2013

Rubber Skill Development Council

Skill Gap Analysis across Sub-Segments (Tyre and Non-tyre) for Rubber Industry – Introduction about Global and Indian Rubber Industry

ICRA Management Consulting Services Limited

Contents

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1. Introduction

1.1. Study Background

India is the 4th largest producer and 2nd largest consumer of natural rubber in the world. The rubber industry comprise of tyre and non-tyre industries with a turnover of Rs.63,000 crore in 2011-12 with a CAGR of 10% for last 3 years. The Indian rubber industry consists of around 5,500 units[1] and is dotted with the presence of several small and tiny units. To ensure availability of skilled human resources to rubber industry, the Rubber Skill Development Council (RSDC) has been formed as a focused national level skill promoting entity under the aegis of National Skill Development Corporation (NSDC)

1.2. Overview of RSDC

RSDC is a Section 25 company formed under the PPP model, promoted by All India Rubber Industries Association (AIRIA) and Automobile Tyre Manufacturers' Association (ATMA), under the aegis of National Skill Development Corporation (NSDC). The objectives of RSDC encompasses:-

- Standardization of job roles / skill types through development of National Occupation Standards (NOS)
- Identification of critical job roles where major skill gap exists
- Develop standards and assessment tools
- Capacity building of the Rubber education and training system
- Build affiliation and accreditation process for trainees
- Certification and examination of trainees
- Enable maximum employment of RSDC certified personnel
- Establish well structured, sector specific labour market information system (LMIS)

Given this background, ICRA Management Consulting Services Limited (IMaCS) has been appointed by Rubber Skill Development Council (RSDC) to conduct a study on Skill Gap Analysis across the Sub-

[1] Source: Rubber board, Stakeholder discussions, IMaCS Analysis

segments (Tyre and Non-tyre)[2] for Selected States namely Maharashtra, Kerala, Tamil Nadu, and Punjab for Rubber Industry.

1.3. Scope of Work

To conduct skill gap analysis across sub-segments (tyre and non-tyre) in the Rubber industry, for selected states namely Maharashtra, Tamil Nadu, Kerala, and Punjab

1.4. Terms of Reference

i. Consolidation of list of companies in the states of Maharashtra, Kerala, Tamil Nadu and Punjab with regard to tyre and non-tyre including specific sub-sectors:
   - To analyse the entire sector and its characteristics in terms of available sub sectors, contribution to the industry, demand and supply factors in terms of employment.
   - Manpower availability in the sector: Skills available Vs. Skills required
   - The number of resources existing vs. required across all job roles in the company across the selected states sub sector wise.
   - Identifying gaps with regard to present quality of manpower across all job roles in the companies across the selected states.
   - Demographic trends of employment – employment concentration city wise across the states.
   - To understand the sub-sector wise current employment records both direct and indirect jobs.
   - To understand the interdependency and level of commonness in sub sectors profiles and availability of cross functional workforce requirement in sub sectors.

ii. Training capacity available in the selected states
   - Number of students being trained by the available institutes and infrastructure available with them.
   - Gap analysis with respect to quality of manpower being trained and skills required by the industry.

iii. Recommendations

[2] Details of Product Group is given in Annexure 1

- Forecasting for the next 5 years with respect to manpower requirement for the sector in the specific states.
- Gap in skills - required vs. available (qualitative vs. quantitative).
- Changes required for training students as per the industry expectations with respect to infrastructure and training methodology.
- Need for developing or upgrading available training infrastructure in the selected states.
- Need for changing the training methodology (keeping in mind the gap in the skills available vs. skills required across the sub-sectors in the selected states).

iv. Validation through key stakeholders and documentation of Skill Gaps Analysis

v. Final report on Skill Gaps – current and future and recommendations for bridging the gaps and sustainability plan to maintain the same

2. Overview of Rubber Manufacturing Industry

2.1. Global Rubber Industry

2.1.1. Global Rubber Production

Rubber has been used across the world from time immemorial. From humble beginnings of use as an eraser (suggested by noted explorer Magellan), today rubber is used across various industries like auto, aviation, healthcare, etc which drive the economy. With origins in Brazil, today rubber in its natural and synthetic forms is used globally.

The rubber industry across the globe has majority of its production concentrated in the Asian continent, particularly in Thailand, Malaysia, India and China. The table below showcases the global Natural Rubber (NR) production. Thailand is the top natural rubber producing country. The critical reason attributed to Thailand's dynamic performance in rubber is the enhanced R&D efforts to improve the plantation level productivity.

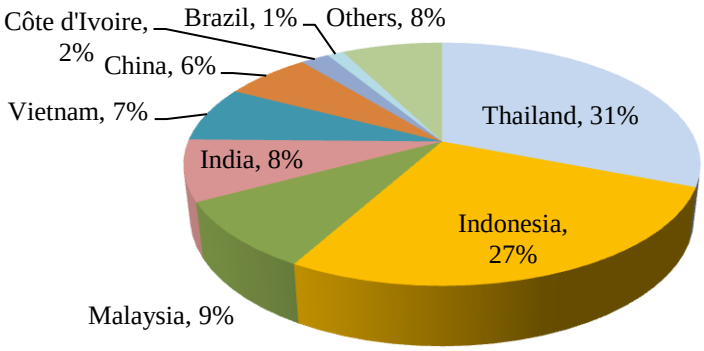
Table 1: World natural rubber production

	('000 tonnes)					Growth (per cent)		
	2008	**2009**	**2010**	**2011**	**2012F**	**2010**	**2011**	**2012F**
Thailand	3,090	3,164	3,252	3,394	3,530	2.8	4.4	4.0
Indonesia	2,751	2,440	2,736	2,982	3,101	12.1	9.0	4.0
Malaysia	1072	857	939	996	1,059	9.6	6.1	6.3
India	881	820	851	890	929	3.8	4.6	4.4
Vietnam	660	711	752	812	840	5.8	8.0	3.4
China	560	644	665	707	738	3.3	6.3	4.4
Côte d'Ivoire	194	203	227	234	243	11.8	3.1	3.8

	('000 tonnes)					Growth (per cent)		
	2008	**2009**	**2010**	**2011**	**2012F**	**2010**	**2011**	**2012F**
Brazil	123	129	132	135	140	2.3	2.3	3.7
Others	797	721	845	825	855	17.2	-2.4	3.6
World	**10,128**	**9,690**	**10,399**	**10,974**	**11,434**	**7.3**	**5.5**	**4.2**

Source: IMaCS Analysis

Figure 1: World Rubber Production by countries (as proportion of 2012)



Source: IMaCS Analysis

The production chart depicted shows Thailand and Indonesia together contributing about 58 per cent to the global production, as of 2012. The hospitable climate and the focus on improving the plantation productivity have lead to these results.

The next section captures the trends witnessed in the main rubber producing nations.

2.1.2. Key Trends in Producing Countries

The main impetus behind global NR production growth in recent years has come from Indonesia. Indonesia's NR production grew by 9 per cent in 2011, compared with growth of 12.1 per cent in 2010.

The high growth was despite unseasonable rains during 2011 disrupting production. Adverse weather is continuing to have an impact in 2012, with the Rubber Association of Indonesia stating that overall production was affected by heavy rainfall in the key rubber-producing areas of Sumatra and Kalimantan. Thus, Indonesia's NR production growth slowed down in 2012. There is some division in expectations on Indonesia's 2013 production, with the Ministry of Agriculture anticipating a decline (the first since 2009), while Gapkindo anticipates a 7 per cent increase. The government will carry out a 10,685-ha replanting programme in 2013, which will slow production, and ask farmers to reduce tapping in an attempt to support prices. Gapkindo has highlighted the relatively weak productivity of Indonesia' rubber plantations compared with regional peers and is calling on investment from the government, including by providing seeds at affordable prices.

In case of Thailand, the world's largest producer of NR, was hit by severe flooding in late 2011, but rubber plantations are concentrated in the south of the country, away from the flooding in the northern and central provinces. Thus, NR production grew by 3.5 per cent for 2011. However, according to the Department of Disaster Prevention and Mitigation, the southern regions experienced heavy rain in January 2012, which hampered NR production during 2012. Thailand's position as the world's largest producer of NR will remain unchallenged in 2013-14.

India Natural Rubber Production Scenario

In India, the yielding area in India was expected to expand during 2012-13. Around 24,300 hectares of trees were planted during 2005 and a small portion of 29,900 hectares of trees were planted in 2006. These will come under tapping during 2012. However 15,000 hectares under rubber trees will be uprooted for replanting. Apart from this, a small extent of yielding trees in the traditional region is expected to be discarded for other land-uses. The production from low-yielding non-traditional areas would also be looking up. Production of NR in India grew by just 2 per cent in 2012. Heavy rains in the country's main rubber-producing areas disrupted production, as did farmers' concerns over low prices. India's production peaks in the final months of the calendar year, and in December 2012 production was up by nearly 18 per cent month on month. Medium-term prospects for Indian rubber production are promising, partly because the government is committed to expanding the country's rubber-producing capacity. By the end of the 12th Five Year Plan in March 2017, it hopes to bring an additional 60,000 ha under cultivation.

With the analysis on the global natural rubber production and trends, the report will next focus on the consumption trends.

2.1.3. Global Rubber Consumption

The global consumption trends have shown a 3.1 per cent growth from 2008-2012. While China has the production of about 6 per cent of the global production for 2012, the consumption pattern reveals that it accounts for about 33 per cent of the consumption for 2012. India's consumption of rubber has increased from 881,000 tonnes in 2008 to 995,000 tonnes in 2012.

Table 2: World Natural Rubber Consumption

Countries	Consumption in '000 tonnes					Growth (per cent)		
	2008	**2009**	**2010**	**2011**	**2012F**	**2010**	**2011**	**2012F**
China	2,947	3,384	3,646	3,603	3,729	7.7	-1.2	3.5
India	881	905	944	957	995	4.3	1.4	4.0
Japan	878	636	750	765	784	17.9	2.0	2.5
Other Asia	2,126	2,061	2,292	2,298	2,390	11.2	0.3	4.0
EU	1,257	829	1,132	1,215	1,203	36.6	7.3	-1.0
Other Europe	229	177	228	250	264	28.8	9.6	5.6
North America	1,179	790	1,071	1,165	1,183	35.6	8.8	1.5
Latin America	584	488	613	582	616	25.6	-5.1	5.8
Africa	126	94	101	89	94	7.4	-11.9	5.6
World	**10,171**	**9,330**	**10,778**	**10,924**	**11,259**	**15.5**	**1.4**	**3.1 %**

Source: The Rubber Study Group, IMaCS Analysis

2.1.4. Global Synthetic Rubber Production and Consumption

The drop in natural rubber production in Brazil during the World War times triggered the need for lower-cost products also with steady supplies to manufacture many products, especially tyres. The pressure imposed by the conquest of the plantations of Asia by the Japanese prompted the development of a rubber that was able to meet the extraordinarily high demands of the troops at that time, although its structure differed somewhat from its natural counterpart. Thus, the synthetic rubbers (SR) with styrene and butadiene polymers were manufactured. SR is superior to NR primarily in two properties—its heat and mineral oil resistance. The 1950s and 1960s saw a period of intense market competition between NR and SR. Within 20 years, improved types of SR began to dominate industrial consumption, holding almost 71% of the market by 1979.

Around 65 per cent of world SR production is used in automotive tyres, followed by automotive mechanical goods (10 per cent), non-automotive mechanical goods (10 per cent), and footwear (5 per cent). In India, the automotive tyre industry accounts for around 69 per cent of SR consumption, followed by footwear (10.9 per cent), and cycle tyres (6.1 per cent).

The SR production shows that the North America and Other Europe are growing over the global growth rate of 7 per cent. This concentration in production of SR is mainly due to the high industrial uses that this is put to in the countries in North America, especially the USA.

Table 3: World synthetic rubber production (in '000 tonnes)

Region	2009	2010	2011	Growth %
North America	2,069	2,458	2,647	9%
Latin America	598	653	670	4%
EU - 27	2,183	2,481	2,612	6%
Other Europe	1,143	1,403	1,472	9%
Africa	60	66	66	3%
Asia	6,363	7,065	7,637	6%

Region	2009	2010	2011	Growth %
World	**12,385**	**14,082**	**15,104**	**7%**

Source: The Rubber Study Group, IMaCS Analysis

The consumption data profiled for the world regions pegs the global growth at 7 per cent. The European zone and the North America zones are growing above the world growth rate. This also gives glimpse into the rationale that the most of SR that is produced in the top zones like North America and European zone are put to the captive industrial use.

Table 4: World synthetic rubber consumption ('000 tonnes)

Region	2009	2010	2011	Growth %
North America	1606	1925	2082	9%
Latin America	766	894	911	6%
EU - 27	1914	2274	2553	10%
Other Europe	850	1091	1111	9%
Africa	100	111	111	4%
Asia	6929	7753	8096	5%
World	**12213**	**14047**	**14937**	**7%**

Source: The Rubber Study Group, IMaCS Analysis

2.2. Overview of Indian Rubber Industry

The Indian rubber industry is one of the key sectors of the economy and a sector that has been in existence from the early days. Though in the initial days, the sector was more attuned to catering to the inward needs to the country, the sector has now evolved to become a manufacturing major. Some of the key factors that highlight the criticality of this sector in the Indian economy are:

- The area under rubber plantations in India is ranked sixth globally
- India ranks fourth in the world natural rubber production
- India is ranked second in the consumption of natural rubber, behind China
- India is the top ranked nation globally in terms of productivity

The Indian rubber industry consists of around 5,500 units[3] and is dotted with the presence of several small and tiny units. Tyre industry constitutes around 60 per cent of Indian rubber industry turnover.

2.3. Rubber Production in India

Rubber is traditionally grown in India in the hinterlands of the South West Coast comprising of the state of Kerala and adjoining Kanyakumari District of Tamil Nadu (TN). Kerala is the single largest rubber producing state in India accounting for 91 per cent of total NR production. Kerala and TN are considered to be the traditional rubber growing regions in the country. In recent years, among non-traditional region, Tripura and Assam have witnessed growing production of NR.

In Kerala and TN, the tract is now reaching a level of saturation for rubber cultivation and the scope of further expansion of the crop is very much limited. Considering this fact, the expansion of rubber cultivation, which is of prime importance for setting up rubber production, has to take place mainly in non-traditional areas. Non-traditional areas so far identified as almost fully or marginally suitable for rubber cultivation are Arunachal Pradesh, Assam, Manipur, and lower reaches of hills of Meghalaya, Mizoram, Nagaland and Tripura excluding the other state of India.

Although the North Eastern Region lies far outside the traditional rubber growing zone, the agro-climatic conditions obtained here are unique in as much as near tropical features are experienced in most parts owing to low elevations, exposure to monsoons and other moderating influences. The positive results obtained from trial plantations undertaken in early 1960s in the then undivided Assam and Tripura, commercial scale plantations were raised by Government Forest and Soil Conservation Departments. Public Sector Corporations set up later joined rubber planting endeavours on extensive scales. Thus while in Assam and Tripura, Public Sector Corporations are leading in the rubber plantation sector, in Meghalaya, Manipur, Mizoram and Arunachal Pradesh the role has played by the State Forest and Soil

[3] Source: Rubber board, Stakeholder discussions, IMaCS Analysis

Conservation Departments. Individual growers are also contributing to fast growth of rubber cultivation in this region.

Rubber has been identified as one of the thrust areas in Tripura, in view of its suitability to the terrain and the acceptability amongst the people. Studies have shown that about 100,000 hectares of area in the state can be brought under rubber plantation. The area under rubber cultivation at present has increased from 27,000 ha in FY2001 to 50,070 ha in 2009-10, which is the second largest, after Kerala. Including Assam and other states, acreage in the North East has increased from 46,885 ha in 2000-01 to 88,865 ha in 2009. The yield per hectare and the quality of rubber are also comparable to Kerala's plantations. In fact, Tripura is now considered the "Second Rubber Capital of India" by the Rubber Board.

The below table showcases the total rubber production in India across natural, synthetic and reclaim rubber. The NR has grown at a rate of 3 per cent, while SR and RR have grown at a rate of 4 per cent and 5 percent respectively.

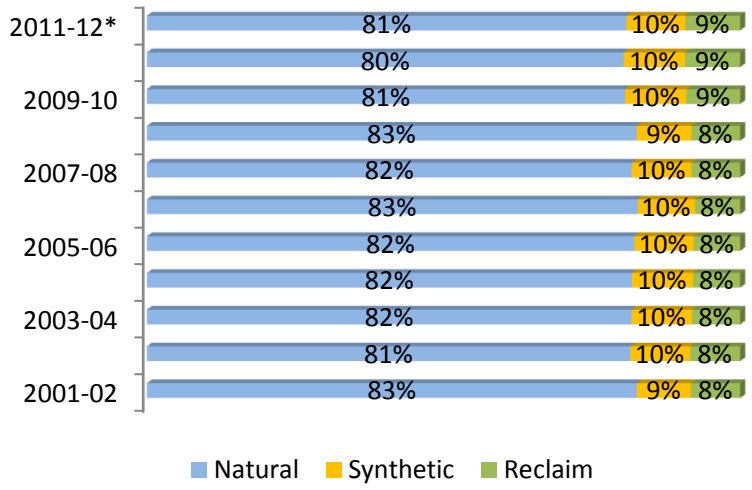
Table 5: Rubber production in India ('000 tonnes)

Year	Natural	Synthetic	Reclaim	Total
2001-02	631,400	69,653	63,550	**764,603**
2002-03	649,435	80,401	67,385	**797,221**
2003-04	711,650	88,366	70,990	**871,006**
2004-05	749,665	94,209	73,060	**916,934**
2005-06	802,625	97,634	76,645	**976,904**
2006-07	852,895	99,513	78,495	**1,030,903**
2007-08	825,345	101,265	83,075	**1,009,685**
2008-09	864,500	96,739	86,390	**1,047,629**
2009-10	831,400	106,743	93,535	**1,031,678**
2010-11	861,950	110,340	99,960	**1,072,250**

Year	Natural	Synthetic	Reclaim	Total
2011-12*	903,700	110,599	103,565	**1,117,864**
CAGR	**3%**	**4%**	**5%**	**4%**

Source: Rubber4u.com

Figure 2: Percentage contribution of rubber production



Source: IMaCS Analysis

The state-wise area in hectares under rubber shows the domination of Kerala to the national tally. The rise in the hectare area under Tripura justifies the sobriquet of second rubber capital of India.

Table 6: State-wise rubber plantation in India (in ha)

State	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
Andaman and Nicobar	960	960	962	843	762	729	729	880	878	879	NA
Andhra Pradesh	109	109	124	124	107	111	111	180	1,103	NA	NA
Arunachal Pradesh	323	372	379	416	425	446	458	720	1,200	NA	NA
Assam	12,806	13,208	13,841	14,057	14,848	15,890	18,225	23,705	28,102	32,659	38,090
Bihar	-	-	-	-	-	-	-	-	-	-	-
Delhi	-	-	-	-	-	-	-	-	-	-	-
Goa	843	870	755	761	704	772	986	1,010	1,017	1,081	1,125
Gujarat	-	-	-	-	-	-	-	-	-	-	-
Haryana	-	-	-	-	-	-	-	-	-	-	-
Karnataka	20,017	20,294	20,460	21,189	23,153	26,035	28,830	32,415	34,777	38,110	41,588
Kerala	475,039	476,047	479,602	485,610	493,800	502,740	512,045	517,475	525,408	554,228	539,565
Madhya Pradesh	-	-	-	-	-	-	-	-	-	-	-
Maharashtra	165	200	182	152	149	171	373	650	858	1,173	1,513
Manipur	1,698	1,708	1,773	1,786	1,829	1,859	1,914	2,380	2,723	NA	NA
Meghalaya	4,354	4,586	4,758	4,834	5,060	5,331	6,830	7,740	9,196	10,584	11,875
Mizoram	619	696	709	498	507	525	551	735	908	NA	NA
Nagaland	2,024	2,087	2,091	2,184	2,274	2,486	2,697	3,515	4,141	NA	NA

State	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
Orissa	517	552	480	456	465	500	528	570	657	NA	NA
Pondicherry	-	-	-	-	-	-	-	-	-	-	-
Punjab	-	-	-	-	-	-	-	-	-	-	-
Rajasthan	-	-	-	-	-	-	-	-	-	-	-
Tamil Nadu	18,704	18,631	18,633	18,642	18,815	19,233	19,410	19,355	19,545	19,767	19,790
Tripura	27,947	28,853	30,770	32,065	34,189	37,846	41,165	50,070	55,415	59,285	64,480
Uttar Pradesh	-	-	-	-	-	-	-	-	-	-	-
West Bengal	430	494	461	473	523	526	548	580	587	NA	NA
Others	-	-	-	-	-	-	-	-	-	13,794	16,754
Total	**566,555**	**569,667**	**575,980**	**584,090**	**597,610**	**615,200**	**635,400**	**661,980**	**686,515**	**711,560**	**734,780**

Source: Rubber4u.com

2.4. Rubber Consumption in India

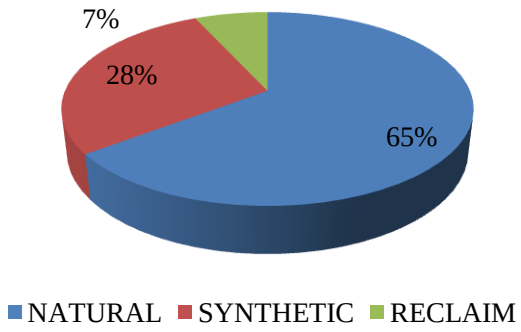
The consumption pattern evinced by table 7 again shows the steady dominance of the consumption of natural rubber. The analysis of the 2012 consumption pattern reveals that about 65 per cent of the consumption of rubber across various industries is through natural rubber.

Table 7: Rubber consumption pattern in India (in '000 tonnes)

Year	Natural	Synthetic	Reclaim	Total
2001-02	638,210	174,530	63,875	876,615
2002-03	695,425	194,850	67,320	957,595
2003-04	719,600	210,190	70,460	1,000,250
2004-05	755,405	224,650	72,905	1,052,960
2005-06	801,110	237,495	76,535	1,115,140
2006-07	820,305	270,830	78,435	1,169,570
2007-08	861,455	297,155	83,165	1,241,775
2008-09	871,720	292,950	86,030	1,250,700
2009-10	930,565	347,710	92,250	1,370,525
2010-11	947,715	411,830	100,290	1,459,835
2011-12*	964,415	423,350	102,435	1,490,200

Source: Rubber4u.com

Figure 3: Rubber consumption pattern in India (2012)



Source: Rubber 4u.com

Further to the broad usage pattern, the rubber consumption across the principal tyre and non-tyre segments show that about 66 per cent as of 2011-12 is consumed by the tyre segment. This is illustrated by table 8.

Table 8: Broad sector-wise total rubber consumption

In tonnes	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12*
Tyre	606,479	656,604	713,955	722,406	849,331	936,548	981,953
Non-Tyre	508,661	512,966	527,820	528,294	521,194	523,287	508,247
TOTAL	**1,115,140**	**1,169,570**	**1,241,775**	**1,250,700**	**1,370,525**	**1,459,835**	**1,490,200**
% tyre	**54 %**	**56 %**	**57 %**	**58 %**	**62 %**	**64 %**	**66 %**
% non-tyre	**46 %**	**44 %**	**43 %**	**42 %**	**38 %**	**36 %**	**34 %**

Source: Rubber 4u.com

Further drill down of the broad sectoral consumption into NR, SR and RR – the dominance of natural rubber usage can be analyzed. This is the trend that is expected to change in the coming years with the increased usage of synthetic rubber in the manufacturing in India with rising rubber prices.

Table 9: Sector-wise rubber consumption in India

Year	NATURAL RUBBER	SYNTHETIC	RECLAIM RUBBER	TOTAL	TOTAL

				RUBBER					RUBBER
In Tonnes	Tyre	Non-Tyre	Tyre	Non-Tyre	Tyre	Non-Tyre	Tyre	Non-Tyre	
2001-02	304,425	333,785	95,277	79,253	12,925	50,950	412,627	463,988	**876,615**
2002-03	353,032	342,393	107,483	87,367	16,138	51,182	476,653	480,942	**957,595**
2003-04	378,070	341,530	119,431	90,759	18,284	52,176	515,785	484,465	**1,000,250**
2004-05	406,226	349,179	131,267	93,383	19,908	52,997	557,401	495,559	**1,052,960**
2005-06	442,921	358,189	141,580	95,915	21,978	54,557	606,479	508,661	**1,115,140**
2006-07	462,081	358,224	170,809	100,021	23,714	54,721	656,604	512,966	**1,169,570**
2007-08	495,526	365,929	190,987	106,168	27,391	55,774	713,904	527,871	**1,241,775**
2008-09	508,121	363,599	185,094	107,856	29,191	56,839	722,406	528,294	**1,250,700**
2009-10	576,210	354,355	238,153	109,557	34,968	57,282	849,331	521,194	**1,370,525**
2010-11	597,623	350,092	298,414	113,416	40,511	59,779	936,548	523,287	**1,459,835**
2011-12	631,410	333,005	307,365	115,985	43,178	59,257	981,953	508,247	**1,490,200**

Source: Rubber 4u.com

2.5. Product-wise consumption of rubber

This section will outline the product-wise consumption pattern of rubber – natural, synthetic and reclaimed. The split-up will be explored across the following dimensions:

- Consumption of natural rubber across product segments
- Consumption of synthetic rubber across product segments
- Consumption of reclaimed rubber across product segments

The split-up of the total rubber usage across the various product segments shows the domination of the auto and cycle tyre manufacture, which has primarily been driving the rubber sector growth, has grown at nine per cent over the last decade.

Table 10: Rubber consumption usage across product segments (in tonnes)

Segments	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	Growth %
Auto	385,242	444,892	481,482	519,024	573,734	622,575	670,752	680,339	819,505	909,190	9%
Cycle	119,577	122,647	122,301	127,095	131,642	136,824	143,311	140,832	139,405	139,880	2%
Camelback	51,565	54,051	54,443	56,201	58,163	58,721	59,059	62,601	66,150	65,495	2%
Footwears	113,485	116,609	117,532	120,079	112,070	113,402	122,105	122,600	121,375	116,345	0%
Belts and hoses	52,677	53,622	55,149	56,683	57,991	60,765	65,378	67,278	67,845	67,840	3%
Latex	32,536	33,603	33,452	32,973	34,466	36,410	38,522	38,445	39,465	37,765	2%
Dipped goods	32,381	34,234	34,441	33,899	34,947	36,495	38,417	38,720	40,310	38,925	2%
Cables and wires	4,243	4,298	4,251	4,548	4,384	4,651	4,768	4,489	-	-	1%
Battery boxes	14,266	14,669	14,404	14,764	14,733	15,068	15,232	14,369	-	-	0.1%
Others	70,653	78,970	82,795	87,694	93,010	84,659	84,231	81,027	76,470	84,395	2%
Total	**876,625**	**957,595**	**1,000,250**	**1,052,960**	**1,115,140**	**1,169,570**	**1,241,775**	**1,250,700**	**1,370,525**	**1,459,835**	**5%**

Source: Rubber 4u.com

Natural rubber consumption pattern reveals the decreasing usage of NR across several product segments like battery boxes, cables and wires and footwear which have branched out to synthetic rubber.

Table 11: Natural rubber consumption usage across product segments (in tonnes)

Segments	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	Growth %
Auto tyres	379,260	422,508	444,928	470,619	482,575	561,610	589,760	7%
Cycle tyres	88,827	91,700	92,587	97,680	96,282	89,085	87,050	-0.3%
Camelback	40,739	42,227	40,514	41,057	46,953	45,140	43,680	1%
Footwear	74,736	67,471	65,617	69,817	68,325	66,355	62,480	-3%
Belts and hoses	41,443	41,956	43,136	46,045	48,863	46,170	43,570	1%
Latex	32,973	34,466	36,410	38,522	38,445	39,465	37,765	2%
Dipped goods	33,899	34,947	36,495	38,417	38,720	40,130	38,925	2%
Cables and wires	1,830	1,453	1,589	1,640	1,550	-	-	-3%
Battery boxes	1,828	1,801	1,750	1,731	1,665	-	-	-2%
Others	59,870	62,581	57,279	55,927	48,342	42,430	44,485	-4%
Total	755,405	801,110	820,305	861,455	871,720	930,385	947,715	3%

Source: Rubber 4u.com

A similar analysis of synthetic rubber consumption reveals a steady growth across all major segments. The auto tyre segment, as expected, has clocked the maximum growth rate of about 13 per cent.

Table 12: Synthetic rubber consumption usage across product segments (in tonnes)

Segments	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	Growth %
Auto tyres	124,146	134,243	159,216	179,620	175,809	228,175	285,540	13%

Segments	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	Growth %
Cycle tyres	17,341	18,153	21,588	20,942	20,845	24,965	25,190	5%
Camelback	11,138	11,494	13,370	13,320	11,150	15,625	15,700	5%
Footwears	38,042	37,689	40,760	45,383	45,950	46,160	44,910	2%
Belts and hoses	10,497	10,747	12,095	13,005	11,455	13,735	16,720	7%
Latex	-	-	-	-	-	-	-	NA
Dipped goods	-	-	-	-	-	-	-	NA
Cables and wires	1,842	1,971	2,074	2,188	1,984			1%
Battery boxes	2,738	2,709	2,855	2,949	2,819	-	-	1%
Others	18,906	20,489	18,872	19,748	22,938	19,050	23,770	3%
Total	224,650	237,495	270,830	297,155	292,950	347,710	411,830	9%

Source: Rubber 4u.com

The reclaimed rubber usage pattern shows a growth across most segments except that of battery boxes.

Table 13: Reclaimed rubber consumption usage across product segments

Products	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	Growth %
Auto tyres	15618	16983	18431	20513	21955	29720	33890	12%
Cycle tyres	20927	21789	22649	24689	23705	25355	27640	4%
Camelback	4324	4442	4837	4682	4498	5385	6115	5%
Footwear	7301	6910	7025	6905	8325	8860	8955	3%
Belts and hoses	4743	5288	5534	6328	6960	7940	7550	7%
Latex	-	-	-	-				NA

Dipped goods	-	-	-	-				NA
Cables and wires	876	960	988	940	955	-	-	2%
Battery boxes	10198	10223	10463	10552	9885	-	-	-1%
Others	8918	9940	8508	8556	9747	14990	16140	9%
Total	72905	76535	78435	83165	86030	92250	100290	5%

Source: Rubber 4u.com

2.6. Key Trends in Product Groups

This section will analyze the critical factors that have lead to the consumption pattern of the NR, SR and RR across the principal product groups.

Table 14: Consumption trends across product groups

Product	Natural Rubber Growth Trend	Synthetic Rubber Growth Trend	Reclaimed Rubber Growth Trend
Auto Tyres	7%	13%	12%
Cycle tyres	(0.3%)	5%	4%
Camelback	1%	5%	5%
Footwear	(3)%	2%	3%
Belts and hoses	1%	7%	7%
Latex	2%	NA	NA
Dipped goods	2%	NA	NA
Cables and wires	(3)%	1%	2%
Battery boxes	(2)%	1%	(1)%

1. Auto and Cycle tyre segment

With an estimated production of 125 million tyres during FY2013, the size of the Indian tyre industry is estimated at Rs. 285-290 billion. The auto industry consists of around 39 companies, spread throughout the country, with many being rather small.

There are around 60 tyre factories across India (of which 9 factories are presently closed). The total contribution of excise and customs duty is estimated at around 0.1% of India's gross domestic product (GDP).

Tyre companies directly employ over 0.13 million persons of varying skill levels. Tyre industry consumes around 63% of the total Natural Rubber (NR) produced in the country. Since production of NR involves over 1 million growers (farmers), tyre industry provides gainful employment to nearly 0.5 million growers of NR, a majority of them in the small grower category. In addition, if related services like tyre retreading, repairing, air filling etc. are taken into account, employment potential increases manifold.

The increase in consumption across all the three rubber types hint at the direct link the tyre segment has with India's automobile sector growth story. The cycle tyre segment shows a reduced share of NR primarily because of higher increase in NR prices and changes in product mix.

Three segments—commercial vehicles or CVs (trucks and bus), four wheelers (4Ws), and two wheelers (2Ws)—account for around 95% of India's total tyre production. Original equipment manufacturers (OEMs) or automotive manufactures account for around 44% of total demand for domestic tyre industry. Thus, automotive production growth has a direct impact on growth of tyre production. In addition, demand in the replacement market has a significant impact on tyre production. Table 15 highlights the increase in the tyre production in India which has resulted in growth rate in consumption of NR, SR and RR.

Table 15: Tyre production by end product

	Thousand Units					Growth	
FY	**2009**	**2010**	**2011**	**2012**	**2013 (9M)**	**2012**	**2013 (9M)**
Truck & Bus	**12,839**	**15,283**	**15,668**	**16,085**	**12,709**	**2.7%**	**6.3%**
Passenger Car	**16,570**	**20,047**	**26,201**	**27,141**	**23,883**	**3.6%**	**11.7%**
Jeep/MUV	**1,469**	**1,402**	**1,500**	**1,595**	**1,697**	**6.3%**	**N/A**
LCV	**5,298**	**5,739**	**6,029**	**6,688**	**4,495**	**10.9%**	**-11.0%**
2W/3W Tyres	**41,031**	**49,222**	**63,258**	**67,051**	**44,238**	**6.0%**	**-12.8%**
Scooter (incl. Moped)	6,409	8,121	12,652	13,586	7,676	7.4%	-24.2%
Three wheelers	4,474	5,437	7,488	8,608	4,482	15.0%	-31.2%
Motorcycle	30,148	35,664	43,118	44,857	32,080	4.0%	-5.8%
Tractor Tyre	**3,915**	**4,923**	**5,423**	**5,667**	**4,216**	**4.5%**	**-0.5%**
Animal Driven Vehicles	**281**	**294**	**311**	**293**		**-5.8%**	**N/A**

	Thousand Units					Growth	
Industrial	**568**	**538**	**615**	**681**	**742**	**10.7%**	**3.3%**
Off-The-Road	**136**	**161**	**191**	**196**	**225**	**2.6%**	**56.3%**
Total	**82,107**	**97,609**	**119,196**	**125,397**	**92,205**	**5.2%**	**-2.1%**

Source: IMaCS Analysis

De-coding the tyre growth

India's tyre production is estimated to have increased 1% in FY2013 primarily because of replacement demand for CVs.

India's tyre production increased 5.2% during FY2012 to 125.4 million compared with growth of 22.1% in FY2011, and 18.9% during FY2010. During FY2010, India's tyre production increased at a high rate from around mid-2009, mainly because of recovery in India's automotive production.

Production growth was primarily driven by higher increases in four wheelers (4W) and two wheelers (2W) production, and recent recovery in CV production. During FY2011, production growth was primarily driven by higher increases in 4W and two wheelers (2W) production. However, CV production growth slowed down primarily because of supply disruptions and higher imports.

2. Camelback

Camel back finds extensive use in the arena of treading. This is why with the rise in the use of tread materials and uses, there has been a steady increase in the usage of NR, SR and RR. With the increasing awareness in India about the advantages of tread rubber products especially in the arena of re-treading, the usage of rubber across the camel back product segment is poised to grow.

3. Footwear

The footwear segment's fortune is tied to the global economic trends. The global recession caused output volumes and consumer spending across a wide range of products, including footwear, to weaken in 2009. Spending was moderate in 2012, as industry revenue for the Global Footwear Manufacturing industry increases by 2.2 per cent. Though the usage of NR for footwear manufacturing has steadily come down at about 3 per cent, the SR and RR use are expected to rise with the changing lifestyle and broadening usage of footwear in industrial domains.

4. Belts and Hoses

Hoses and belts are extensively used for the industrial purposes. Hoses are made from one or a combination of many different materials. Hoses and belts use a NR as well as SR. The consumption trends show a steady growth across all three forms of rubber. The future of this industry will continue to depend on downstream demand from manufacturing industries, since belts and hoses are used in the manufacturing process. Because cars require these parts as key inputs, the automotive industries play a

major role in driving demand. In fact, the steady rise in consumption is due to the extensive application they find in the auto sector, which has driven their numbers.

5. Latex and Dipped Goods

Latex based products and dipped goods (which use latex in some form like cenex, etc) have seen growth of about 2 per cent in the consumption of the NR. Of course, the RR and SR are not applicable for either segment. With increasing use of several dipped goods products like gloves, condoms, finger stalls, etc in both household levels as well as in industrial scenario, the consumption of NR in 2001 at about 33,000 tonnes has risen to about 38,000 tonnes. Also, for latex based products like foam, threads, etc the environmental factor and change in the lifestyle has lead to the rise in demand. The industry expects higher consumption of latex for these two segments. Of course, the one factor that could lead to the change in pattern is the rising price of the natural rubber.

6. Cable wires

The analysis of the cable wire trends clearly shows the preference of the industry shifting towards the SR and RR. This is mainly due to the advantage of SR of offering higher temperature and mineral resistance. The primary usage of cables and wires are in building and industrial zones. So, a deeper analysis of the SR consumption trends reveals a dip in 2009, correlating with the global recession. Going forward however, SR and RR consumption is poised to be healthy with the economic recovery and the bloom of several emerging economies.

2.7. Institutional Support

The institutional support for the rubber sector is driven by following organizations:

- Ministry of Commerce
- The Rubber Board
- All India Rubber Industries Association
- Automotive Tyre Manufacturers Association
- Rubber Skill Development Council
- Indian Rubber Institute

The Ministry of Commerce[4]

The mandate of the Department of Commerce is regulation, development and promotion of India's international trade and commerce through formulation of appropriate international trade & commercial policy and implementation of the various provisions thereof. The basic role of the Department is to facilitate the creation of an enabling environment and infrastructure for accelerated growth of international trade. The Department formulates implements and monitors the Foreign Trade Policy (FTP) which provides the basic framework of policy and strategy to be followed for promoting exports and trade.

The Trade Policy is periodically reviewed to incorporate changes necessary to take care of emerging economic scenarios both in the domestic and international economy. Besides, the Department is also entrusted with responsibilities relating to multilateral and bilateral commercial relations, Special Economic Zones, state trading, export promotion and trade facilitation, and development and regulation of certain export oriented industries and commodities.

The Rubber Board is organized under the Ministry of Commerce.

The Rubber Board[5]

The Rubber Board is a statutory body constituted by the Government of India, under the Rubber Act 1947, for the overall development of the rubber industry in the country. The importance of rubber production in India from strategic and security reasons had been realized by the government during the Second World War period. The rubber growers in India were encouraged to produce the maximum rubber required for the use during war. After the war, there were growing demands from the growers for setting up a permanent organisation to look after the interests of the industry. Thereupon the government set up an ad-hoc committee in 1945 to study the situation and to make appropriate recommendation. On the recommendation of this ad-hoc committee, the government passed the Rubber (Production and Marketing) Act, 1947, on 18th April 1947, and the "Indian Rubber Board" was constituted forthwith. The Rubber Production and Marketing (Amendment) Act, 1954, amended the name of the Board as 'The Rubber Board'.

[4] Source: The Ministry of Commerce
[5] Source: The Rubber Board

All India Rubber Industries Association (AIRIA)[6]

The All India Rubber Industries Association (AIRIA) is a not for profit making body serving the rubber industry and trade with the objectives of safeguarding and promoting interests of the industry.

The aims and objects for which AIRIA stands, inter-alia, include:

- To promote and protect the interest, growth and development of the rubber industry.
- To foster Co-operation among individuals and units engaged in the manufacture of rubber goods with a view to advancing and safeguarding the interest of the industry.
- To provide common forum for exchange of views amongst the members.
- To arrange conferences, exhibitions, trade delegations, factory visits, techno-commercial talks and allied activities.
- To investigate, collect and circulate information and statistics relating to the industry.
- To represent officially to Government the views of the industry on all matters affecting or likely to affect the industry.
- To help the members in solving the difficulties faced in procuring raw materials.
- To support or oppose legislative or other measures likely to affect the industry.
- To disseminate information through the official organ, periodicals, circulars, etc.

Automotive Tyre Manufacturers Association (ATMA)[7]

Automotive Tyre Manufacturers' Association (ATMA) was set up in 1975, registered under The Companies Act, as the representative body of automotive tyre industry in India. 8 large tyre companies representing over 90% of production of tyres in the country are members of the Association.

The Association with the guidance of the Managing Committee functions through various committees set up, consisting of different disciplines, such as, Marketing, Export, Purchase (Raw Material), Taxation, Technical etc. Day to day functioning of the Association is managed by the Secretariat of the Association headed by the Director General.

[6] Source: All India Rubber Industries Association (AIRIA)
[7] Source: Automotive Tyre Manufacturing Association

Rubber Skill Development Council (RSDC)[8]

RSDC has been constituted under the aegis of National Skill Development Corporation (NSDC), in collaboration with All India Rubber Industries Association (AIRIA) and Automotive Tyre Manufacturers Association (ATMA), with the aim to identify and fulfill skill development needs in the Rubber sector. The RSDC will encourage the industry to employ skilled and certified manpower. It will create a dynamic LMIS to keep track of the labour market skill gaps, frame Occupational Standards, facilitate development of practical and high quality training content, ensure adequate availability of faculty through Train The Trainer initiatives, build accreditation and certification mechanisms and encourage capacity building through private sector participation. In the process, RSDC will indulge in preparing a catalogue of skill sets, range and depth of skills to facilitate individuals to choose from. RSDC has been registered as a Section 25 company.

The purpose of RSDC is to ensure the generation of skilled manpower in both the tyre and the non-tyre sectors, provide employment opportunities to youth across the nation, create career paths in roles existing within the unorganized and organized segments of the rubber industry and ensure active participation of the industry in absorption of skilled manpower generated through RSDC.

Vision:

RSDC is the rubber sector's skill development and standard setting body. RSDC proposes the broad activities:-

- Standardization of job roles / skill types through development of National Occupational Standards (NOS).
- Identification of critical job roles where major skill gaps exist
- Develop Standards and Assessment Tools
- Capacity building of the Rubber education and training system
- Plan and execute Training of Trainers
- Maximum participation of private training institutes
- Build affiliation and accreditation process for institutes
- Certification and examination of trainees

[8] Source: Rubber Skill Development Council

- Enable maximum employment of RSDC certified personnel
- Establish well structured, sector specific Labor Market Information System (LMIS)

Mission:

- As an overview, RSDC aims to address the following:-
- Setting up Labour Market Information System (LMIS) to assist planning and delivery of training
- Identification of skill development needs and preparing a catalogue of skill types
- Develop a skill development plan and maintain skill inventory
- Developing skill competency standards
- Standardization of affiliation and accreditation process
- Capacity creation in skill development
- Plan and execute training of trainers
- Promotion of academies of excellence

Indian Rubber Institute (IRI)[9]

Indian Rubber Institute (IRI), is a professional body of rubber technologists, engineers, scientists, academicians and other professionals and organizations associated with the rubber and allied industry in India. A non-profit organization of 63 years standing, IRI was constituted as a national body and got registered on 25th May 1987 under the West Bengal Societies Act XXVI of 1961 no. S/55295 of 1987 – 88 and has since been continuing its educational and training activities.

With headquarters at Kolkata, IRI has been functioning from seven branches at Chennai, Delhi, Karnataka, Kerala, Kolkata, Mumbai, and Rajasthan.

The key goals of the IRI are:

- Provide Technical training and education to members and their supporting organisation through workshop, seminars & conferences
- Award Certificate, Diploma (DIRI / PGD-IRI) to its members through different examinations.
- Develop and publish technical information that contributes to professional growth of members.
- Participate & network with individuals and other professional organisation in Asia Pacific Region for sharing knowledge on Rubber Science & Technology
- Build bridges and create trust amongst different stakeholders

[9] Source: Indian Rubber Institute