

Scenario of Rubber Production and Consumption in India

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Abstract: Economic development of most of the countries in the world depends, to a considerable extent, upon the development of their agriculture. In most of the South East Asian countries, more than 70 per cent of the population depends on agriculture. India is a country where agriculture directly shapes the daily lives and hopes of the vast majority of people. The agricultural sector in the country contributes nearly one-third of the gross domestic product and provides employment to about sixty five percent of the working population. Rubber is an important agricultural plantation in tropics. It is rapidly expanding into both climatically optimal and sub-optimal environments in almost all rubber growing countries across the world. The rubber growing regions in India can be classified under two major zones, traditional and non-traditional, on the basis of agro-climatic conditions. Kerala and the Kanyakumari district of Tamil Nadu together constitute the traditional rubber growing region in the country. The traditional region accounts for as much as 80 per cent of the total area and 93 per cent of the production of rubber in the country. Non-Traditional Regions are hinterlands of coastal Karnataka, Goa, Konkan Region of Maharashtra, hinterlands of coastal Andhra Pradesh and Orissa, the north-eastern states, Andaman and Nicobar Islands etc. The rubber plantation sector in India is dominated by small holdings (less than 2 hectares) which accounts for 92 per cent of the production and 89 per cent of the area of rubber in the country.

Keywords: Agriculture, Natural Rubber, Rubber Consumption, Rubber Production, and Rubber Scenario.

I. INTRODUCTION

Economic development of most of the countries in the world depends, to a considerable extent, upon the development of their agriculture. Agriculture refers to the art of raising plant life from the soil. It includes all such human efforts and are conducive to the quick and better growth of vegetable and animal products for the benefit of man. It is the most important of all primary human occupations and is carried out throughout the world except in Polar Regions. In most of the South East Asian countries, more than 70 per cent of the population depends on agriculture.

India is a country where agriculture directly shapes the daily lives and hopes of the vast majority of people. The agricultural sector in the country contributes nearly one-third of the gross domestic product and provides employment to about sixty five percent of the working population. In India, agriculture's role is also prominent in addressing several key development issues like poverty, employment, women in development, rural non-agricultural growth and environmental concerns. Booming agricultural growth is expected to promote growth in other sectors of the economy. Traditional economists assigned passive and supportive role to agriculture and considered industries to be the leading sector in economic development. In recent years, an enhanced appreciation is witnessed among researchers and policymakers of the multifaceted role that agriculture plays in the process of economic development. Agricultural and rural development came to be seen as the sine qua non of national development. In the initial stages of growth of many of the developed countries, agriculture was a major source of exports and

the resulting command over the resources possessed by these developed countries played a strategic role in facilitating modern economic growth.

II. RUBBER GROWING REGIONS IN INDIA

Rubber is an important agricultural plantation in tropics. It is rapidly expanding into both climatically optimal and sub-optimal environments in almost all rubber growing countries across the world. Large areas of natural forests, degraded forests and other crops have been cleared to grow rubber plantations, which is emerging as the most wide spread small holder tree crops. Attracted by the economic benefits and incentives to convert traditional farming areas into high value commercial crops many farmers switched to rubber cultivation. The traditional land use system evolved over a long period of time produced a unique landscape mosaic combining small agricultural plots and an array of locally adopted crops. These practices, to a great extent, were environmentally sustainable protecting the region's rich biodiversity and soil and water resources.

The rubber growing regions in India can be classified under two major zones, traditional and non-traditional, on the basis of agro-climatic conditions. Kerala and the Kanyakumari district of Tamil Nadu together constitute the traditional rubber growing region in the country. The traditional region accounts for as much as 80 per cent of the total area and 93 per cent of the production of rubber in the country. The state of Kerala is the largest producer of rubber in India with an area of 5,39,565 hectares (77%) and constitutes 90 per cent of the production. The leading producer of rubber in Kerala is the Kottayam district which accounts for 21 per cent of the area under rubber in Kerala. Non-Traditional Regions are hinterlands of coastal Karnataka, Goa, Konkan Region of Maharashtra, hinterlands of coastal Andhra Pradesh and Orissa, the north-eastern states, Andaman and Nicobar Islands etc. The rubber plantation sector in India is dominated by small holdings (less than 2 hectares) which accounts for 92 per cent of the production and 89 per cent of the area of rubber in the country.

III. NEED OF THE STUDY

Agriculture forms the main stay of the people in India. It is the very back bone of her economic system. A variety of agricultural crops are cultivated in different parts of India depending upon the soil and climatic conditions. The crops of the country may be classified into two, viz., food crops and cash crops or commercial crops. Among commercial crops, rubber plays a vital role both in area and production. Natural rubber, 'nature's most versatile vegetable product', is a unique industrial raw material found in the latex extracted from the tree *Hevea brasiliensis*. It has come to stay as an indispensable ingredient of civilized living.

One of the major factors driving transition to more intensive agriculture, mono-cropping and crop replacement has been population growth, including internal migration. Besides, there are infrastructural development like expansion of road network and markets making it easier for farmers to purchase agricultural inputs and to sell their crops. Government policy and incentives have also given a shift towards rubber plantation. The ability to store and transport rubber easily as well as over all return on investment make rubber superior to other cash crops. Hence, the scenario of rubber production and consumption is attempted.

IV. REVIEW OF LITERATURE

Shahul Hameedu (2014) in an article stated that India is one of the largest producers and consumers of natural rubber. Natural rubber is used extensively in many applications and products. Natural rubber was introduced by Britishers in 1873 at the Botanical Gardens, Calcutta. Small rubber growers represent the major chunk of farmers in Kerala economy. Chaudhuri, et. al. (2013) in their article mentioned that a study on earthworm community under rubber plantation in Tripura indicated that density, biomass and dominance of earthworms increased, while species diversity, species richness and species evenness of earthworm community decreased with increase in age of rubber plantation. Anuja, A.R., Amit Kar, V.C. Mathur and G.K. Jha (2012) in their study pointed out that the Indian rubber plantation sector is dominated by small holdings, which account for almost 93 per cent of the total rubber production in the country. The study revealed that the Rubber Producers' Societies (RPSs) members

have a lower cost of production and better price realization for their product compared to non-members. Group processing and community smoke house facility help in production of good quality rubber sheets. Key services provided by RPSs have been identified using factor analysis technique under five major categories. According to the survey by Satheesh, P.R. and J. Jacob (2011), field reports indicated that rubber plantations are affected by landslides. Warming of climate and change in rainfall may impact production of natural rubber in Kerala as indicated by experimental studies. Chandry, B., K.T. George and S. Raj (2010) indicated that in the pre-liberalization period (1976-1990) higher growth rate in area, production and productivity of rubber was recorded than that in post-liberalization period (1991-2007) and is accompanied with comparable instability. The factors that have explicitly contributed to the sustained growth of the rubber sector are comparatively stable and remunerative price and a higher net farm income vis-à-vis other crops in Kerala. Ziegler, A.D., M.F. Jefferson and J. Xu (2009) reported the case of conversion of natural forests into rubber plantation and associated environmental issues in the mainland South East Asia, where rubber plantation covers five lakh hectares at present and by 2050 it may be tripled.

V. OBJECTIVE OF THE STUDY

The main objectives of the study are –

1. To study the production and consumption scenario of rubber throughout the world.
2. To analyze the annual growth trend of world rubber production.
3. To analyze the Indian natural rubber production and consumption trend.

VI. METHODOLOGY

This article is mainly based on secondary data. Data have been gathered from the Kottayam Rubber Board, journals and websites. The data relating to production and consumption of natural rubber in the world and in India have been collected and attempted in this article.

VII. ANALYSIS AND INTERPRETATION

Growth percentage and annual growth rate have been computed for analysis. Further compound growth rate is also calculated for the purpose of analysis.

A. World Rubber Production Scenario

India is the sixth largest producer of natural rubber in 2015 with a share of 4.7 per cent of world production. According to the International Study Rubber Group (ISRG), the world natural rubber production increased by 1.6 per cent to 12.314 million tonnes in 2015, compared to 12.115 million tonnes in 2014. During 2015, the output in main producing countries viz; Thailand, Indonesia, Malaysia and Vietnam increased, whereas production in China and India decreased during 2015. Global SR production during 2015 was 14.460 million tonnes as against 14.179 million tonnes in 2014 registering an increase of 2.0 per cent. The Table I exhibits the country-wise production of natural rubber.

TABLE I Country-wise Production of Natural Rubber

Country	Production ('000 tonnes)		Percentage of Growth
	2014	2015	
Thailand	4324.0	4473.3	3.5
Indonesia	3153.2	3175.4	0.7
Vietnam	953.7	1017.0	6.6
China	840.1	794.0	-5.5
Malaysia	668.1	721.5	8.0
India	704.5	575	-18.4
Others	1471.4	1557.8	5.9
World Total	12115	12314	1.6

Source: Monthly Rubber Statistical News, Statistics and Planning Department, Rubber Board, Kottayam, Vol.74, No. 12, May 2016, p.4.

B. World Rubber Consumption Scenario

India ranks second with regard to natural rubber consumption in 2015 with a share of 8.2 per cent of world consumption. Global natural rubber consumption increased to 12.167 million tonnes in 2015 registering a growth of only 0.3 per cent compared to 12.137 million tonnes in 2014. Consumption of natural rubber in main consuming countries decelerated during 2015. Consumption of natural rubber in China, India and Japan decreased by 1.7 per cent, 2.1 per cent and 2.5 per cent respectively during 2015 on year. Natural rubber consumption in USA showed a small positive growth of 0.5 per cent during 2015 on year. Global synthetic rubber consumption increased to 14.564 million tonnes during 2015 from 14.267 million tonnes during 2014, recording a growth of 2.1 per cent. World natural rubber and synthetic rubber consumption ratio during 2015 was 45.5: 54.5 and it was 46: 54 during 2014. According to IRSG, the world supply-demand balance of natural rubber showed a surplus of 147 thousand tonnes during 2015. The following Table II exhibits the country-wise consumption of natural rubber.

TABLE II Country-wise Consumption of Natural Rubber

Country	Consumption ('000 tonnes)		% Growth
	2014	2015	
China	4760	4680	-1.7
India	1014.8	993.3	-2.1
U.S.A.	932.1	936.5	0.5
Japan	709	691	-2.5
Malaysia	447.3	474.7	6.1
Indonesia	539.6	579.4	7.4
Thailand	541	600.6	11.0
Republic of Korea	402.1	387.7	-3.6
Others	2791.1	2823.8	1.2
World Total	12137	12167	0.3

Source: Monthly Rubber Statistical News, Statistics and Planning Department, Rubber Board, Kottayam, Vol.74, No. 12, May 2016, p.4.

C. World Rubber Production

There are many rubber producing countries in the world. According to the International Study Rubber Group (ISRG), Thailand, Indonesia, Vietnam, China, Malaysia, and India are the world's largest producers of natural rubber (NR). The following Table III shows the world rubber production from 2000 to 2016.

TABLE III World Rubber Production from 2000 to 2016

Year	Rubber Production ('000 tonnes)			AGR %
	Natural Rubber	Synthetic Rubber	Total	
2000	6,811	10,870	17,681	
2001	6,913	10,483	17,396	-1.61
2002	7,317	10,906	18,223	4.75
2003	7,986	11,414	19,400	6.46
2004	8,726	11,979	20,705	6.73
2005	8,921	12,025	20,946	1.16
2006	9,850	12,700	22,550	7.66
2007	10,057	12,829	22,886	1.49
2008	10,098	12,285	22,383	-2.20
2009	9,723	11,488	21,210	-5.24
2010	10,403	13,277	23,680	11.65
2011	11,239	14,091	25,330	6.97
2012	11,658	14,042	25,700	1.46
2013	12,281	14,199	26,480	3.04
2014	12,115	14,179	26,294	-0.70
2015	12,314	14,460	26,774	1.83
2016 (January-March)	2,921	3,635	6,556	
CGR (2000 to 2015)	4.03	1.92	2.80	

Source: Natural Rubber Statistics 2016, Malaysia Rubber Board, Lembaga Getah, Malaysia, p.1.

It is observed from the Table III that the world's natural rubber production during the year 2000 was 6,811 tonnes. It jumped to 10,403 tonnes in 2010. The production has increased to 12,314 tonnes during the year 2015. Regarding the synthetic rubber production, the production was 10,870 tonnes in 2000; 13,277 tonnes in 2010 and 14,460 tonnes in 2015. Overall, the total world's rubber production has been increased to 26,774 tonnes in 2015 from 17,681 tonnes in 2000. The compound growth rate (CGR) for the period 2000 to 2015 works out to 2.80 per cent for overall world's rubber production. It seems that the annual growth rate (AGR) of total rubber production is high in the year 2010, i.e. 11.65 per cent when compared to other years.

D. Indian Natural Rubber Production and Consumption Trend

The trend of Indian natural rubber production and consumption from 2004-05 to 2015-16 is shown in the following Table IV.

TABLE IV Annual Trend in Production and Consumption of Natural Rubber in India from 2004-05 to 2015-16

Year	Production (tonne)	AGR %	Consumption (tonne)	AGR %
2004-05	749,665	-	755,405	-
2005-06	802,625	7.06	801,110	6.05
2006-07	852,895	6.26	820,305	2.40
2007-08	825,345	-3.23	861,455	5.02
2008-09	864,500	4.74	871,720	1.19
2009-10	831,400	-3.83	930,565	6.75
2010-11	861,950	3.67	947,715	1.84
2011-12	903,700	4.84	964,415	1.76
2012-13	913,700	1.11	972,705	0.86
2013-14	774,000	-15.29	981,520	0.91
2014-15	645,000	-16.67	1,020,910	4.01
2015-16 (Provisional)	562,000	-12.87	994,415	-2.60
CGR %	-2.84		2.79	

Source: Compiled from various Issues of Indian Rubber Statistics, Kottayam.

Table IV depicts that there is up and down trend in the production of natural rubber in India from 2004-05 to 2015-16 whereas the consumption shows a growth trend till 2014-15. There is no steady growth or decline over a period of 11 years. The annual growth rate (AGR) of natural rubber production is the highest during the year 2008-09 and the annual growth rate for consumption is high in 2009-10 year. The CGR for production shows a negative rate of 2.84 per cent whereas the CGR for consumption was positive and it is worked out to 2.79 per cent.

E. Indian Natural Rubber Import and Export Trend

India is importing and exporting rubber. The trend in import and export of natural rubber in India from 2004-05 to 2015-16 is depicted in the following Table V.

TABLE V Annual Trend in Import and Export of Natural Rubber in India from 2004-05 to 2015-16

Year	Import (tonne)	AGR %	Export (tonne)	AGR %
2004-05	72,835	-	46,150	-
2005-06	45,285	-37.83	73,830	59.98
2006-07	89,799	98.30	56,545	-23.41
2007-08	86,394	-3.79	60,353	6.73
2008-09	77,762	-9.99	46,926	-22.25
2009-10	177,130	127.78	25,090	-46.53
2010-11	190,692	7.66	29,851	18.98
2011-12	214,433	12.45	27,145	-9.07
2012-13	262,753	22.53	30,594	12.71
2013-14	360,263	37.11	5,398	-82.36
2014-15	442,130	22.72	1,002	-81.44
2015-16 (Provisional)	458,374	3.67	865	-13.67
CGR %	20.20		-32.81	

Source: Compiled from various Issues of Indian Rubber Statistics, Kottayam.

It is evident from the Table V that there is fluctuating trend in import of natural rubber in India from 2004-05 to 2008-09. Thereafter from 2009-10 it shows an increasing trend. But, in the case of export there is no steady increase or decrease. However, the export is heavily decreased from the year 2013-14 and it is too low in 2015-16. The computed CGR for import is 20.20 per cent. But the export shows a negative CGR of 32.81 per cent.

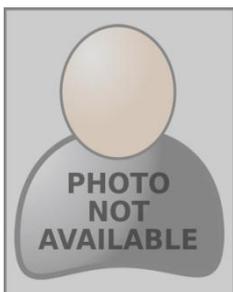
VIII. FINDINGS

It is inferred from the study that India is the sixth largest producer of natural rubber in 2015 with a share of 4.7 per cent of world production and it is the second largest consumer in the world. The world natural rubber production is increased by 1.6 per cent during 2015. The total world's rubber production has been increased to 26,774 tonnes in 2015 from 17,681 tonnes in 200 and the compound growth rate (CGR) for the period 2000 to 2015 works out to 2.80 per cent for overall world's rubber production. The annual growth rate of natural rubber production is the highest during the year 2008-09 and the annual growth rate for consumption is high in 2009-10 year. Regarding import and export, the computed CGR for import is 20.20 per cent. But the export shows a negative CGR of 32.81 per cent.

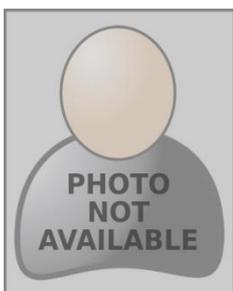
References

1. Anuja, A.R., Amit Kar, V.C. Mathur and G.K. Jha, "Input Delivery, Processing and Marketing of Natural Rubber: The Role of Producers' Cooperatives in Kerala", *Agricultural Economics Research Review*, Vol. 25 (Conference Number), 2012, pp.379-386.
2. Chandy, B., K.T. George and S. Raj (2010), *Trends in Farm Income and Wages in the Era of Market Uncertainty: An Exploratory Analysis of Natural Rubber Sector in India*, NRPPD Discussion Paper 5, September 2010.
3. Chaudhuri, P.S., S. Bhattacharjee, A. Dey, S. Chatopadhyay, and D. Bhattacharya, "Impact of age of rubber (*Hevea brasiliensis*) plantation on earthworm communities of West Tripura (India)", *Journal of Environmental Biology*, Vol. 34, 2013, pp. 59-65.
4. Sathesh, P.R. and J. Jacob, "Impact of climate warming on natural rubber productivity in different agro-climatic regions of India", *Natural Rubber Research*, Vol. 24, 2011, pp.1-9.
5. Shahul Hameedu, "Role of Rubber Producers Societies in Kerala", *international Journal of Current Research and Academic Review*, Vol.2, No.2, February 2014, pp.159-166.
6. Ziegler, A.D., M.F. Jefferson and J. Xu, "The Rubber Juggernaut", *Science*, Vol. 324, No. 5930, pp. 1024-1025.

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