



RUBBER INDUSTRY

An Overview

Automotive Industry



Automotive Industry, globally, as well in India, is one of the key sectors of the economy. The Indian Automotive Industry comprising of the automobile and the auto component sectors has recorded considerable growth following the delicensing and opening up of the sector to FDI in 1993. The unbundling of this industry from restrictive environment has, on the one hand, helped in restructuring, absorbing new technologies, align itself to the global developments and realise its potential with significant increase in industry's contribution to overall industrial growth in the country.

Due to its deep forward and backward linkages with several key segments of the economy, automotive industry has a strong multiplier effect and acts as one of the drivers of economic growth. The well-developed Indian automotive industry produces a wide variety of vehicles: passenger cars, light, medium and heavy commercial vehicles, multi-utility vehicles such as jeeps, scooters, motor-cycles, mopeds, three wheelers, tractors and other agricultural equipments etc.

It is envisaged that the opportunity landscape for the Indian auto industry would encompass manufacture of vehicles and components for domestic sales and for exports. India would continue to enjoy its eminent position of being the largest tractor and three wheeler manufacturer in the world and the world's second largest two wheeler manufacturer and would emerge as the world's eighth/ninth largest car producer and would retain 4th

largest position in world truck manufacturing sector. Further, by the end of decade, the automotive sector is likely to double its contribution to the country's GDP from current levels of 5% to 10%. It is estimated that the automotive sector requires an incremental investment of Rs.11,000 -12,000 crores per annum to realise its full growth potential.



Auto component Industry

Indian Auto Component industry is quite comprehensive with around 500 firms in the

organised sector producing practically all parts and more than 10,000 firms in small unorganised sector. The auto component sector has been one of the fastest growing segments of auto industry. The industry, over the years, developed the capability of manufacturing all components required to manufacture vehicles, which is evident from the high levels of indigenisation achieved in the vehicle industry as well as the components developed for the completely Indian made vehicles.

Over the last few years the Indian Auto Component Industry has created a robust capacity base and world's all major manufacturers have set up their manufacturing unit in the country. Indian auto component manufacturing, currently constrained by lack of large capacities, is slowly but steadily working on expanding capacities and automation levels. The Indian auto component industry is targeting for a bigger share of the export market and is in the process of ramping up its



manufacturing capabilities to meet the capacity and quality requirements. The auto component industry in India is expected to grow fourfold from the current levels of US\$26 billion to over US\$ 110 billion by the year 2020 and it would require an average investment of US\$ 3.5 billion per annum.



Indian Rubber Industry

Since the establishment of the first rubber goods manufacturing unit in 1921 at Kolkata, the Indian rubber industry has maintained its forward march, particularly during the post-independence period. It has achieved overall expansion through increase in the range of products manufactured, in the number of units, in technological sophistication and self-sufficiency. Besides catering to the entire domestic demand, the industry is breaking new barriers on the export front. It projects tremendous growth in the 21st century. The factors responsible for this phenomenal expansion are vast internal market, rapid industrialisation, on-going economic reforms, and improved living standards of the masses.

India is the fourth largest producer of natural rubber and second largest consumer of natural rubber; and fifth largest consumer of natural rubber and synthetic rubber together in the world. India is the world's largest manufacturer of reclaim rubber. India is first in productivity of natural rubber. The per capita consumption of rubber in India is only 990 gms. against 9 to 16 kilos in Japan, USA and Europe. This envisages tremendous growth prospects of the industry in the years to come.

With around 6000 units comprising 30 large scale, 300 medium scale and around 5670 SSI / tiny sector units, manufacturing 35000 rubber products, employing directly 400 hundred thousand people, including around 22000 technically qualified support personnel. The Indian Rubber Industry plays a core sector role in the Indian national economy. The industry has certain distinct advantages like - an extensive plantation sector; indigenous availability of the basic raw materials, like natural rubber, synthetic rubber, reclaim rubber, carbon black, rubber chemicals, fatty acids, rayon, and nylon yarn and so on; large domestic market; availability of cheap labour; training facility in various technical institutes; improved living standards of the masses. All these ground support help the Indian rubber industry to poise for an all round development and a quantum jump in production and technology up gradation in near future.

The wide range of rubber products manufactured by the Indian rubber industry comprises all types of heavy duty earth moving tyres, auto tyres, tubes, automobile parts, footwear, beltings, hoses, cycle tyres and tubes, cables and wires, camelback, battery boxes, latex products, pharmaceutical goods, besides moulded and extruded goods for mass consumption. The products manufactured also cover hi-tech industrial items. The important areas which the industry caters to include all the three wings of defence, civil, aviation, aeronautics, railways, agriculture, transport as also textiles, engineering industries, pharmaceuticals, mines, steel plants, ports, family planning programmes, hospitals, sports, i.e. practically to every conceivable field.

India rubber industry is basically divided into two sectors - tyre and non-tyre. The tyre sector produces all types of auto tyres, conventional as well as radial tyres and exports to advanced countries like USA, EU etc.



The non-tyre sector comprises the large, medium scale, small scale and tiny units. It produces high technology and sophisticated industrial products. The small-scale sector accounts for over 50% of production of rubber goods in the non-tyre sector. The Indian rubber products have been exported to around 190 countries in the world including USA, Russia, UK, Bangladesh, Italy, Nepal, Germany, Oman, France, Saudi Arabia, UAE, African countries etc. and exports have gone up manifold.

The yardstick to measure the growth rate of the industry is rubber consumption. Besides yearly consumption of rubbers - natural, synthetic and reclaim, there are other raw materials like carbon black, rubber chemicals, tyre cords, plasticizers, process oils, zinc oxide, stearic acid, titanium dioxide, and other miscellaneous chemicals which are mostly available indigenously. This apart, almost all types of major rubber machinery are being manufactured in the country.



Natural Rubber

Natural Rubber is produced from the crop harvested from rubber plantations both in the latex form as well as in the field coagulum form. Latex is a milky white dispersion of rubber in water and field coagulum is the auto coagulated latex on the tapping panel (tree lace) and the collection cups (shell scrap and cuplumps). Both the latex and field coagulum harvested from rubber plantations being highly susceptible to degradation by contamination on keeping, have to be processed into marketable forms that will allow safe storage and marketing. The most important forms in which natural rubber is processed and marketed are Sheets (RSS1 to RSS5), Crepes (Pale Latex Crepes; Estae Brown Crepes; Thin Brown Crepes; Thick Blanket Crepes; Flat Bark Crepes; Pure Smoked Blanket

crepe), Block rubber, Technically specified (SMR, SIR, STR, ISNR), Preserved latex concentrates. Among these forms/types, the first three are in the dry form and almost 90% of the total natural rubber produced in the world is at present marketed in these 3 forms. Sheet rubber and block rubber are the dominant types of dry natural rubber available in the world market and this dominance reduced the number of grades used in any volume to the 10-15 within these types.

In 1909, a team headed by Fritz Hofmann, working at the Bayer laboratory in Elberfeld, Germany, succeeded in polymerizing methyl isoprene, thereby creating the first synthetic rubber. The first rubber polymer synthesized from butadiene was created by Sergei Vasiljevich Lebedev in 1910. Practical synthetic rubber grew out of studies published in 1930 written independently by American Wallace Carothers, Russian scientist Lebedev, and the German scientist Hermann Staudinger. These studies led in 1931 to one of the first successful synthetic rubbers, known as neoprene, which was developed at DuPont under the direction of E.K. Bolton. Neoprene is highly resistant to heat and chemicals such as oil and gasoline, and is used in fuel hoses and as an insulating material in machinery.

Synthetic Rubber



In 1935, German chemists synthesized the first of a series of synthetic rubbers known as Buna rubbers. These were copolymers, meaning the polymers were made up from two monomers in alternating sequence. One such Buna rubber, known as GRS (Government Rubber Styrene), is a copolymer of butadiene and styrene, was the basis for U.S.

ISO Code	Technical Name- Common Names
BIIR	Bromo Isobutylene Isoprene - Bromobutyl
BR	Polybutadiene
CIIR	Chloro Isobutylene Isoprene - Chlorobutyl, Butyl
CR	Polychloroprene - Chloroprene, Neoprene
CSM	Chlorosulphonated Polyethylene - Hypalon
ECO	Epichlorohydrin - ECO, Epichlorohydrin, Epichlore, Epichloridrine
EP	Ethylene Propylene
EPDM	Ethylene Propylene Diene Monomer - EPDM, Nordel
FKM	Fluorinated Hydrocarbon - Viton, Kalrez, Fluorel
FVQM	Fluoro Silicone - FVQM
HNBR	Hydrogenated Nitrile Butadiene - HNBR
IR	Polyisoprene - (Synthetic) Natural Rubber
IIR	Isobutylene Isoprene Butyl - Butyl
MVQ	Methyl Vinyl Silicone - Silicone Rubber
NBR	Acrylonitrile Butadiene - NBR, Nitrile, Perbunan, Buna-N
PU	Polyurethane - PU, Polyurethane
SBR	Styrene Butadiene - SBR, Buna-S, GRS
SI	Polysiloxane - Silicone Rubber
XNBR	Acrylonitrile Butadiene Carboxy Monomer - XNBR, Carboxylated Nitrile

Synthetic rubber is a by-product obtained from petroleum industry. Important sources are styrene, acetylene and butadiene. Two of the most important types of synthetic rubbers are butyl rubber and styrene-butadiene rubber.



Carbon Black

Generally carbon black used in tyres and rubber product is produced by a process called furnace. Tyres and rubber products represent the major end-use applications, accounting for about 90% of global carbon black market. The growth of carbon black is closely tied to the automotive industry and the production of tyres.

Consumption of carbon black in tyres is expected to grow at a compounded annual rate of 3.6%. The virgin carbon black industry is likely to come under increased pressure from governments and environmental groups, as this product is a significant greenhouse gas emitter. Demand for carbon black in paints, coatings and inks are expected to show upward trend.

Developing economies in Asia Pacific, Middle East/Africa and Latin America will emerge as the largest and the most lucrative markets in the upcoming years. Increasing level of disposable personal income in these regions is expected to generate healthy demand for automobiles and other consumer applications, translating into higher demand. Asia-Pacific represents the largest market for carbon black in the world, with a strong hold of 37% share.

Silica and other silanes are expected to offer a serious challenge to carbon black in the future and are fast emerging as major substitutes to carbon black due to better performance and environmental friendly nature. These products reduce rolling resistance in tyres at the same time improve fuel efficiency, hence they are increasingly finding usage in tyres market.

Steady demand from key end-user industries continues to provide sustainable business options for active carbon black manufacturers. Growth in automobile demand and the subsequent increase in tyre manufacturing provide reasonable scope for increase in volume consumption. With the global automobile industry moving east to China, India and Eastern Europe, the tyre industry has followed, and with it the carbon black producers. The large markets of China and India will post particularly impressive gains due to a continuing rapid expansion in their respective motor vehicle and tyre industries that will be driven by robust economic growth in both nations.

There is a potential for much higher growth for whole spectrum of rubber industry in the domestic market due to the fact that the current car penetration level in India is just 7 cars per thousand. The tyre industry accounts for about 65% of carbon black demand in India followed by 15% in rubber products and 20% is utilized by ink, printing and other speciality chemicals etc.



THE RUBBER BOARD

The Indian Rubber Board was constituted under the Rubber (Production and Marketing) Act, 1947. This act was passed on the recommendation of an adhoc committee appointed by the Government of India in 1945 and it came into force on 19 April 1947. The Rubber Production and Marketing (Amendment) Act of 1954 made certain changes in the constitution of the Board and amended its name as "The Rubber Board". This act came into force on 1st August 1955. The Rubber Act was further amended by the Rubber Amendment Act 1960 which made certain alterations in the rate and procedure of collection of cess on rubber. It was again amended by the Rubber (Amendment) Act 1982 to enable the Central Government to appoint a part-time Chairman/whole time Chairman for the Board and an Executive Director on whole time basis (if considered necessary by the Central Government) to exercise such powers and perform such duties as may be prescribed or delegated to him by the chairman. This Act came into force on 23rd October 1982.

The Chairman who is the administrative head of the Board, exercises control over all the nine departments. Viz. Administration, Rubber Production, Research, Rubber Processing & Product Development, Statistics & Planning, Finance & Accounts, Training, Market Promotion and Licensing & Excise duty. Publicity & Public Relations, Planning, Internal Audit & Vigilance Divisions function directly under the Chairman.

The functions of the Board as defined under the Act are:

1. **To promote by such measures as it thinks fit the development of the rubber industry.**
2. **Without prejudice to the generality of the foregoing provision the measures referred to therein may provide for:**
 - a) Undertaking, assisting or encouraging scientific, technological or economic research.
 - b) Training students in improved methods of planting, cultivation, manuring and spraying.
 - c) The supply of technical advice to rubber growers.
 - d) Improving the marketing of rubber.
 - e) The collection of statistics from owners of estates, dealers and manufacturers.
 - f) Securing better working conditions and the provision and improvement of amenities and incentives to workers.
 - g) Carrying out any other duties which may be vested with the Board as per rules made under this Act.
3. **It shall also be the duty of the Board:**
 - a) To advise the Central Government on all matters relating to the development of the rubber industry, including the import and export of rubber.
 - b) To advise the Central Government with regard to participation in any international conference or scheme relating to rubber.
 - c) To submit to the Central Government and such other authorities as may be prescribed, half yearly reports on its activities and the working of this act, and
 - d) To prepare and furnish such other reports relating to the rubber industry as may be required by the Central Government from time to time.

CAPEXIL

The 28th March 1958 saw the emergence of an organization with a mammoth task ahead. That day, Capexil (Formerly, Chemicals & Allied Products Export Promotion Council), started off on the mission to further the cause of Indian exports of chemical based and allied products.



The prime objective of Capexil is to offer value added services to its member exporters and to promote their products in the international markets. Capexil has always lent its creative resources for export promotion strategies. These strategies include market research, participation in trade fairs and buyers seller meets, procurement of databases and trade information, publicity drives etc.

CAPEXIL acts as 'eyes & ears' of the Government in matters of export of the concerned industries and thus, contributes to the formulation of national export policies.



Performance of Indian Rubber Industry 2016-17

The global economic slowdown had affected the Indian economy, particularly the manufacturing sector. During 2016-17 period, Indian economy grew by 7.1%, as against 7.6% in the previous fiscal. The growth of manufacturing sector was fairly aligned with the overall growth of industry and as a dominant sector; it chartered the growth of overall industry. India's manufacturing sector output in the fourth quarter of 2016-17 slowed to 5.3% versus 12.7% in the same period of 2015-16.

The Automotive production data for 2016-17 shows an uptrend in production growth at 5.41% over previous year. The industry produced 2,53,16,044 vehicles against 2,40,16,599 vehicles produced in 2015-16. The growth continued on account of growth in two wheelers production. While auto sales during 2016-17 grew by 9.23% and over all auto export declined by 4.50%.

Indian tyre industry is an integral part of the auto sector and its fortunes are interdependent on those of the automotive sector. With the ongoing growth of the automotive sector, the tyre industry too grew in the current fiscal.

The consumption of natural rubber in tyre sector grew at 6.6%, while in non-tyre sector growth was at 1.8%.

World Rubber Scenario

According to the International Rubber Study Group (IRSG), the world natural rubber production increased by 1.1% to 12.40 million tonnes in 2016, compared to 12.27 million tonnes in 2015. Global natural rubber consumption increased by 3.8% to 12.60 million tonnes in 2016.

India slipped to 6th position in Natural Rubber production in 2016.

(In '000 tonnes)			
Country	2016	2015	Rank
Thailand	4469.0	4473.3	1
Indonesia	3208.1	3145.4	2
Vietnam	1032.1	1012.7	3
China	774.0	794.0	4
Malaysia	673.5	721.5	5
India	624.0	575.0	6

Global synthetic rubber consumption in 2016 registered a growth of 2% to 14.94 million tonnes, compared to 14.64 million tonnes in 2015. World NR and SR consumption ratio during 2016 was 46:54.

Indian Scenario

Natural Rubber Production

The natural rubber production in India increased during 2016-17 by 22.95% to 691,000 tonnes compared to 562,000 tonnes during 2015-16. The productivity during 2016-17 increased to 1553 kg/ha from 1437 kg/ha during 2015-16. The factors attributed to growth in production were favourable prices, low frequency tapping, thereby reducing cost of production and also harvesting untapped areas.

Synthetic Rubber Production

The synthetic rubber production in India increased 11.5% to 222,744 tonnes during 2016-17 compared to 199,845 tonnes during 2015-16.

Natural rubber Consumption

The consumption of natural rubber in 2016-17 increased by 5% to 10,44,075 tonnes compared to 994,415 tonnes during 2015-16.

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Consumption of Natural Rubber

(Qty in Tonnes)	2016-17	2015-16	Gr%
Tyres & Tubes	707335	663495	6.6
General Goods	336740	330920	1.8
Total NR	1044075	994415	5.0

Synthetic rubber Consumption

The consumption of synthetic rubber in 2016-17 was 598,580 tonnes with a growth of 8.2% as against 553,370 tonnes during 2015-16.

Consumption of Synthetic Rubber

(Qty in Tonnes)	2016-17	2015-16	Gr%
Tyres & Tubes	417728	377090	10.8
General Goods	180852	176280	2.6
Total SR	598580	553370	8.2

Import & Export of NR

India has imported 426,434 tonnes of natural rubber during 2016-17 against the import of 458,374 tonnes during 2015-16. The quantity imported through the open channel with payment of customs duty at the prevailing rate, constituted around 77% of total imports, due to low prices in the international market, before November 2016.

Natural rubber exports increased to 20,920 tonnes in 2016-17, compared to 865 tonnes in 2015-16. Exporters utilised the advantage of price difference in domestic and international prices.

Import of synthetic rubber by the user industry during 2016-17 increased to 379,791 tonnes compared to 351,301 tonnes during 2015-16.

The stock of natural rubber as on 31st March 2017 was at 264,000 tonnes,

while stock of synthetic rubber was at 65,050 tonnes.

Price of Natural Rubber

During 2016-17, natural rubber prices in the domestic and international markets have been ruling low. Concerns about domestic availability of natural rubber against the backdrop of downward trend in prices, the domestic market sharply fell from ₹.143 a kg at as on 25th April 2016 to a low of ₹.116 a kg on 7th November 2016 and finally closed at ₹.147 a kg at the end of financial year, below the international price of ₹.151.55 a kg..

The average international price for RSS-3 grade was ₹.131.78 a kg, while average domestic price for RSS-4 was ₹.135.49 a kg for the year 2016-17.

Forecast

According to Rubber Board estimate, the production of natural rubber for the year 2017-18 is projected at 8 lakh tonnes with a growth rate of 16% and the projected consumption for the year 2017-18 is 10.70 lakh tonnes with a growth of 2.5%.

Auto Sector



Indian automotive industry is the engine of the Make in India programme, as it is amongst the foremost drivers of the manufacturing sector. Over the next decade, Indian auto sector is likely to contribute in excess of 12% of country's GDP and comprise more than 40% of its manufacturing sector. The automotive industry can be termed as the mother of the manufacturing sector in an economy, as its fortunes directly impact the fortunes of several related manufacturing industries and one of it is rubber industry. The rapid growth of the automotive industry will provide a strong fillip to the Micro and small and Medium industries of India. ●●



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