CHAPTER II

CONCEPTS AND REVIEW OF LITERATURE

Part – I

Concepts:

This section briefly explains some of the concepts used in this study.

Cost Structure

The right decision on investment in farming activities can be taken only when valuable information on cost and returns are available. Such information will be very useful to improve cropping pattern as well as efficiency through least cost combination resources.

In the present study, total cost of production is classified into fixed cost and variable cost. Fixed cost includes land revenue, rental value of land, annual share of net establishment cost, depreciation on fixed assets, repairs and maintenance and interest on fixed capital, excluding land.
The variable cost includes annual operation and maintenance cost, which included cost incurred on labour, manures and fertilizers, plant protection, ticing materials and interest on working capital.

**Gross Income**

According to Murugadass, gross income is the actual realised on the sale of the produce and he arrived at the net income by deducting cost of cultivation from the gross income\(^1\).

Reddy et al., defined gross income as gross value of output sold and net income was the residue of gross income after deducting the total cost\(^2\).

In the present study, gross return on rubber production is the value realised on the sale of total output after deducting marketing cost. Contribution has been calculated by deducting variable cost from the gross returns. The net profit is arrived at by deducting fixed cost from contribution.

**Production Function**

Ferguson defined Production Function as a schedule showing the maximum amount of output that could be produced from

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any specified set of inputs, given the existing technology or state of art.

**Capital Productivity**

George and Joseph in their study on cost benefit analysis of investment in tree crops, evaluated financial feasibility of investments in tree crops, using the pay-back period method, the net present value technique, the benefit-cost ratio and the internal rate of return.

In the present study, economic viability of investment in natural rubber cultivation has been determined by using the payback period, the net present value, the benefit-cost ratio and the internal rate of return.

**Market**

Clark and Clark defined market as a centre or an area about which forces leading to an exchange of title to a particular product operated and towards which and from which the actual goods tended to travel.

Market is some place where forces of demand and supply operate to determine or alter price as the quality goods or services is

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transferred and certain physical and institutional arrangements are be in evidence.

**Marketing**

According to Stanton, marketing is a total system of interacting business activities designed to plan, price, promote and distribute want-satisfying products and services to the present and potential customers⁶.

In the present study, marketing refers to all business activities that direct the flow of goods and services from the primary producer to the ultimate consumer.

**Agricultural Marketing**

Khols defined agricultural marketing as the performance of all business activities involved in the flow of goods and services from the point of initial agricultural production until they were in the hands of the ultimate consumers⁷.

National Commission on Agriculture stated that "agriculture marketing is a process which starts with a decision to produce a saleable from commodity and it involves all aspects of market structure or system, both functional and institutional, based on

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technical and academic considerations and includes pre and post-harvest operations, assembling, storage, transportation and distribution.\(^8\)

In the present study, agricultural marketing comprises all the operations and agencies involved in the movement of agricultural produces from the farm to the final consumer.

**Manures and Fertilizers**

The farm produced manure was valued at the market price prevailing in that area. The purchased farm yard manures and fertilizers were valued at their purchase prices plus the cost of transport.

**Plant Protection Chemicals**

Plant protection chemicals were charged at the rates, actually paid by the natural rubber cultivators.

**Land Revenue**

The prevailing land revenue as per the government rate was charged.

**Depreciation**

Depreciation was charged to meet the loss due to wear and tear on fixed assets. Here depreciation was calculated under straight-

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\(^8\) Report of the National Commission on Agriculture, Part XII, Supporting Services and Incentives, Ministry of Agriculture and Irrigation, Government of India, New Delhi, 1976, p.110.
line method. It was done separately for farm building, machinery, tools and equipment and material. Depreciation was charged at the rate specified below.

<table>
<thead>
<tr>
<th>Description</th>
<th>Rate</th>
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<tbody>
<tr>
<td>Farm Building</td>
<td>2 per cent</td>
</tr>
<tr>
<td>Machinery</td>
<td>10 per cent</td>
</tr>
<tr>
<td>Tools and Equipment</td>
<td>25 per cent</td>
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<tr>
<td>Material</td>
<td>50 per cent</td>
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**Total Establishment Cost**

This refers to the cost incurred in the establishment of rubber farms up to the commercial bearing stage, which is of five years. This included rental value of land, cost incurred on rubber seedling, ticing material, manures and fertilizers, plant protection chemicals, labour involved in various operations of the farm, interest on working capital and other costs such as interest on fixed capital, depreciation and repairs and maintenance.

**Natural Rubber Farm**

It is the area of natural rubber crop raised by a single grower and situated within the sample village limits.

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Farm Building

It refers to shed used for storage and processing of natural rubber and for keeping implements.

Machinery

It refers to sprayers, dusters and pumps owned by a grower.

Tools and Equipment

This refers to shovel, crowbar, hammer, sledge hammer, sickle, mat and ladders owned by a grower.

Material

This includes gunny bags, knife, buckets and tarpaulin purchased by a grower for their farm.

Part – II

Review of Literature:

The Rubber Plantations have a pivotal role to play in the economic development of the country. Realising the significance and the marvellous potentials of growth in the planners have launched a number of programmes of development. Many researchers and research institutions have done a lot of research work on the ways and
means of revolutionising the process of growth. The studies made by the researchers have been a great help to pursue the present study. An attempt is made in this part of the chapter to review of the enthusiastic works and the books available on rubber plantations as a pre-requisite to comprehend the problems and prospects of the plantation sector.

Speirs, A.J. (1973) in his book “Towards an Understanding of Rubber Small Holders in Thailand” examined the small rubber holders behaviour and decision-making in Thailand. He found that the small holders claim to produce the same weight of rubber sheet irrespective of low or high prices, and thus their income fluctuates proportionally with the market price for rubber. It is, therefore quite rational for rubber small holders to place much more emphasis on growing another cash crop during periods of low rubber prices to maintain the same cash income.

Velayutha Perumal, S. (1980) in his study entitled “Labour in Rubber Plantation in Kanyakumari District” has analysed the productivity of workers in rubber plantations and the pattern of recruitment followed in different types of plantations. He has also stated that the absence of any major industry is a contributing factor

since there is not much scope for rural population of the district to secure any other employment except in agriculture and plantations\textsuperscript{11}.

Sidhardan, G., (1986) in his study “Entrepreneurship of Small Scale Industries in Kanyakumari District” has stated that, though natural rubber was a good industrial raw material, locational disadvantage of the district and the lower proportion of rubber used in most of the rubber based goods made the district a less attractive region for locating large rubber factories. He has also stated that the desire of the educated persons for white collar jobs really acts as an inhibitor to the emergence of entrepreneurship in industries\textsuperscript{12}.

Ashok Kumar’s, (1990) study was expected to throw light on some of the issues relating to ‘entrepreneurship in small industry’ particularly in industrial estates that have remained dormant. He examined the socio-economic origin of entrepreneurs and on the evaluation of entrepreneurial effort and performance of the enterprises\textsuperscript{13}.

Abraham, P.K., (1991) made a detailed study on “Model for developing rubber based industries in Kerala”. He analysed the

\textsuperscript{11} Velayutha Perumal, S., op.cit., p.76.
\textsuperscript{13} Ashok Kumar, S., Entrepreneurship in Small Industry, Discovery Publishing House, New Delhi, 1990, p.37.
development of rubber based industries and examined the reasons for non-development of natural rubber based industries in Kerala\textsuperscript{14}.

Kulkarni, D.S., (1993) in his article “The Role of Non-Tyre Sector” has stated that India has ranked 8\textsuperscript{th} among the rubber products manufacturing countries and the total estimated value of production is more than Rs.6000 crores\textsuperscript{15}.

Lalithambika, J., (1993) in her book “Rubber Goods Manufacturing Industries in Natural Rubber Producing Countries Recent Development” says that Indonesian motor vehicle tyre industry consists of 13 separate enterprises with a total installed capacity of 11.8 million tyres of four wheeled vehicles and 10.1 million tyres of two wheelers per year. Export of motor vehicle tyres from Indonesia recorded a growth rate of 99.4 per cent per year between 1986 and 1989, cycle tyres also recorded an impressive growth during the period and in 1989 – 90, the growth rate in export value of cycle tyres was 31 per cent. Indonesia has shown remarkable growth in tyre industry and footwear manufacturing industries. The export value of footwear from Indonesia has exceeded that of the tyre sector\textsuperscript{16}.

\textsuperscript{14} Abraham, P.K., “Model for Developing Rubber Based Industries in Kerala”, Cochin University of Science and Technology, Kochi, 1991, p.91.
Aravindakshan Nair, K.A., (1994) in his book “The Rubber and its Cultivation” has explained the role of rubber producers societies in the cultivation of rubber. The Rubber Board had been implemented various schemes from 1957 onwards for the expansion and modernisation of the rubber industry in India. These were designed to meet the increasing demand for natural rubber in the country. The schemes so far implemented are:

(1) Replanting subsidy scheme

(2) New planting loan scheme

(3) New planting subsidy scheme

In South India, seeds of hevea normally ripen in July to September and during these months they are collected and seedling raised. All the earlier plantations in the far east were raised from unselected seeds. The yield potential of these trees being low, the production was also poor in these plantations. For production of good quality of polyclonal seeds, gardens have been established in Kanyakumari district.

The objects of the federation are primarily to arrange for the purchase and sale of rubber, undertake processing of rubber and manufacture of rubber products, supervise, coordinate and facilitate the working of affiliated societies and assist in the promotion, organisation
and development of co-operative movement among rubber growers of the state. The major activities of the federation are the following rubber marketing, fertilizer mixing and distribution, distribution of chemicals, fungicides and aerial spraying and rubber processing\textsuperscript{17}.

The book, “India Rubber Statistics” (1996) published by the Rubber Board has stated that in 1994 - 95, the production and consumption of natural rubber in India were 4,71,815 tonnes and 4,85,850 tonnes respectively. The production and consumption of natural rubber is going on increasing. From 1985 – 86 to 1994 – 95 production and consumption of natural rubber has been increased to 135 per cent and 105 per cent respectively in India, Kerala state accounts for about 90 per cent of natural rubber production and Tamil Nadu occupies second place\textsuperscript{18}.

Kuryan and Kuryan, (1996) in his book “Rubber Industry Companion”, has stated that, the cycle tyre and tube industry consumes about 13 per cent of total polymer consumption. The natural rubber consumption in cycle tyre and tube industry is about 60 – 65 per cent and the average growth rate is 9 per cent per annum. Consumption during 1992 – 93 was 86,984 tonnes. In which natural rubber was


56,413 tonnes, synthetic rubber was 9,893 tonnes and reclaimed rubber was 20,678 tonnes. Consumption during 1993–94 is estimated at 95,600 tonnes and by 2000 AD, the consumption of reclaimed rubber was estimated at a minimum of 1,10,000 tonnes and a maximum of 1,28,000 tonnes\(^\text{19}\).

Muniyandi, B., Sankaranarayan, S., and Chellan, K., (1997) in their article “Marketing of Natural Rubber – A Case Study in Kalkulam Taluk of Kanyakumari District. The study reveals that the natural rubber plays an indispensable role in manufacturing a variety of products. The world today uses as many as 50,000 different rubber products. India occupies a prominent position in rubber goods manufacturing and produce over 35,000 individual items. At present, India occupies the fourth position in the production of natural rubber at global level. In India, natural rubber production was increased to 3,93,490 tonnes in 1992–93, which was about 25 times more compared to 15,830 tonnes in 1950-51. The rubber industry is a labour absorption and export earning industry. The number of labourers engaged in rubber touched 3.05 lakhs. about Rs.671.85 crores was earned as foreign exchange through export of rubber goods in 1993\(^\text{20}\).


Mathew, K.J., (1997) in his book "Research Aids High Yields" stated that the producer has to think of value addition and the industry has to concentrate as better exploitation of export markets. Rubber plantation and rubber goods manufacturing industries have recorded a steady growth in the past fifty years. Today India is the fourth biggest producer of natural rubber. It ranks first among major producers in terms of productivity. The rapid growth of production was sustained because of a quick growing industrial sector was ready to consume all the domestically produced rubber whereas the major producers are the exporting the bulk of their output21.

The District Rural Development Agency in its Annual Report, 2000-2001 reveals that the tribals get light from rubber waste. The tribals cultivate rubber, tobacco and pepper, in their small holdings in the forest some of the tribals have installed rubber sheet processing rollers with government assistance other small holders from the neighbourhood and get their rubber sheets processed at these units. Each unit processes 40 – 50 rubber sheets and the effluent produced is discharged in the holding itself leading to emission of foul odour in the locality Cultural Academy for Rural Development (CARD) which

works among these tribals came up with a proposal to provide lighting to the tribal dwellings through biogas treating effluent anaerobically\textsuperscript{22}.

Varkey, K.V., (2002) in his article “Rubber and its Cultivation” has explained that the rubber sector in India is dominated by small holdings which accounts for 88 per cent of the production and area of rubber in the country. The small growers in the country number about a million. To tackle their issues the Board promoted the formation of gross roots level organisations at the village level and it was decided that the small voluntary organisations registered as charitable societies. The Rubber Board assists in transfer of technology to members, undertake common marketing, grading of rubber provide remunerative prices, promote and assist group approach for new planting, replanting, productivity enhancement, availing of bank finance, raising nurseries and supply of high yielding planting materials to members\textsuperscript{23}.

Ronald Ma, (1959) in his book “Company Profits and Prices in the Rubber Industry in Malaya” says that observing the post-war period price of rubber it is mainly fluctuated by the world demand,

\textsuperscript{23} Varkey, K.V., op.cit., pp.85-86.
the author did not find a close connection between the rubber price and the production of Malayan rubber industry.24

Ira Horowitz, (1963) in his book "An Econometric Analysis of Supply and Demand in the Synthetic Rubber Industry" stated that most studies related to the world natural rubber market are of the historical type. The author has initiated an econometric study of supply and demand in the synthetic rubber industry. Using quarterly data for 1948–60, he was found that the elasticity of supply of natural rubber entering the U.S. market with respect to the ratio of current prices of synthetic rubber over natural rubber to be -0.4461 which indicates that supply of synthetic rubber, on the other hand, was found to be 1.4914 which indicates that the supply of synthetic rubber is rather elastic. But the long run price elasticity of demand for synthetic rubber was - 0.848 indicating that demand for synthetic rubber is relatively inelastic. Also he concluded that rubber manufacturers will continue to turn to synthetic rubber for the reasons of the stability of the price.25

A study made by the Food and Agricultural Organization (FAO) "Agricultural Commodities Project" (1970) states that the

demand for natural rubber was studied by the FAO based on assumptions about future growth of population and income and using time series data for the period of 1954 to 1963. They found that the elasticity of demand for all rubber with respect to income and these elasticities were then used to project the total rubber consumption to 1975 for each country, the share would be 20 per cent of all new rubber consumption in 1975, the U.S. consumption of natural rubber was projected to have a range of 5,28,000 tonnes to 5,80,000 tonnes depending on whether low or high income growth rates are assumed.26

Ahmad Mandzan Ayob and Anthony Prato, (1971) in their book “An Econometric Analysis of the United States Import Demand and Prices of Natural Rubber”, has explained that the major factors that influence the volume of the U.S. demand for natural rubber and the New York price of RSS1 using a simultaneous equations model with annual time series data for the period between 1947 and 1969, they found that the U.S. import demand for natural rubber had statistically insignificant relationship with the New York price of RSS1. Further more the price of RSS1 was positive and significantly related to the one year lagged RSS1 price, the index of automobile production. The quantity consumed of reclaimed rubber in the U.S was found to be

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negative and significantly associated with the ratio of synthetic rubber consumption\textsuperscript{27}.

Colin Barlow, (1978) in his book "The Natural Rubber Industry", has stated that the studies of Lim and Cheam analysed the costs of handling rubber from small holdings to the point of export. These costs are also termed ‘total marketings’ between the relevant price and the price received by small holders. The study relates to limited areas and particular periods of time, other evidence denotes that the total estimated margin for smoked sheet was near the actual average for the peninsula in the early 1970\textsuperscript{28}.

A study made by “the Automotive tyre industry”, (1995) states that almost 45 per cent of rubber consumed in Indian rubber industry is in the tyre sector which are the next important product. Export of cycle tyres from India is fast picking up, most of the other non-tyre products manufactured are used for domestic consumption. The tyre industry export earnings during 1993 – 94 was Rs.584 crores as against Rs.15.80 crores in 1983 – 84. Our tyres are exported to over 40 countries in the world including U.S.A., Europe and CIS Tyre

\textsuperscript{27} Ahmad Mahdzan Ayob and Anthony Prato “An Econometric Analysis of the United States Import Demand and Prices of Natural Rubber”, Department of Agricultural Economics Publication, University of Florida, Gainesville, August 1971, pp.20-23.

industry has fixed and export target of Rs.750 crores for the year 1994–95 and are poised to reach Rs.1000 crores in 1995–96\textsuperscript{29}.

Sunil Mani, (1998) in his study “Analysis of Indian Natural Rubber Market” has analysed the various problems of the rubber growers in marketing the different varieties of natural rubber\textsuperscript{30}.

John D.A. Cuddy, (1999) his book “Analytical Studies on Trade” has stated that market development was earlier identified as an important feature of scrap fire management program. Here again the U.S experience has developed several different models to help create and develop markets for scrap tyres. The intent of each of these models is to help promote markets that can eventually be self-sustaining. The ultimate goal is to have end use markets capable of consuming all or virtually all of the newly generated scarp tyres\textsuperscript{31}.

George, C.M., (2000) in his article “Natural Rubber Price Recovery Likely Soon” stated that the surplus stock of NR is expected to be wiped out due to increased demand during the current year. The change in the supply/demand situation, during the year 2000, the world market can expect a price increase which may be only the first phase of

\textsuperscript{29} Ranganathan, C.R., “The Automotive Tyre Industry”, Rubber Industry Companion, 2\textsuperscript{nd} ed., 1995, p.11.
the upward trend. However, it will be of interest to find out various forecasts made on natural rubber prices.\footnote{George, C.M., “NR Price Recovery Likely Soon”, \textit{Rubber Asia}, Vol.14, No.2, May – June 2000, pp.25-26.}

Jaya Sankar, B., Muraleedharan, P.C., Rajasekharan, P., and Ranganathan, C.R., (2000) have explained the efficiency of agro forestry product market in India. The horizontal relationship between market participants shows the structure of the market. The structure of the market can be defined as those characteristics of the organization of the market that seems to exercise strategic influence on the nature of competition and pricing within the market. His awareness of the market situation and the extent of information regarding market system can help to avoid the exploitation of middlemen. The perennial crop production is spread over a long period of time and modeling the replanting schedules are complex. In the present study the deterministic optimum replacement model was used for deriving the optimum replacement cycles for natural rubber.\footnote{Jaya Sankar, B., et.al., (2000) “Agro Forestry Product Market in India”, \textit{Indian Journal of Agriculture Economics}, Vol.55, No.2, April – June 2000, p.p.172, 194.}

Tiyo, (2000) in his article, “Natural Rubber on the Revival Path” stated that in India, the demand for natural rubber will increase by the middle of 2001. This increased demand may result in the exhaustion of the surplus stock of natural rubber in the country during
the year and as a result the domestic natural rubber prices may recover faster than expected. Rubber surplus may become a thing of the past because of the present fall in output and steady increase in consumption.\textsuperscript{34}

Tharian George, K., Toms Joseph Joby Joseph, (2002) in their article says that the three trade control measures were introduced for natural rubber by the government of India. The new control measures are declaration of statutory minimum prices of RSS 4 and 5 effective from September 2, 2001, restriction of natural rubber imports only through the designated ports of Kolkata and Visakapatnam effective from December 10, 2001 and mandatory quality standards for both domestically processed and imported natural rubber in conformity with the standard specified by the Bureau of Indian Standards (BIS) effective from December 12, 2001. Accordingly the two perceived objectives of new measures are to stabilise domestic natural rubber prices at desired levels and restrict import so as to prevent further deterioration in prices\textsuperscript{35}.


interventions. The depression in the international market and surplus stock of natural rubber in the domestic market blocked the recovery of Indian natural rubber market during 2001-02 not withstanding a marginal improvement in the market during the last quarter the prices continued to rule at low levels during the year. The production sector of rubber for want of adoption of short term yield enhancement measures due to low prices by the dominant small holding sector coupled with adverse climatic conditions, the productivity remained stagnant.\(^{36}\)

A study made by Krishna Raj (2002) "Myopic Outlook" states that rubber user industry seems to be buried by its recent success in getting the Bombay High Court to 'vacate' the Central Government ban on the import of natural rubber under the advance licence was imposed in February 1999 after a surge in imports during the previous two years resulted in a collapse in price. The government announced several measures last year to raise the persistently sagging domestic prices as global prices hit 30-year low on account of a production glut and stagnant consumption. A minimum support price was announced for the RSS\(_4\) and RSS\(_5\) grades to mollify upset growers.\(^{37}\)


Sanandakumar, (2003) in his paper “Rubber Exports Lose Bounce, Fall 46 percent in April-July” stated that is the trend in rubber exports reversing? After touching a record level last year, rubber exports this year have entered a sluggish phase. The export of natural rubber has registered 46 percent fall in the first four months of the current fiscal as compared to the same period of last year. The total exports for the April to July period of 2003 – 04 stood at 13,280 tonnes for the first four months of last year. Export of natural rubber picked up last year due to the high international prices. The Malaysian price for rubber stood at Rs 41 per kilo gram in August last year. The Indian price at the same time was only Rs.37 per kilogram. The subsidy of Rs.3 per kilogram given for rubber exports resulted in a price differential of almost Rs. 6 per kilo gram between domestic and international price. This was the main factor that led to a record export performance last year”. As against this the domestic prices this year, are almost at par with the international prices. The high level of domestic consumption of rubber this year is seen as another reason for the poor show on the export front. Total rubber exports stood at 55,311 tonnes last year, current target at 50,000 tonnes.38

Shri Vllas Menon, (2003) in his book “Why Rubber Prices May Double” stated that three decades of inferior price performance by rubber may be about to reverse. Prices could well double with in the next 3 – 5 years as a major shortfall between supply and demand looms. Under investment in new rubber over the last two decades by the main producers, when in many places more rubber was pulled out of production than planted, will finally show up in the price equation. Even assuming that demand grows at 2.5 percent a year, which is below its 20 - year average of 3.0 percent there will be a gap between supply and demand of 3.4 percent by 2005 and of 8.7 percent by 2010. Assuming that demand grows by 3 percent annually, the gap would wide even more to 7 percent by 2005 and 20 percent by 2010. In commodity markets, where prices are made at the margin, these are major gaps. The only way that they can be closed is through sharply higher prices rationing demand. This is a supply story that cannot be changed quickly. Higher rubber prices will be the result for at least a decade.39


of 2002. This implies a hefty 46 per cent decline in exports. Increase in rubber consumption in the domestic economy and insignificant difference in domestic and international market are the major reasons for the decline in exports\textsuperscript{40}.

An article in The Hindu Business Line, (2003) titled “Rubber Market Regains Bullish Sentiment” highlighted the juxtaposition of the only loser of the day was latex which lost 50 paise to close at Rs.34.50 due to low demand. Tyre companies were reported to be buying from the domestic market even if they have imports in hand which showed that their stock position had come down considerably. The strong presence of covering group seemed to push up the prices to new highs. There were nominal purchase orders from the non-tyre sector and north Indian groups.\textsuperscript{41}

The author Tiyo, (2000) in his article “Surplus Natural Rubber Stock Continues To Stall Market Revival” has explained that even in the midst of ample supply, the tyre sector tried to bring rubber from abroad. Though the ban on import of natural rubber under advance licence was in operation, import under the head was 19,917 tonnes during 1999. The tyre sector requested the Director General of

\textsuperscript{41} Rubber Board, “Rubber Market Regains Bullish Sentiment” \textit{The Hindu Business Line}, August 7, 2003, p.11.
Foreign Trade for permission to resume rubber import under advance licence, stating that the State Trading Corporation (STC) does not have stock of rubber for supply at the international price. This issue was examined by the Ministry of Commerce. The ministry renewed instructions to the STC to procure and supply rubber to the manufacturers against intents. But the manufacturers had not raised any intent with the STC for supply of rubber. This had prompted the Minister for Commerce and Industry to state in the Parliament that STC had not recommenced procurement of rubber in the absence of demand from the industry.

Serious arguments like encouraging production of synthetic rubber to meet the future rubber requirements have been voiced by many. This cannot be supported on ecologic considerations and employment potential. While atmospheric pollution takes place as synthetic rubber is produced, natural rubber production helps atmospheric purification. The myriads of rubber trees absorb carbondioxide from the atmosphere in the countryside and release oxygen. Rubber cultivation helps utilisation of our marginal lands and raise millions of trees which would also perform the functions of the forests. Rural employment generation in extending rubber cultivation is another advantage.42

The authors Lekshmi, S., and George, K., (2003) in their article “Expansion of Natural Rubber Cultivation in Kerala: An Exploratory Analysis” have drawn the following conclusion: In spite of the phasewise differences in the policy initiatives catalytic to the growth, the observations emerging from the study tend to highlight the point that the expansion of area under a comprehensive institutional support mechanism in which protected price policy had been the critical component. However, since the late 1980s, the tempo of growth has been circumscribed by the agro-climatic limits and policy changes in the protected price policy regime since 1991-92. Therefore, not only the scope for further expansion of area under NR in the agro-climatically marginal lands in the state is limited but also the sustainability of the crop in such lands under the small holdings is poised to region-specific crop shifts. As sustainability of NR production in the state is heavily dependent on the viability of the dominant small holding sector, a paradigm shift in the policy initiatives is necessary so as to address the issues emerging from the economic reforms initiated since the early 1990s, the growing number of part-time farmers and homestead farms of NR in the state. Though it is true that replacement of NR by the competing crops appears to be a remote possibility in the traditional regions for the present, the designing of
appropriate policy inputs to ensure economic viability and agronomic sustainability poses serious policy challenges in the era of market integration.\textsuperscript{43}

The author Darling Selvi, V., (2004) in her article “Problems and Prospects of Rubber Cultivators” has given few suggestions to overcome the problems of rubber cultivators.

- The production and processing practices of natural rubber need reorientation to equip the Indian Rubber Plantation Industry to face the challenges of market integration.
- Improving the productivity and reducing the cost of production are the major issues which need attention in the production sector.
- Producers organizations are to be strengthened further with technical and financial assistance to set up latex collection and sheet processing facilities with environment-friendly effluent treatment system on a cost-sharing basis.
- Increase in production will be attempted mainly through productivity enhancement by replanting of low yielding areas and also by popularising still higher yielding varieties.

Market development for natural rubber can be attempted through strengthening of research and development particularly with respect to development of non-conventional applications of Nature Rubber.\textsuperscript{44}

The author Hugh Peynam, (2003) in his article “Why Rubber Prices May Double” has suggested the supply constraints and they are:

Inferior financial returns to rubber, compared with oil palm, over the last 30 years have led to rubber areas being replanted with oil palm in the main producers of Thailand, Indonesia and Malaysia.

Supply growth has already slowed to 1-1.5 percent per annum compared with 3 percent over the previous two decades.

Even Governments that previously promoted rubber such as Malaysia, Thailand and Indonesia are encouraging the switch to oil palm.

\textsuperscript{44} Darling Selvi, V., “Problems and Prospects of Rubber Cultivators”, \textit{Kisan World}, Vol.31, No.6, June 2004, p.61.
Indonesia, the most promising source of new supply, has no cess levy to fund new planting.

Thailand, the world’s leading producer, is wall-to-wall rubber in the South and hence has no new areas available for planting.

Labour availability has been a problem in Malaysia since the 1980s. In Thailand and Indonesia it could become a factor over the 30 year-life of a new rubber investment.

Slaughter tapping: currency weakness in Indonesia and Thailand stimulated the recent increases in production through slaughter tapping. This will take its toll on the trees and supply over the next few years.45

The author Sundar, P.S., (1998) in his article “Rubber Prices on a Crest” has revealed that growers’ bodies do not plead for the revision of the benchmark price when prices are acceptable to them. They fear that if the government announces a benchmark price equal to or less than the market price, the market price might collapse. While the intention of the government is to protect growers with a minimum support price, consumers may stick only to that level, thereby making it the maximum, not minimum. Perhaps, it is for this reason that the government is hesitating to announce the revised price.

The author also stated that the STC is toying with the idea of exporting rubber. But overseas market conditions are not immediately favourable foreign rubber is available at a price lower than Indian rubber by around Rs.5 per kg. Also, India has always been regarded as a net importer of rubber and so it takes time for the country to play the role of an exporter in the world market. Besides, importers would demand an assurance of continuous supply before they firm up orders. Given the huge potential of the domestic market, it becomes difficult for India to make a promise. The only way is to go ahead with exports unmindful of the domestic market, giving at the same time, the clear out option to manufacturers here to import rubber whenever they find it beneficial. In effect, it would mean an open trade policy of globalisation.

The author also opined that the moment of STC keeps away from the market, prices are bound to crash because there is no demand from tyre manufactures who account for 70 percent of the consumption.\(^46\)

The author Sundar, P.S., (1998) in another article “Benchmark price (BMP) rise has no effect on market” says that it is logical to presume that the reasonable price to the growers should be

the BMP. In reality, the market price continues to rule the BMP, thereby proving that the BMP has no effect on the market. At the time of announcement of the increase in the BMP, the price of rubber at the Kottayam market was Rs.29 a kg. Since this was higher than the prevailing BMP of Rs.24.90, there was some consolation. But when the BMP was raised to Rs.34.05, the market responded just marginally and rose to Rs.30 a kg. That means the market is below the BMP. The market reacts to the forces of supply and demand and not the artificial protection offered through the BMP.

The author also stated that the BMP is out-of-context in the rubber market. Many a time, the price ruled above it. For instance, while the BMP was Rs.24.90 per kg, the average price fetched was Rs.30.38 in 1994-95, Rs.52.04 in 1995-96 and Rs.49.01 in 1996-97. So much so that consumers began to exert pressure on the government to ensure that rubber is supplied to them at the BMP and not above it.

The author has also revealed that choice of imports is the problem. There is no mechanism to check adherence to BMP. In fact, consumers argue that they should have the choice to source raw material from the cheapest supplier in India or abroad. In the context of globalisation, such a demand seems not to be unreasonable. After all, tyres and rubber goods which are manufacture from natural rubber
add tremendous value to raw material and fetch for the country foreign exchange besides catering to the home market. This industry, therefore, should be allowed to run its unit on a cost effective basis. All the same, the growers demand that the government, keen to ensure a reasonable price to growers, must implement a mechanism to stick to the logic. They feel that there should be a bufferstock and market intervention system along with the BMP.⁴⁷

The author Sundar, P.S., (2000) in his article “Sustain Rubber Prices by Activating Demand” has explained that aggressive marketing strategy entails the creation of additional and alternate demand for rubber and then meeting the demand so created. This can happen only by broad basing the uses of rubber. Rubberisation of the roads is not a new proposal and has been tried successfully in many parts including the Thiruvananthapuram. Still, nothing concrete has been done to activate the demand for rubber.

The author also opined that India can excel in the production of condoms whose demand is increasing both in the country and abroad. With all the scare about AIDS and the uninhibited advertisement campaigns going on for use of condoms all over the world, there is a strong case for production of quality condoms at

competitive prices and marketing them in the vast Indian sub-continent and elsewhere. The gloves – surgical and others – also promise good sale if produced qualitatively and sold competitively. Toys which US imports in volume from China and other countries can be produced with rubber in India. Latex dresses should also be promoted in the fashion-oriented West and the US, and the requisite textile must be manufactured in the country.

The author has also suggested that the engineering colleges should be encouraged to come out with newer products where rubber can be profitably used. The Rubber Board should persuade the scientists and the researchers to focus on this aspect. All the same, all such products must be manufactured with international quality standards so that they can withstand the global competition, particularly in the context of WTO and other global re-orientations.48

The author Ajimon George, (2002) in his article “Natural Rubber Industry in India – A Study” has explained that on the consumption front, India consumes 8.89 percent of the total world production whereas production is 7.69 percent of the total production at the end of the year 2001, which means that India has to depend on overseas market to meet its domestic requirements.

The author also opines that the following factors contributed to the dismal performance of export despite the removal of restrictions on export since 1992. (a) the international price of NR is generally lower than the Indians price, (b) India is not a regular player in the export market of NR, (c) Dearth of information about overseas markets of NR, (d) Inefficiency of existing marketing system and (e) Insufficient infrastructure.

The author then suggested that procurement of rubber through STC should also be revamped to stabilise and increase rubber prices in the domestic market. The existing marketing system should be revived to make it more efficient so as to make India’s NR industry globally competitive to boost exports. A marketing information system should be set up at the Rubber Board level to gather information about overseas market. In a bid to rescue rubber farmers GOI notified Statutory Minimum Prices for NR at Rs.3209 per 100 kg of RSS4 and 3079 for RSS5 grades with effect from 12\textsuperscript{th} September 2001. Even though the price is not satisfactory for the farmers, it is indeed a welcome step from the part of the government.\textsuperscript{49}

The author Hali, R., (2003) in his article “Rubber Cultivation in India” has explained that though India possess over 329

million hectares growing almost all crops raised in any part of the world the area conducive to grow rubber is limited to its southern and north-eastern parts. The spread of rubber in the south-western India especially in the state of Kerala during the last three decades of twentieth century, adopting the most scientific farming practices is nailed as one of (India’s golden achievements in the crop production and management sectors).

The author also emphasis that generating new technologies through intensive research and spreading the same and skills among the rubber growers supported by appropriate input supplies has scored spectacular success in India. The contribution of small growers numbering over 7 lakhs make the achievement more shining as their productivity per hectare compares well and sometimes even excel with the best managed estates.

The extension activities of the Rubber Board of India could be well adjudged as one of the best performing network functioning in any part of the world. It has imparted titanic strength to the highly motivated growers whose performance forms the primary factor that helped the nation to lift its annual production of rubber from 75,000 tonnes in 1950 to 5.6 lakh tonnes in 2000.50

The author Mathew, K.J., (2000) in his article “Focus on Cost Efficiency” has explained that attaining cost-efficiency has been identified as a key to sustain NR production in the emerging new global environment. The strategies adopted in the short-run for cost competitiveness include popularising discriminatory application of fertilizers on the basis of soil and leaf testing of individual small holdings, low frequency tapping system and group processing of raw rubber ensuring better quality. Together with this, measures are taken to enhance the yield of existing plantations by promoting systematic plant protection operations, soil conservation and improved crop harvesting methods such as controlled upward tapping, scientific tapping practices, rain-guarding and stimulation. Cost effectiveness of operations and development of ancillary sources of income from rubber plantations (like rubber honey, medicinal herbs, seed oil, seed cake, bio-gas, timber) are given prime attention in the new strategies. The growers are trained to look at plantation activity like a small industry or business.

In the backdrop of the growing importance of eco-balance and increasing concern over depleting tropical forests, special attention has been given to promote rubber as an eco-friendly plantation for the development of denuded areas in the country. As a measure to
improve the processing and marketing of NR in the small holding sector, more group processing centres are coming up under Rubber Producer’s Societies (RPS) and cooperative societies. R&D and support services the manufacturing industry are also given priority for stimulating consumption. 

The author Desalphine, S.M., (2002) in his article “Challenge before the industry” has revealed the following facts: With the removal of quantitative restrictions on import of natural rubber, the major challenge before the Indian rubber plantation industry is to face the emerging global competition. Under this situation, natural rubber producers in India have to compete with their counterparts the world over, not only for the export of natural rubber but also for withstanding possible imports at competitive prices. In spite of the commendable achievement in productivity (1576 kg/ha), even today 1/5th of the mature area yields less than 1000 kg/per hectare. The productivity realised is only about 50 percent of the realisable productivity. To reduce the cost of production and also for becoming internationally competitive, further productivity increase is inevitable. Though the country has been exporting small quantities of natural rubber during the past many years, India could not make any headway in the export

front. Following the removal of QRs, it has become necessary to aggressively promote Indian rubber in the International market.

The author also stated that in the emerging scenario, the processing sector is coming under serious compulsions to face the challenges of potential imports. Therefore quality improvement will have to receive thrust for which infrastructure development, investment and institutional strengthening would be required. India will have to enter into international market with export of natural rubber, particularly high quality latex, sheet rubber as well as block rubber. Quality and cost competitiveness of both raw rubber, rubber products, rubber wood and allied products have to be improved.

The author has drawn the conclusion that as a result of the general economic slow down in India, the growth in consumption of natural rubber in the country has decreased substantially. Eventhough some constructive steps have been taken for promoting export of natural rubber and rubber products, it is necessary to upgrade technology and expand the application of natural rubber.52

The authors Colin Barlow, Sisiru Jayasuriy and Suan Tan, C., (1994) in their book “The World Rubber Industry” have explained Natural Rubber Marketing trade. The authors stated that this specialy

in the last two decades technological consumer preference, and other changes have also affected natural rubber, and again encouraged direct trading between producers and especially tyre-making consumers. This has drastically altered much of the older marketing structure. A further turn in circumstances has been the huge growth of rubber goods manufacture and natural rubber consumption in East Asia, much nearer to points of natural rubber production. The authors have also stated that the spread of direct trading in natural rubber may be seen as having even greater benefits for producers and consumers than is true of Synthetic Rubber.\(^{53}\)

The author Cyriac, P.C., (1986) in his article “Natural Rubber Production and Demand” has revealed that India has become the 10\(^{th}\) largest consumer of rubber in the world. By the end of the century it may even attain the 7\(^{th}\) position. The author stated that demand for rubber depends on the production of various rubber goods like automobile tyres and tubes, cycle tyres and tubes, tread rubber, footwear, belts and hoses, latex foam and others. India is claimed to be producing 35,000 different manufactured rubber products. He also stated that the main factors of production are area under rubber, new

planting and re-planting, planting materials, cultural practice and tapping system, and price.\textsuperscript{54}

The author Krishnakumar, A.K., (2004) in his article “Mooting Cost-Effective Measures” has stated that it is a fact that in spite of having the highest productivity of natural rubber in the world the returns are not high commensurate with productivity, mostly because of higher production costs and labour wages in Kerala, the predominant rubber producing state, relatively low-labour productivity, additional investment required for plant protection and soil conservation measures and higher opportunity cost. Direct participation of small holders in production process is low and this is a deterrent in tapping ancillary sources of income. About 30 to 40 percent of the growers only are full time planters. To overcome these problems which are a prerequisite for achieving cost competitiveness, institutional arrangements required to support some of the basic production systems. A beginning made in this sphere through the formation of grass root level organisations of the rubber small growers namely, Rubber Producer’s Societies (RPS) needs more focus and attention.\textsuperscript{55}
