CHAPTER I

INTRODUCTION

1.1 Introduction

Plantation crops are considered to be the main segment of the horticulture crops. They are the main stay of agrarian economics in many states and union territories of the country. They play an important role in the agriculture and industrial development of the country as a whole. Plantation crops cannot be termed as essential commodities nevertheless they are commercially significant as these crops contribute significantly to foreign exchange reserves and employment generation.

India is one of the largest producers of the plantation crops in the world because India is blessed with a rich and diverse agro climatic profile. This gives us the ability to grow a variety of product having great demand in the global market. The plantation crops by promoting vegetative cover and preventing soil erosion help to preserve and foster ecological balance. Plantation plays a critical role in the development of rural and hilly areas and the underdeveloped remote regions in the country.
Plantation crops constitute a large group of crops. The major plantation crops include coconut, arecanut, oil palm, cashew, tea, coffee and rubber and the minor plantation crop include cocoa. Among these plantation crops cultivated in India tea, coffee and rubber assume greater importance, as these crops provide ample employment opportunities to the people at large and holds immense potential for export.

1.2 Rubber Plantation Industry

The term rubber plantation industry refers to all the individuals and organizations engaged in the activities in connection with cultivation of rubber, maintenance operation, harvesting, processing and marketing of rubber produce. The Indian rubber plantation industry was practically non-existent and economically insignificant till independence. It has grown at a phenomenal rate within the last six decades. It passed through many vicissitudes in terms of size and different structural parameters and has entered the 21st century with greater growth prospects. This is on account of the liberalized industrial policies of the government and the vast internal market, improving the living standard of masses, the local availability of almost all the types of rawmaterials and the machines and the plentiful technical and scientific personnel. It is a vibrant and innovative one with active participation of all stakeholders, the government, growers, consumers and service providers. However the sustainability of this industry is assessed by using the basic pillars namely
productivity, protection of natural resources and environment, stability, economic viability, social acceptability and political supportability. If any of these elements is lacking, sustainable development will not be achieved.

1.2.1 Present Status of Rubber Plantation in India

Rubber plantation exerts a profound influence on the economic and social life of people. There are around 6000 units comprising 30 large scale, 300 medium scale and around 5600 small scale industries/tiny sector units, manufacturing 50000 rubber products. It employs 400 thousand people including around 22000 technically qualified support personnel. It shows a turnover of Rs.200 billions and contributes Rs.40 billions to the National Exchequer through taxes, duties and other levies.¹ The Indian Rubber Industry plays a core sector role in the Indian National Economy. The industry has certain distinct advantages like

1. An extensive plantation sector
2. Indigenous availability of the basic raw materials like natural rubber
3. A large domestic market
4. Availability of cheap labour
5. Training facility in various technical institutes
6. On-going economic reforms
7. Improved living standard of the masses.

1.2.2 India and the World

Rubber is treated as an Asian product as its production is geographically concentrated in Asia. The world’s total production of rubber was 9.9 million tonnes in 2008.\(^2\) Asian countries such as Thailand, Indonesia, Malaysia and India are the top most rubber producing countries in the world. These countries produce 82 percent of the world production of rubber and share of India is 9.1 percent.\(^3\)

India is the fourth largest producer and fourth largest consumer of natural rubber and fifth largest consumer of rubber and synthetic rubber together in the world. India and China are the only two countries in the world which have the capacity to consume the entire indigenous production of rubber and thereby obviate the compulsion and over dependence on exports of surplus quantity of rubber. The plantation sector with an estimated production of over 630 hundred thousand tonnes of rubber and a projected production of more than one million tonnes in the near future, helps radical and rapid growth of the Indian rubber industry. The growth prospect is further enlarged by a boom in the vehicle industry, improved living standards of the masses and rapid overall industrialization.

According to IRSG, the global rubber consumption will rise by 4 percent annually in the next few years, to touch 26.5 million tonnes in 2011 due to robust worldwide motor vehicle production as well as a strong

\(^3\) Ibid.
global economy. Consumption will continue to be dominated by the US, Japan and increasingly China. China will continue to steak ahead in terms of consumption, however, the double digit growth enjoyed between 2001 and 2006 will reduce considerably as its domestic market matures and motor vehicle production decelerates.\(^4\)

The per capita consumption of rubber in India is only 800 grams against 12 to 14 kilograms in Japan, USA and Europe. This envisages tremendous growth prospects of the industry in the years to come as India is far from attaining any saturation level, so far as consumption of rubber products is concerned. With the saturation in rubber consumption in western countries and shift in consumption of rubber to the Asia Pacific region, the focal points for this decade for development will be India.

The exports of rubber have increased dominantly during the past few years and have reached 60353 tons during 2007-2008. Foreign exchange earnings were Rs.49430 crores. Though India is one of the leading producers of rubber, it still import rubber from countries like Malaysia, Thailand, Vietnam, Singapore and Sri Lanka as under the Advanced Licence Scheme. The value of import during the year 2007-2008 was Rs.788.89 crores. 98 percentage of import was through Advance Licence.\(^5\)


1.2.3 Uses of Rubber

Rubber has multifarious uses and there is hardly any segment of modern life which does not make use of rubber based material. It is an essential element for all forms of modern transportation. It is used for making tyres, tubes, engine mountings, brakes, radiators, hoses, oil seals, beading, mattings, linings, cushions etc. necessary for automobile industry. A modern motor car contains at least 70 kg of rubber in one way or other. The use of rubber is indispensable in other forms of transportation like bicycles, ships, animal drawn vehicles, hand carts, railways, aeroplanes etc.

Rubber also plays a significant role in the manufacture of mechanical goods such as beltings, packing, moulded goods, hoses etc. which are very essential for running most of the industries. A large quantum of rubber is used in making footwears, proofed fabrics, sheets, floorings, mats and mattresses which are essential for the day to day life of the people.

In addition to these, rubber plays a vital role in communications and transmissions mainly in the form of insulation for wires and cables. In health care and family planning rubber plays a vital role in making cathetics, hospital sheetings, dipped goods such as surgical gloves, examination gloves, condoms and a host of other products indispensable in patient care.
Owing to its amazing multiplicity of uses, it has now become the base material for manufacturing around 50000 different articles of everyday life. These have made rubber industry the second largest in the world next to iron and steel.

1.2.4 Importance of Rubber

Rubber is the most useful material known to mankind on account of its wide range of application in everyday life. It has been the life blood of the Indian rubber goods manufacturing industry since independence. It is considered as a product not consumable by itself. It has a derived demand and it is dependent heavily on the automobile industries. Cars do not move without rubber.

Besides this rubber also enjoys excellent environmental image. Low intensity agriculture practised in rubber plantation also helped to sustain long-term productivity of the soil and maintain an economically viable source of income for the planters in rubber growing countries. The diversification of activities in natural rubber farming, harvesting, processing, value addition and trading as well as manufacturing and marketing of rubber products helps to engage large number of people from different walks of life.

There is perhaps no other agricultural commodity that affects human life like rubber and a few agricultural systems that have employment potential similar to rubber farming.
The rapid growth of industrial demand makes rubber economically viable to the cultivators. Rubber plantation is a good example for ecologically and socially sustainable agriculture with minimum environmental cost and social harm.

Sekhar, B.C. remarked that natural rubber is an essential commodity for almost all the industries. Without an adequate supply of natural rubber, all the industries in the world will come to a grinding halt. There is virtually no commodity that occupies such an equally strong and irreplaceable position.\footnote{Sekhar, B.C., “Natural Rubber Boom Inevitable”, Rubber Asia, March-April 1994, pp.29-33.}

It provides a variety of ancillary products namely honey, seed oil, seed oil cake and rubber wood. During the immature phase, the crop provides scope for intercropping of annual crops which helps to enhance the income per unit area of small and marginal farmers. It brings many environmental factors of the forest and yields the valuable raw rubber having immense strategic and economic importance.

### 1.2.5 Geographical Distribution in India

Natural rubber cultivation had been traditionally confined to narrow belt extending from Kanyakumari district of Tamil Nadu in the south to Dakshin Kannada and Kodagu district of Karnataka. Later on rubber activities were extended to non-traditional regions such as North-East hinterlands, on coastal Karnataka, Goa, Konkan regions of
Maharashtra, Coastal Andhra Pradesh, Orissa and certain areas of West Bengal. Kerala and Tamil Nadu contribute 84 percent of the total area of rubber in India. The share of Kanyakumari district in the total area of Tamil Nadu is 97.78 percent in 2007-2008.

1.3 Statement of the Problem

Rubber plantation is a prominent crop of considerable significance to Indian economy. Kanyakumari district of Tamil Nadu holds a near monopoly position in the cultivation and production of rubber. It has been maintaining this unique position since the introduction of natural rubber cultivation in the country. More than 50000 people depend on this industry for their existence as growers, processors, dealers and workers along with their families. So there is a great need for the sustenance of this plantation industry. 80 percentage of the total growers are small growers. They face a number of problems from the planting stage to the marketing stage of rubber. Unpredictable changes in the climatic conditions pose major challenges to rubber cultivation and unseasonal rains cause severe fungal diseases in this district. Late arrival and early withdrawal of monsoon have become all the more common in recent years in the traditional rubber growing regions.

Growers get battered by the rising cost and declining return since 1997. They do not hanker for profit but are deeply aggrieved that their cost of production has not also been taken care of in this context of
rise in price. So analysis of cost-return would help the growers to take investment decision.

There exists a vast difference in productivity among the different rubber growing regions in this district. Productivity of small holding sector is low and is overwhelmingly logging behind the well organized estate sector. The major quantity of rubber produced in this district is processed in the form of sheet grades accounting for more than 85 percent. Majority of them market their produce through village traders and wholesalers. Growers have no control on any aspect of the marketing of the commodity as buyers dominate the market. They are easily exploited by the intermediaries by offering low price in the name of ‘quality’. Thus they suffer from low productivity, poor quality of processing and weak marketing system. In this context it is relevant to study the production and marketing of rubber in Kanyakumari district.

1.4 Review of Literature

Different studies have been conducted by institutions and individuals to review the various aspects of rubber plantation industry at the regional, state, national and international level. Therefore it is quite relevant and useful to review the available literature on rubber plantation industry so as to identify the gap that exists in the field of the present research. The current chapter is an earnest attempt in this direction. Though voluminous literature is available in these areas, only a few
important related works are reviewed here. For the purpose of this review relevant studies conducted in the rubber plantation industry have been classified into 5 groups.

(i) Studies related to production, production technology and productivity of rubber.

(ii) Studies related to consumption of rubber.

(iii) Studies related to market and marketing structure of rubber.

(iv) Studies related to export and import of rubber.

(v) Studies related to price of rubber.

1.4.1 Studies Related to Production, Production Technology and Productivity

Manoharan Nair, K., (1990) in his research work identified the problems in the cultivation of rubber, marketing of rubber products and the management of plantation industry in Kerala. He suggested measures for making improvement in the cultivation of rubber and marketing of rubber including export.\(^7\)

Rajasekharan, P., and Haridasan, V., (1992) conducted a study in the “Diffusion and Adoption of Innovation in Rubber Small holdings”. The study throws light into the various problems relating to technology adoption and concluded that in Kerala, the promotion of technology dualism in the small holding sector is characterized by the

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existence of traditional and modern technology side by side. The full impact of the adoption of technology is possible only by inducing all the small growers to adopt modern technology.  

Nanda Mohan and George (1993) in their study “Growth and Instability in Rubber Plantation Industry in India” defined the growth rate as the rate of change per unit of time, and per unit of time is usually a year. The growth rate is measured statistically by estimating different functional form of growth overtime such as linear, semilog, gompertz curve, logistic curve etc.  

Knox, G., and Theison, A.A., (1991) have made an indepth study on “Feasibility of Introducing New Crops”. According to them natural rubber production faces many technical and economic barriers to commercial development. They suggested that the technical refinement is required to reduce the cost of producing natural rubber to a level that is economically attractive.  

Ajith Kumar, N., and Sundaresan Pillai (1994), analysed the growth performance of the rubber plantation industry in Kerala during the last three and a half decades. The analysis stated that the growth rate of tappable area, production and productivity were positive and significant

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8 Rajasekharan, P., and V. Haridason, “Diffusion and Adoption of Innovation in Rubber Small holdings”, Indian Journal of Natural Rubber Research, 5), 1992, p.188. 
between 1955-56 and 1991-92. Decomposition analysis showed that depending upon the area of plantation the growth of the output increased and it was considered to be the weighty component of the output. Since there is only limited scope for the extension of cultivation in Kerala, further development depends on increase in productivity.\textsuperscript{11}

Ajith Kumar, N., (1994) conducted an econometric study of the impact of the technological changes in the rubber plantation industry of Kerala. The study included gestation period, productive life, yield profile, weather conditions and the quality of the planting material. The study shows that in estates where bud grafts are used as planting materials, the elasticity of output with respect to tree index, fertilization and other input expenses are lower than the elasticity for estates using clonal seedlings. The size of estates does not significantly affect the yield per hectare. The technological change experienced during the last 4 decades 1954-95 has a very positive impact on the rubber plantation industry in Kerala.\textsuperscript{12}

Jacob Mani (1995) in his study “New Technologies Promise Higher Yield” assessed the impact of new technologies in rubber production. He analysed the quality of tapping and stated that a host of new technologies are emerging from the world of rubber research while it promises cost effective quantum and jumps in the yield within a short


period. A time bound action programme need to be developed for farm research and implementation of appropriate technologies.\textsuperscript{13}

Peter Mathew (1996) examined the relationship of scientific literacy of small scale rubber growers with their training and education. The study revealed that the extent of scientific literacy among small scale rubber growers is very low. The different types of training given to small holders are inadequate to improve their scientific literacy and to adopt new technology in the cultural practices of rubber for the maximum yield from their holdings. The study suggested that formal education in association with training enhances the scientific literacy of small holdings.\textsuperscript{14}

Kerala State Planning Board (1997) analysed the performance of various plantation crops in Kerala. According to the review among the plantation crops, rubber is the largest with respect to the coverage of area. Out of the total area of 5.23 lakh hectares under rubber cultivation in the country, 4.49 lakh hectares are in Kerala. The production and consumption of natural rubber is increasing in the country. From the review of production of plantation crops from 1990-91 to 1996-97, rubber is the only plantation crop in Kerala, which shows an increasing trend.\textsuperscript{15}

Cyriac, P.C., (1998) in his study “Natural Rubber Industry Performed Well” stated that as in Malaysia and in other major rubber

\textsuperscript{14} Peter Mathew, “Relationship of Scientific Literacy of Small Scale Rubber Growers with their Training and Education”, Ph.D Thesis, University of Kerala, Thiruvananthapuram, 1996.
producing countries, a sizable portion of natural rubber in India was processed into latex concentrates and the availability of Ribbed Smoked Sheets (RSS) came down.¹⁶

Sethuraj, M.R., (1998) in his study on “The Productivity Improvement in Rubber” stated that continuous cultivation of rubber for the past several decades has not deteriorated the productivity of the soil. In fact during this period, scientific cultivation of this crop has resulted in tremendous increase in the yield without sacrificing the long term productivity of the soil.¹⁷

Kulkarni, D.S., (1999) studied the challenges and opportunities of Indian rubber industry in the wake of liberalization and globalization. In his study he clearly draws the picture of the present global rubber scenario together with Indian and South East Asian scenarios. He is of the opinion that the rubber industry in India has maintained a prolific growth rate with easy access to major raw materials, rapidly expanding the internal market, with adequate government support and technically qualified and experienced manpower. He concluded that the rate of growth of production in natural rubber should remain subdued with no prospect of growth in the non-traditional areas of rubber

production in India. He also stressed that the import of natural rubber will become inevitable if domestic supply falls short of demand.\textsuperscript{18}

Rajasekharan, P., and Krishnamoorthy, S., (1999) conducted a study on “Technical Efficiency of Natural Rubber Production in Kerala: A Panel Data Analysis” with twin objectives of estimation of technical efficiencies and to identify its determinants in natural rubber production in the estate sector of Kerala. Kruskal-Wallis statistic was used to test the significance of the firm’s specific factors in explaining the varieties in technical efficiencies. The supervisor-tapper ratio and the scientific training of the managerial staff were found to be significantly variable in explaining the variability in technical efficiencies. The management functions such as organization of the work, motivation, training and supervision of employees are in fact an integral part of an estate.\textsuperscript{19}

In a study about the “Technology Adoption in Rubber Smallholdings in Kerala”, Ushadevi, T.V., (1999) states that rubber producers’ societies helped a lot in the diffusion of technology among the small rubber growers. The technology package adopted by the estate is more advanced than that of the small growers.\textsuperscript{20}

Mathew, K.J., (2000) in his article has explained that attaining cost efficiency has been identified as a key to sustain natural rubber production in the emerging new global environment. The strategies adopted in the short run for cost competitiveness include popularizing discriminatory application of fertilizers on the basis of soil and leaf testing of individual small holdings and low frequency tapping. Measures are also taken to enhance the yield of existing plantation by promoting systematic plant protection operations, soil conservation and improved crop harvesting methods.21

Sundar, P.S., (2000) in his study “Planters are Left in the Lurch”, assessed the effect of devaluation. He stated that the rubber growers are convinced that the Rubber Board or the commerce ministry of their own association are not prepared to meet the emerging WTO challenges. All that the planters wants know from the government was a convincing list of action taken or proposed to be taken to ensure that their fate was safe.22

Gurder Singh and Ashokan, S.R., (2001) in their study “Competitiveness of Indian Rubber under WTO” stated that as costs incurred and returns realized are spread over the economic life of the plantation, their simple summation and annual averages would not reflect

the real values. So time value of money is used to compute the present value and annuity of inputs and outputs.\textsuperscript{23}

Mathew, N.M. (2002) in his study “Natural Rubber Research in India: Yesterday, Today and Tomorrow” stated that the major problem encountered by the rubber cultivators include uncertainties in the market price and increase in input cost and consequent erosion in profit margin.\textsuperscript{24}

Hali, R., (2003) in his study “Rubber Cultivation in India” stated 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 excels the best managed estates.\textsuperscript{25}

Lakshmi, S., and George, K., (2003) in their study have drawn the following conclusion: In spite of the phase wise difference in the policy initiatives which are catalytic to the growth, the observations emerging from the study tend to highlight a critical component that the expansion of area under a comprehensive institutional support mechanism has a protected price policy. However since the late 1980s, the tempo of growth has been circumscribed by the agroclimatic limits and policy

\textsuperscript{25} Hali, R., “Rubber Cultivation in India”, Yojana, October 2003, pp.41-42.
changes in the protected price policy regime since 91-92. Therefore not only the scope for further expansion of area under natural rubber in the agro climatically marginal lands in the state is limited but also the sustainability of crop in which lands under small holdings is poised to regionally specific crop shifts. As sustainability of natural rubber 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. Since the early 1990s, the growing number of part-time farmers and homestead farmers of natural rubber in the State. Though it is true that replacement of natural rubber 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.26

Krishnakumar (2004) in his study 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 and do not commensurate with productivity mostly because of higher production costs and labour wages in Kerala. The predominant rubber producing state relatively has low labour productivity, additional investment is required for plant protection and soil conservation

measures and higher opportunity cost. Direct participation of small holders in production process is low. Only 30 to 40 percent of the growers are full time planters. To overcome these problems which are a prerequisite for achieving cost competitiveness, institutional arrangements are required to support some of the basic production system. A bargaining made in this sphere through the formation of grass root level organizations of rubber small growers namely Rubber Producers’ Societies (RPS) need more focus and attention.\textsuperscript{27}

Vijayakumar, K.R., et al., (2005) conducted a field research in “Low Frequency Tapping Proves a Hit in Diverse Terrains”. The result of their study shows that low frequency tapping system have been extended successfully to many areas of rubber production in India covering different agroclimatic conditions. A yield of 10.3 kg/tree under this tapping shows that $\frac{1}{2} S d/66d/7$ system with monthly stimulation is sufficient to achieve the full yield potential of high yield Hevea clones.\textsuperscript{28}

According to studies carried out by LMC international in 2005, the total global demand for natural rubber is expected to increase from 21 million tonnes in 2005 to 36 million tonnes in 2035. India being the fourth largest natural rubber producer in the world has a potential role

to play in meeting the rising global demands as policy changes on choice of perennial crops.\textsuperscript{29}

Ashok Nagawala (2008) studied the performance of creating sinking fund in rubber plantation for replanting. He stated that the sinking fund will fund the replanting programme in perpetuity and thereby free the plantations from the fetters of cash flow problems. So continuous and uninterrupted commitment to a replanting programme is a sinequanon of the responsible management and the creation of sinking fund provides the means of achieving it.\textsuperscript{30}

**1.4.2 Studies Related to Consumption**

Kuryan (1996) in his book “Rubber Industry Companion” has stated that the cycle tyre and the tube industry consumes about 13 percent of the total polymer consumption. The natural rubber consumption in cycle tyre and tube industry is about 60.65 percent and the average growth rate is 9 percent per annum. Consumption during 92-93 was 86984 tonnes, in which natural rubber was 56413 tonnes. Synthetic rubber was 9893 tonnes and reclaimed rubber was 20678 tonnes. Consumption during 93-94 is estimated at 95600 tonnes and by 2000 A.D the consumption of reclaimed rubber was estimated at a minimum of 1,10,000 tonnes and a maximum of 1,28,000 tonnes.\textsuperscript{31}

\textsuperscript{29} Sivakumaran, S., “India Can Play a Major Role to Meet Rising Global Demand for”, Rubber Asia, November-December 2008, pp.59-61.
Desalphine, S.M., (2002) in his study observed that India is the fourth largest consumer of natural rubber next to USA, China and Japan. Among 5062 licenced rubber goods manufacturing units in the country, a vast majority are small scale units annually consuming less than 100 tonnes of natural rubber. About 62 percent of the total consumption of natural rubber in the country during 2000-01 was accounted for by forty eight big units individually consuming more than 1000 tonnes per annum. Another characteristic feature of Indian rubber consumption is the sector wise concentration, dominated by the automotive tyre manufacturing sector which accounts for as much as 45 percent of the total consumption in the country. Unlike the natural rubber production sector, which is characterized by high degree of regional concentration, the consumption sector is relatively more dispersed.32

Ajimon George (2002) in his 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 requirement.

The author then suggested that procurement of rubber through State Trading Corporation (STC) should also be revamped to stabilize the increase in rubber prices in the domestic market. The existing

marketing system should be revived to make it more efficient so as to make India’s natural rubber industry globally competitive to boost exports as marketing information system should be set up at the rubber board level to gather information about overseas market.³³

Thomas, J.K., (2004) in his study “Natural Rubber Sector in a Liberalized Regime” analysed the various problems faced by the natural rubber producing sector due to the policies of the government and also due to strategic measures adopted by the consuming sector. He suggested that though the present buoyancy in prices had helped in improving the sentiments of growers it is very essential that the price rise is sustained for another few more years so that the growers will at least be able to recoup the past losses.³⁴

Radhakrishnan, N., et al., (2008) conducted a study on national budget and tax concession of Indian rubber industry. They stated that the Central Government policy of allowing import of tyres for buses and trucks at 10 percent duty had paved way for large scale import during 2007-2008. Every tyre imported into India displaces natural rubber consumption. Therefore import of tyres in large quantity will adversely affect the consumption level and such on eventuality will jeopardize the interest of over a million small and marginal rubber growers.³⁵

1.4.3 Studies Related to Market and Market Structure

Having made a study of the marketing channels of natural rubber with special reference to co-operative marketing in Kerala, Kuriakose, K.K., (1995) stated that the formation of the rubber producers’ societies in each village for the daily collection of latex and scrap rubber, facilitates the full utilization of the production capacity of the processing factories run by the marketing societies.\[36\]

Mathew, K.J., (1998) studied the strategies for Indian rubber industry in his study on “Indian Rubber Industry: Strategies for Future in the Context of Asian Currency Crisis”. According to him the future priorities and strategies of Indian rubber sector shall be focused on the basis of the emerging issues confronting the production, manufacturing and export sector. His analysis suggests considerable recasting of the policy inputs in the back drop of growing market integration, liberalization of policies and procedural formalities and recent developments in the three major natural rubber producing countries.\[37\]

Mohan Kumar, S., (1999) in his study “Rubber Growers Need Proper Marketing Strategy” stated that the marketing system which had been followed for many years is totally inadequate and against the interest of both the growers and the consumers. So an appropriate


marketing strategy is urgently required to take some corrective measures to rejuvenate the natural rubber industry to regain its strength and vigour in the domestic market as well as to make entry into the world market.\textsuperscript{38}

Sundar, P.S., (2000) 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. The author has 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 researchers to focus on this aspect. 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.\textsuperscript{39}

Jeya Sankar, B., et al., (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 market that seem to exercise strategic influence on the nature of competition and pricing within the market. Awareness of the market situation and the extent of information regarding market system can

\textsuperscript{38} Mohan Kumar, S., “Rubber Growers Need Proper Marketing Strategy”, \textit{Rubber Asia}, September-October 1999, pp.55-56.

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 their study the deterministic optimum replacement model was used for deriving the optimum replacement cycles for natural rubber.40

Tony, A., (2000) evaluated the performance of world rubber industry. He felt that due to better economic performance and the worldwide trend, it will be a good opportunity for rubber market to grow faster than that in the previous periods. Whether there is another Asian crisis or not companies or industries need to gear up for global competition by boosting efficiency, quality and customer service.41

John, K.K., (2002) reviewed the impact of economic liberalization and globalization on the marketing of natural rubber in India. The study revealed that growers have no role in the price formation of natural rubber in India. Rubber price has been subjected to wide fluctuation whenever the government lifted controls and it was more or less steady when the control was imposed. He concluded that a long term rubber marketing strategy would be formulated based upon the

restructuring of rubber producers’ societies, development of export marketing and application of rubber for new uses.  

Viswanathan et al., (2003) in their study “Informal Labour Market and Structural Devolution” reports that the share of small holdings with an average size of less than 2 hectares in total area under rubber has increased from 53 percent in 1955-56 to more than 83 percent in 2001 with an average holding size of less than 0.5 hectares.  

Srinivasan, G., (2003) in his study “Plantation Sector Needs Structural Change” stated that rubber plantation sector comprising the farm and manufacturing segment should be prepared for a structural change in the 21st century. This means that productivity levels should be linked to the labour employed and marketing strategies should be linked to global markets instead of concentrating on local sales.  

An article in the Hindu Business Line 2003, titled “Rubber Market Regains Bullish Sentiments” highlighted that juxtaposition of the only loser of the day was latex which lost 50 paise to close to Rs.34.50 due to low demand. Tyre companies were reported to be buying from the domestic market even if they have imports in hands which showed that their stock position had come down considerably. The strong presence of

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covering group seemed to push up the prices to new heights. There were nominal purchase orders from the non-type sector and North Indian groups.45

Major factors affecting natural rubber industry has been studied by Sekhar, B.C., (2004). According to him market, the supply/demand balances, economic factors, environmental factors, assessment of innovation in the pipeline, speculative ideas of R&D efforts elastomer environment, pertinent global issues that impinge on the industry are the important factors affecting the natural rubber market.46

Udomjarumani (2008), in his article stated that the rubber market will certainly be able to enjoy a few more years of good price. In spite of repeated reports of an economic slowdown, soaring energy and commodity prices and run away inflation, the global economies are still growing. He further stated that natural rubber is a green and environment friendly product and should therefore receive better preferences by the rubber consumers as the world is getting more environment conscious. More natural rubber will be used as raw material to produce rubber based products than synthetic rubber.47

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Michael Coloman (2008) studied the impact of prices on rubber market. According to him the future rubber markets are closely linked to physical market via the delivery mechanism of the contracts and so form part of a nexus of price formation with prices in each market responding to others and at different times and different markets depending upon the particular driver of the price at that moment.\(^\text{48}\)

### 1.4.4 Studies Related to Export and Import

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 on export market. The rapid growth of production was sustained because of quick growing industrial sector, which was ready to consume all the domestically produced rubber whereas the major producers are exporting the bulk of their output.\(^\text{49}\)

CMIE monthly review of Indian Economy (2003) reveals that natural rubber exports during April-July 2003 dropped to 7174 tonnes as against 13280 tonnes during the corresponding period of 2002. This implies a hefty 46 percent 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 export.\(^\text{50}\)

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Mohan Kumar, S., (2007) in his study “How to Boost India’s Rubber Exports” stated that exporters in India viewed that the small margins offered by the foreign buyers, spot selling influenced by future trading and the recent appreciation of Indian rupee against US dollar have dampened their enthusiasm to export on a regular basis. So he suggested that competent and credible organization is required to pool the small volumes offered by the domestic growers and sell them to actual large scale users of rubber in overseas market which helps to boost India’s rubber export.\textsuperscript{51}

Sajan Peter (2008) in his article “Rubber Industry and its Bright Prospects” stated that the demand for rubber within and outside the country was steadily growing as the world economy is buoyant and the production is not going to match the demand. Half of the natural rubber produced is used by the automobile industry. A situation might soon arise where all the rubber produced in the country might be needed for India itself. However it was wise to ensure that at least 10 percent of the rubber was exported for tactical and exposure advantage.\textsuperscript{52}

Tiya (1995) in his study “Natural Rubber Market Set to Decline” reviewed the natural rubber market in India. The review was on the basis of the data of monthly prices of natural rubber from 1991 to 1995.

\textsuperscript{51} Mohan Kumar, S., “How to Boost India’s Rubber Export”, \textit{Rubber Asia}, July-August 2007, pp.61-63.
\textsuperscript{52} Sajan Peter, “Rubber Industry and its Bright Prospects”, \textit{The Hindu}, February 28, 2008.
The main conclusion of the review was imported natural rubber is going to be the main culprit in depressing the domestic market in 1995.\textsuperscript{53}

Mathew, K.J., (1999) in his article “Modernisation Best Way to Survive Crisis” started that promotion of products suited for the domestic and export markets with an inbuilt option for flexibility in restructuring the production process is necessary for surviving the present crisis in the natural rubber industry.\textsuperscript{54}

Tharian George and Joseph Joby (2002) in their study about Quantitative Restriction in Import stated that in 2001-2002, there has been apparently a prevailing uncertainty in the domestic market confounded by a surge in import consequent to the removal of quantitative restriction on the major form of natural rubber. Though the domestic natural rubber prices have been moving in tandem with world price since 1991-1992 mainly due to major policy shifts on external trade and removal of quantitative restriction on natural rubber is unprecedented as import had been subject to quantitative restriction from 1947 to March 31, 2001.\textsuperscript{55}

1.4.5 Studies Related to Price

Lakshmi, S., et al., (1996) in their study “The Trend and Pattern of Natural Rubber Price in India” examined the natural price movement during a period of 26 years from 1968-69 to 1994-95 by

dividing it into two spaces of 1968-69 to 1984-85 and 1985-86 to 1994-95 as the first and second phases respectively. The study disclosed the production of natural rubber as the most significant variable influencing the price of natural rubber in India.56

Sundar, P.S., (1998) in his article has revealed that growers 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.57

George, C.M., (1999) in his study “Natural Rubber Economy in the Dold Rums” stated that the drastic reduction in prices of rubber and unremunerative levels have shattered the economy of rubber plantation industry in the country. It is in the dold rums. The first and foremost strategy to sustain this industry is to give natural rubber industry on export orientation and ensure that the presence of Indian rubber is felt in the international market. He suggested that the central and state government should take steps for providing all the necessary financial and technical

support to all those who are interested in the export business to make the rubber plantation industry an economically viable and commercially feasible one.\textsuperscript{58}

Tan See Chen (1999) analysed the ways of risk management in natural rubber trade. He stated that the natural rubber industry uses various types of instruments to manage risks. These instruments include future contracts, forward contracts, swaps, options, contract and commodity loan. He further stated that no one can tell the future rubber price but one can easily look at the rubber futures contracts of Singapore Commodity Exchange (SICom) for the expected prices in future.\textsuperscript{59}

Tiyo (1999) in his article “Natural Rubber to Remain Remunerative Despite Peak Season Effect” examined the price fluctuation of natural rubber. He found that the natural rubber has been giving through a period of widely fluctuating market in the recent past. Drastic fluctuation in the prices mainly because of unseasonal rains disrupting tapping. However each dip in prices has been followed by a spectacular turn around which goes to pursue that natural rubber will continue to fetch attractive prices.\textsuperscript{60}


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{61}

Zant (2001) conducted a study in “Hedging Price Risks of Farmers by Commodity Boards”. His applied approach considers production and stockholding derives risk aversion and cost promoters from empirical observation and uses observed spot and future world market prices. Calculations shows that risk aversion of growers is one and a half to two times as high as that of local traders. Expected utility is substantially affected by risk in case of growers and slightly less in case of stockholdings.\textsuperscript{62}

Varkey, K.V., (2002) in his study has explained the price of natural rubber and market 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 2001-2002 not withstanding a marginal improvement in the market during the last quarter the prices continued to rule at low levels during the year. The

\textsuperscript{61} Tiyo, “Natural Rubber on the Revival Path”, Rubber Asia, May-June 2000, pp.84-85.

productivity remains stagnant due to low price by dominant small holding sector and adverse climatic conditions. So the production sector of rubber wanted to adopt short term yield enhancement measures.63

The author Hugh Peyman (2003) in his article “Why Rubber Prices May Double” has given suggestion for 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. The government of countries like Malaysia, Thailand and Indonesia promoted rubber, have switched over to oil palm.

No subsidized capital is available for rubber as in the past when the World Bank Government and other development agencies provided long term funding.

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 1980s. In Thailand and Indonesia, it would become a factor over the 30 years life of a new rubber investment.\textsuperscript{64}

Andrew Tan (2006) in his article “On Price Boom and Currency Appreciation”, stated that the non stop rise in the prices of natural rubber and the Malaysian currency’s growing appreciation against the US dollar are making ripples in the rubber industry. The rising demand that pushed natural rubber prices to record level is triggering fears that the global supplies will run short of the raw materials.\textsuperscript{65}

Datuk Peter Chin (2006) in his study on rubber price rightly points out that the rubber price should not go up too high or too low. It has to be at sustainable level and provide a reasonable base for producers. He suggested that IRCO (International Rubber Consortium Ltd) should find out the reason behind this fluctuation and provide with proper strategies or recommendation in order to counter this kind of situation.\textsuperscript{66}

Tiyo (2008) analysed the monthly price of RSS4 grade of natural rubber. He stated that rubber has become the highest paying plantation in India with its price hitting the all time high of Rs.135 per kg for the largely consumed grade RSS4. The current trends in supply and

demand suggest that the average price may cross Rs.100 in 2008 and average yield would be 2500 kg per hectare. There is only a remote possibility of rubber prices to fall in the near future as supply is poised to lag behind on ever rising demand and there is substantial depletion of stock in major consuming countries.67

The above said previous studies analysed the production, production technology, productivity, market, market structure, marketing strategy, export, import and price behaviour of natural rubber production. However reviews reveal that not much effort has been made to analyse cost and return, resource use efficiency, capital productivity, and price spread in rubber. The present study is therefore focused to fill the gap with this regard.

1.5 Objectives

1. To examine the growth rate in area, production and productivity of rubber in traditional rubber growing states in India.

2. To estimate cost and return structure of rubber cultivation for small holdings and estates.

3. To analyse the existing marketing channel and to evaluate the marketing cost, marketing margin, price spread and marketing efficiency of different channels.

4. To analyse the price fluctuations.

5. To identify the problems faced by the rubber grower's in the production and marketing of rubber.

1.6 Scope of the Study

In the present study the term rubber is used to denote natural rubber and it analyses the rubber cultivation in small holdings and estates in Kanyakumari District which produce natural rubber in the form of sheet rubbers. It does not include the other forms of natural rubber like latex, crepe rubber and synthetic rubber produced from petroleum based products is also excluded.

1.7 Limitation

Many of the small growers have no habit of maintaining systematic records. They have shown reluctance in providing reliable data on cost particulars. In some cases responses were provided extempore and the verification of the accuracy of the data was difficult. Moreover this is only a sample survey for a specific period of time. However sufficient care was taken to keenly observe all the aspects relating to production and marketing so as to make the analysis and interpretation meaningful and logical.

1.8 Chapter Scheme

The present study “Production and Marketing of Rubber in Kanyakumari District” is divided into seven chapters.
The first chapter entitled introduction, introduces the topic and traces the development of rubber trade. This chapter includes statement of the problem, review of the literature, objectives, scope, period of study, limitation and the scheme of work.

The second chapter describes the methodology which includes the choice of the study area, the sampling procedures, collection of data, methods and tools of analysis and the measurement of variables. Characteristics of the sample growers are also presented in this chapter.

The third chapter discusses the profile of the area chosen for the present study.

The fourth chapter deals with growth rate, magnitude of variability and trend value of area, production and productivity of rubber in the major rubber producing areas.

The fifth chapter entitled Cost and Return Analysis, analyses the cost of production, profitability, production function and capital productivity of rubber.

In the sixth chapter, marketing of rubber, the channel of distribution, price spread, price analysis and problems of marketing of rubber growers are discussed.

The seventh chapter emphasizes the relevance of the study and presents the findings. A few suggestions have been made for increasing productivity and improving the marketing strategy.