging and the Assam plantations which were of high yielding varieties though maintained in an unsatisfactory manner, have been giving yields of around 1000 kg. per ha., which is better than today's average production even in Kerala. Research facilities have also been set up in the North East to find solutions to the local problems and improve productivity.

The second question which is relevant is concerning synthetic rubber. Should not we also try to emulate the rest of the world and increase synthetic rubber consumption or should we pursue the present policy itself? The following points are relevant.

i) The high initial cost. The synthetic rubber plant is a more capital intensive unit than the rubber plantation. Investment required per unit of rubber produced is three times more in the case of SR. A sizeable portion of this investment will have to be in foreign exchange.

ii) SR plant generates much less employment opportunities than what an equal amount invested in plantations can generate. One unskilled worker per ha. is the job potential in a rubber plantation.

iii) SR production requires costly energy inputs, while the rubber plant produces natural rubber as a result of photosynthetic action without any energy inputs.

iv) While the SR plant produces effluents which call for costly treatment procedures to avoid environmental pollution, the rubber tree purifies the air and the environment by releasing oxygen into the atmosphere

v) The rubber plantations which are generally raised along slopes with contour bunds and grown in association with a leguminous cover crop providing a ground cover, prevents soil erosion, regenerates soil and improves the micro climate of the area substantially.

vi) Most of the areas considered fit for rubber cultivation in the North East and other new regions, are already badly denuded as a result of indiscriminate jhuming (shifting cultivation). By growing rubber in such lands they c be regenerated, the economically backward tribals and others got fixed on to the land and their entire pattern of life will undergo a big change. They will start working hard once they find the latex flowing out of the bark of the tree. Steady employment and steady income will change their outlook completely. This will usher in a big social revolution in these backward regions.

In view of all these reasons, we should not fail to take advantage of the full production potential of natural rubber before exploring other avenues to meet our polymer requirements. □