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RSDC
RUBBER SKILL DEVELOPMENT COUNCIL

SKILL GAP ANALYSIS

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Chapter Scheme

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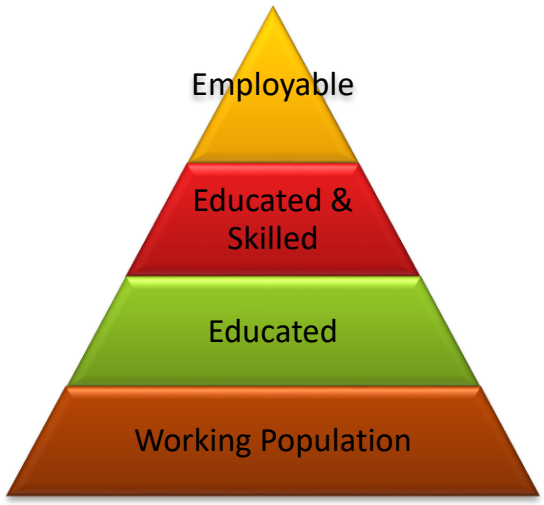
INTRODUCTION

Let's begin the challenging issue of skill gap prevalent in the industry by first understanding the concept of skill, its importance for an individual and the society, the relevance of skill development and the meaning of skill gap in the current scenario. An ability and capacity acquired through deliberate, systematic and sustained effort to smoothly and adaptively carry out activities or job functions involving ideas, things and people is how we may define *Skill* in the industrial set up. Skill has the power to break the vicious circle of poverty as it empowers an individual to become economically independent. *Skill converts a human into a human resource*. Presently, our country faces a dual challenge of paucity of highly trained workforce, as well as non-employability of large sections of the conventionally educated youth, who possess little or no job skills. Therefore, if we have to promote the development of our country then we should focus on skill development.

A1. Indian Economy: Status and Requirement

Why acquiring skill or skill development is so important for our economy? Today, India is one of the youngest nations in the world with more than 62% of its population in the working age group (15-59 years), and more than 54% of its total population below 25 years of age. Its population pyramid is expected to "bulge" across the 15-59 age group over the next decade. It is further estimated that the average age of the population in India by 2020 will be 29 years as against 40 years in USA, 46 years in Europe and 47 years in Japan. In fact, during the next 20 years the labour force in the industrialized world is expected to decline by 4%, while in India it will increase by 32%. This poses a formidable challenge and a huge opportunity. India needs to equip its workforce with employable skills and knowledge so that they can contribute substantively to the economic growth of the country. It is extremely important to work towards creating a skilled workforce to reap the demographic dividend. However, skills need to be an integral part of employment and economic growth strategies to spur employability and productivity.

Fig 1.1: Workforce Pyramid



The country, however, has a big challenge ahead as it is estimated that only 4.69% of the total workforce in India has undergone formal skill training as compared to 68% in

UK, 75% in Germany, 52% in USA, 80% in Japan and 96% in South Korea. While the debate on the exact quantum of the challenge continues, there is no disputing the fact that it is indeed a challenge of formidable proportion.

In addition, the number of people who enter the work force age group every year is estimated to be 26.14 million. Assuming an average labour participation rate of 90% (male) and 30% (female), at least 16.16 million persons will enter workforce and they all, except those opting for higher education, need to acquire skills. This will add another 104.62 million persons to be skilled in the next 7 years. Thus, it can be seen that 104.62 million fresh entrants to the workforce over next seven years (by 2022) will need to be skilled. In addition, 298.25 million of existing farm and nonfarm sector workforce will need to be skilled, reskilled and upskilled. Thus, appropriate measures required to be taken keeping in view sheer numbers, sectoral division and spatial disbursal not only across the country but possible requirement in other parts of the world.

Moreover, with the increasing participation of women in the workforce in India, Skill development programmes should focus on both male and female before any imbalance emerges on gender count. In recent times, government's emphasis on skill development has received a big push in the country. A broad outline of the recent government initiatives is presented in the next section.

B1. Skill India

The main goal is to create opportunities, space and scope for the development of the talents of the Indian youth and to develop more of those sectors which have already been put under skill development for the last so many years and also to identify new sectors for skill development. The new programme aims at providing training and skill development to 500 million youth of our country by 2020, covering each and every village. Various schemes are also

Fig 1.2: Skill India

proposed to achieve this objective. The emphasis is to skill the youths in such a way so that they get employment and also improve entrepreneurship. The mission covers training, support and guidance for all occupations that were of traditional type like carpenters, cobblers, welders, blacksmiths, masons, nurses, tailors, weavers etc.

More emphasis will be given on new areas like real estate, construction, transportation, textile, gem industry,

jewellery designing, banking, tourism and various other sectors, where skill development is inadequate or nil.

The training programmes would be on the lines of international level so that the youths of our country can not only meet the domestic demands but also of other countries like the US, Japan, China, Germany, Russia and those in the West Asia. Another remarkable feature of the 'Skill India' programme would be to create a hallmark called 'Rural India Skill', so as to standardise and certify the training process.

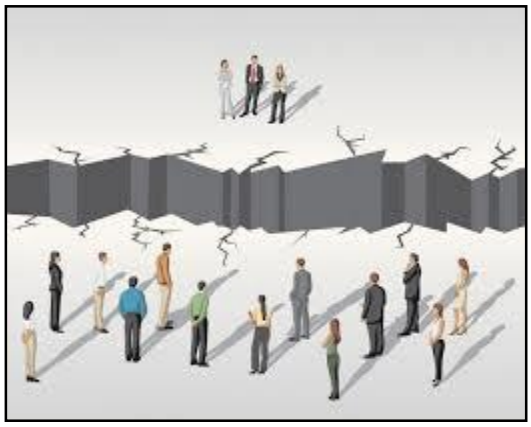
Tailor-made, need-based programmes would be initiated for specific age groups which can be like language and communication skills, life and positive thinking skills, personality development skills, management skills, behavioural skills, including job and employability skills. The course methodology of 'Skill India' would be innovative, which would include games, group discussions, brainstorming sessions, practical experiences, case studies etc.

Pradhan Mantri Kaushal Vikas Yojana (PMKVY) is the flagship scheme of the Ministry of Skill Development & Entrepreneurship (MSDE). The objective of this Skill Certification Scheme is to enable a large number of Indian youth to take up industry-relevant skill training that will help them in securing a better livelihood. Individuals with prior learning experience or skills will also be assessed and certified under Recognition of Prior Learning (RPL). Under this Scheme, Training and Assessment fees are completely paid by the Government.

C1.Skill Gap and its Analysis

Different types of skills are required in the manufacturing units for various job roles. However, before we move on to skill development, it is extremely important to understand the existing skill gap in each of the sectors. Let's take a note of what do we mean by skill gap. Here it is noteworthy that we first need to define the skills required to perform a specific job role and then highlight the gap. The difference in the skills required on the job and the actual skills possessed by the employees is referred to as S*kill Gap*.

Fig 1.3: Skill Gap



Skill Gap is prevalent across various job roles in different segments of the industry. Efforts in the skill landscape have been largely devoid of industry/employer linkages until the last few years. This has created gaps in terms of sectoral need and availability, competency required by employer and those possessed by a trainee etc. Placement of trainees has consequently

suffered. At first, there is a need to define their skills requirements, and training methodology, commitments in terms of increased remuneration to skilled workers also need to be made by them. This is necessary to create economic incentive for skilling, and for industry to realize the productivity gains linked with skilled manpower.

To address the skill gap, the availability of good quality trainers is a major area of concern. There is a lack of focus on development of trainer training programmes and career progression pathways for trainers have also not been defined. To outline the skill requirement, the skill gap analysis is undertaken. In other words, Skill Gap Analysis for the various job roles in the industry helps achieve the following objectives:

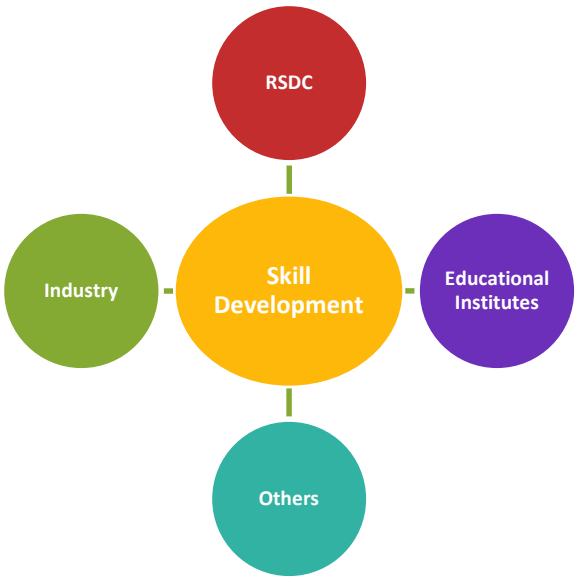
- Helps to define the skills required in the industry at present and in future
- Make employees aware about the critical skill they will need to develop/learn
- Helps in recruitment effort when current employee do not possess the required skills for the specific job role

Skill Gap Analysis has covered the organized segment of the industry, whereas a large number of manufacturing units are operating in the unorganized segment. One of the biggest challenges of skill development in our country is that 93% of the workforce is in informal/unorganised sector. Consequently, it is difficult to map existing skills in the unorganized sector and gauge the skilling requirement in the sector. On the other hand, the rate of job growth in informal sector is estimated to be twice that in formal sector.

D1. Skill Development

Different states in India face varied challenges in relation to demographics and skill development. There needs to be a shared sense of urgency to address the challenges of the changing demography. Skills development is the shared responsibility of the key stakeholders viz. Government, the entire spectrum of corporate sector, community based organizations, those outstanding, highly qualified and dedicated individuals who have been working in the skilling and entrepreneurship space for many years, industry and trade organisations and other

Fig 1.4: Stakeholders



stakeholders. The challenge of human resource requirements of the country will be addressed by aligning the supply and composition of skilled workers with demand. This will ensure that the supply of skilled workforce is relevant to projected needs and can be easily absorbed into the job market.

In this report, the focus is on the skill requirement of the rubber industry in Indian context. We concentrate on the quality of the available manpower, skill deficiencies leading to the skill gap, emerging trend for industry expansion and skill requirement in the rubber sector. Before we take up the skill gap analysis in the rubber industry in the southern state of India, let's have a look at the trends in rubber industry in the state in focus, i.e. Andhra Pradesh covering main indicators of state economy, rubber manufacturing units, rubber consumption etc.

STATE IN FOCUS

The chapter focuses on the general economic conditions of the state, an overview of rubber industry in India, status of rubber industry in the state in focus and its growth in the recent past. Normally, the overall development of the various sectors in the state reflects on to the growth of the specific segment of economic activity. Here, we will take a note of economic development of the state and various aspects of rubber industry therein. Andhra Pradesh is not a traditional rubber growing region of the country; therefore it does not offer much to study and analyze on the production side of the commodity which serves as the basic raw material for the rubber product manufacturing. However, it is interesting to look at the consumption pattern over the period to highlight the developments in the rubber industry in the state in focus.

A1.State Economy

Situated on the southeastern coast of the country, the state of Andhra Pradesh with over 49 million inhabitants is the tenth largest state in the country by population. On 2 June 2014, the north-western portion of the state was bifurcated to form a new state of Telangana. Andhra Pradesh's longtime capital, Hyderabad, was transferred to Telangana as part of the division. However, Hyderabad will remain the de jure capital of both Andhra Pradesh and Telangana states for a period of time not exceeding 10 years.

With a geographical area of 1,62,970 sq km, Andhra Pradesh ranks as the 8th largest State in the country. Situated in a tropical region, the state has the second longest coastline in the country with a length of 974 km.

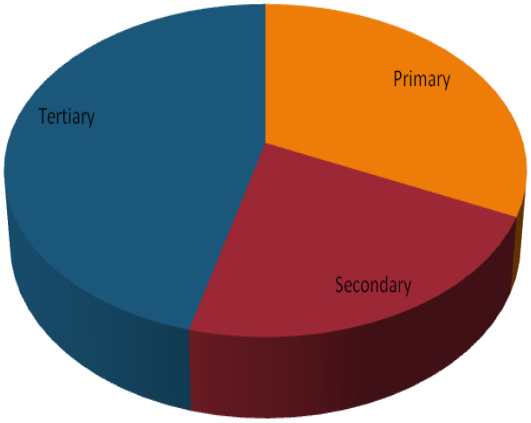
Fig 2.1: Re-organizing State: Andhra Pradesh

The density of population for Andhra Pradesh is 304 persons per square kilometer, as against 382 persons per square kilometer at all India level in 2011. The sex ratio in the state is 997, higher than all India level of 943 in 2011. The literacy rate of the State is 67.35 percent in 2011 as compared to 62.07 percent in 2001. The literacy rate of the State is lower than the all India literacy rate at 72.98 percent.

The GSDP at constant (2011-12) Prices for the year 2016-17 (Advance Estimates) is estimated at Rs.5,47,021 crores as against

Rs.4,90,134 crores for 2015-16 (First Revised Estimates) indicating a growth of 11.61%.

Fig 2.2: Share of Major Sectors of the Economy



The noteworthy feature of the growth pattern in Agriculture & Allied Sectors is that this key sector which is supporting about 62% of the population, is consistently maintaining an ascending trend during the last three years, especially marked by an encouraging growth rate of 14.03% in 2016-17 at Constant (2011-12) Prices with a GVA of Rs.1,38,833 crores.

Industry sector comprises of Mining & Quarrying, Manufacturing other utility services, Electricity, Gas, Water Supply and Construction. As per the Advance Estimates for the year 2016-17 at Constant (2011-12) prices, the Industrial sector is estimated at Rs.130509 crore, registering a growth rate of 10.05% percent over the previous year. Mining & Quarrying, Manufacturing and Electricity sectors registered double digit growth rates during 2016-17. Services sector, with its consistently surging share in the State GVA, continued to be the engine for pushing the overall growth. The sectoral composition of GVA in 2016-17 (AE), the share of Agriculture in the GVA at Current prices was 31.77%, Industry 22.23% and Services sector 46%.

Table 2.1: State of Growth

Year	GSDP* (at constant prices)	Growth Rate (%)
2011-12	379402	..
2012-13	380629	0.32
2013-14	407115	6.96
2014-15	441741	8.51
2015-16	490134	10.96
2016-17	547021	11.61

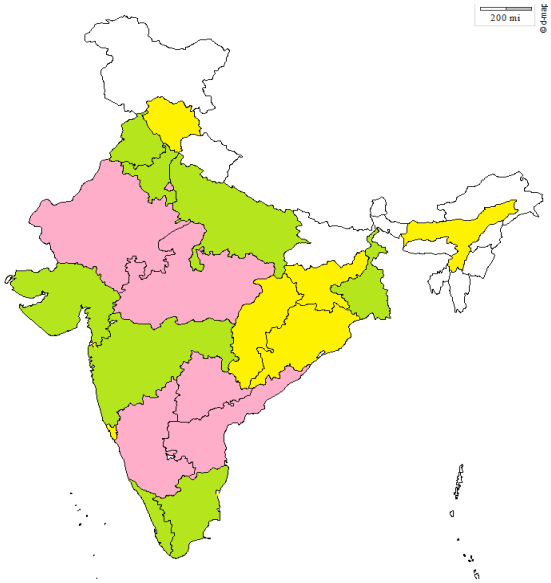
Source: CSO
*GSDP in Rs. crore at 2011-12 prices

A2.Rubber Industry in India

In India, there are approximately 6000 manufacturing units producing a wide range of rubber products operating across 24 states and 4 union territories (according to the registered units with Rubber Board). However, there are thousands of unregistered firms engaged in production different rubber products throughout the country. The rubber goods manufacturing industry includes large capital owned automotive tyre sector and small capital based non-tyre sector consisting of majorly in Micro, Small and Medium Enterprises (MSME). Unlike tyre industry which represents an organized segment of rubber

manufacturing in our country, the production of non-tyre rubber products takes place in the organized as well as unorganized sector. The highest number of rubber product manufacturing units exists in Kerala, followed by Uttar Pradesh and Tamil Nadu. The map represents the presence of large (green colour), medium (pink colour), low (yellow colour) and negligible (white colour) number of rubber product manufacturing units in India. Andhra Pradesh falls under the medium category in this industrial segment.

Fig 2.3: Rubber Industry Concentration in India



The total turnover of the Indian rubber industry is estimated around thousand crores. Among the various rubber product segments in the country, there are large number of firms involved in manufacturing of moulded and extruded goods, tread rubber products, footwear, dipped goods and adhesives. In the production of a wide range of rubber products, natural, synthetic and reclaim rubber is used in the industry.

Natural rubber consumption is at the top position followed by synthetic and reclaim rubber. Two third of the rubber consumption is attributed to the tyre segment whereas the remaining one third is consumed by the non-tyre segment.

India is currently the sixth largest producer of NR in 2015 with a share of 4.7% of world production. During 2015, the output in main producing countries viz; Thailand, Indonesia, Malaysia and Vietnam increased, whereas production in China and India decreased during 2015.

Table 2.2: Consumption of All Kinds of Rubber According to the End Products 2014-15 (in Tonnes)

Products	**Natural Rubber**	**Synthetic Rubber**	**Reclaim Rubber**
Auto Tyres and Tubes	682350	382690	49640
Cycle Tyre and Tubes	75465	29585	26750
Camel Back	44675	31785	4730
Footwear	62635	35190	9650
Belts and Hoses	42170	17730	10750
Latex Foam	28385	--	--
Dipped Goods	41215	--	--
Others	44015	39150	27545
Total	**1020910**	**536130**	**129065**

Source: Monthly Rubber Statistical News, April 2016

Production of Natural Rubber (NR) in India during the year 2015-16 fell 12.9 per cent to 562,000 tonnes from 645,000 tonnes produced a year ago. Adverse weather, high wages, lack of skilled labourers, grower's reluctance in harvesting or maintaining trees in response to the low NR prices have affected the production of natural rubber (NR) in India during the year ended March 2016. Even though the tappable area under natural rubber was 559,000 ha during 2015-16, only 391,000 ha has contributed to the NR production during the year. India ranks second with regard to NR consumption in 2015 with a share of 8.2% of world consumption. India produced 199,845 tonnes of Synthetic Rubber (SR) during 2015-16, up 31.6 per cent on year. SR consumption increased to 553,370 tonnes during 2015-16 registering a growth of 3.2% as against 536,130 tonnes consumed during 2014-15. The relative share of consumption of NR and SR in India was 64:36 during 2015-16.

A3.Rubber Industry: Andhra Pradesh

In the coastal state of the country, as per the data validated by the RSDC, the total number of rubber manufacturing companies is more than 300; it includes the firms operating in Telangana as well. The leading segment of the rubber industry is tread rubber products followed by Moulded products in the state in focus. More than 90 percent of the firms are small and medium scale enterprises, a common trend observed throughout the country for the rubber industry. The number of registered manufacturers has not shown any striking trend in the last five years. It is important to note that our survey focuses on the firms operating in the organized segment of the industry only whereas there are a large number of units manufacturing rubber products in the unorganized sector across the country.

Table 2.3: Manufacturers Status

Year	No. of licensed manufacturers		
	AP	Kerala	India
2011-12	152	760	4386
2012-13	147	724	4334
2013-14	142	724	4350
2014-15	143	734	4307
2015-16	140	744	4363

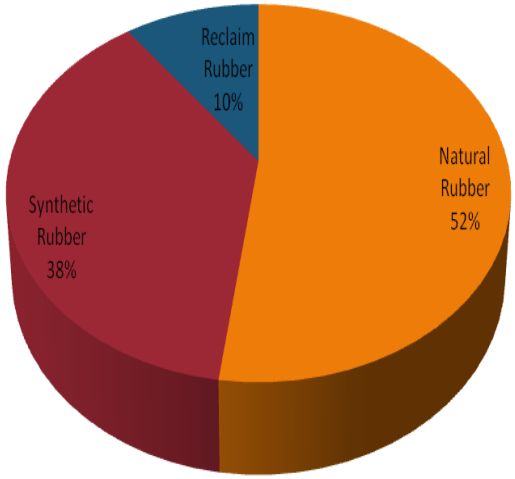
Source: Rubber Board

Hyderabad is the major centre of rubber product manufacturing in the state of Andhra Pradesh. There are many other districts as well where different types of rubber products are manufactured, however the number of units is not very large. Tread rubber products and moulded goods are the leading segment where highest number of firms is engaged in production in the organized segment in the state with respect to the rubber industry. Rubber products are manufactured mainly in the following centres in the state:

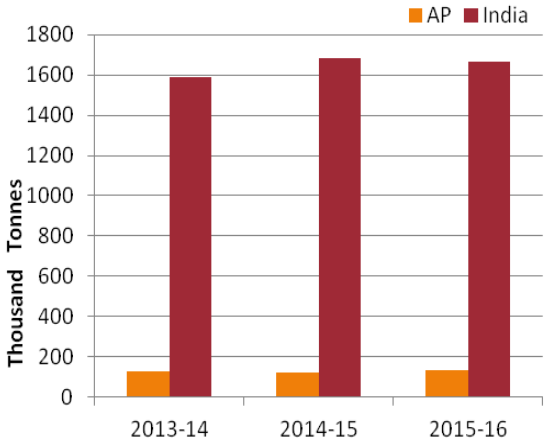
a) Hyderabad
b) Medak
c) Krishna
d) Vishakhapatnam
e) Nalgonda
f) Srikakulum
g) Vijaywada
h) Guntur
i) Chittoor

A4.Rubber Consumption: Andhra Pradesh

During 2011-2016, the state has witnessed rubber consumption increase of 11 percent. It is mainly the SR and RR consumption which has depicted double digit growth whereas NR consumption has remained more or less same during the period. On an average, the annual total rubber consumption in the state has remained above 1.1 lakh tonnes in the last five years. There has been a clear uptrend with respect to the rubber consumption in the state.



The total consumption of 66,310 tonnes of rubber in the year 2015-16 comprised of 67,960 tonnes of natural rubber; 49,150 tonnes of synthetic rubber and 13,250 tonnes of reclaimed rubber. Tamil Nadu, Kerala, Maharashtra, Gujarat and Andhra Pradesh are the top five rubber consuming states in the country. In the year 2015-16, Andhra Pradesh stood at the fifth position



in the list of rubber consuming state in India. The total consumption of rubber in the year 2015-16 for the central state stood at 7.8 percent of the total rubber consumption in India. For the state of Andhra Pradesh, natural and synthetic rubber constituted 6.8 percent and 8.9 percent of the total national consumption in the respective segment while share of reclaimed rubber consumption for the state constituted 11.2 percent of the total reclaimed rubber consumption for India.

After presenting an overview of the rubber industry in the state, now we move on to the detailed analysis of employment in the industry. In order to understand the various factors affecting the employment in the rubber industry and skill requirement in the state, a survey of 24 units has been conducted. The next chapter presents the details, analysis and findings of the skill gap study in the state.

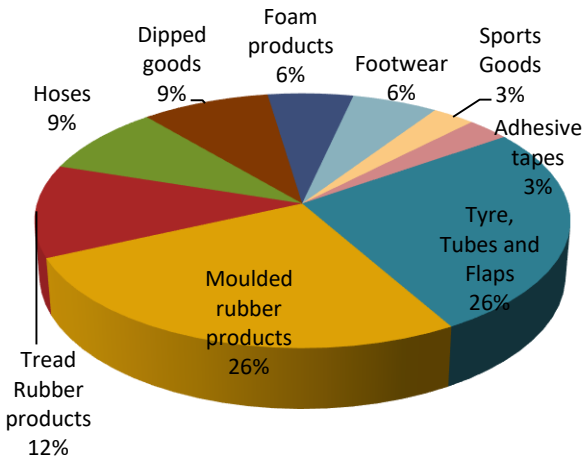
SURVEY INSIGHTS

This chapter provides an insight into the status of human resource employed in the rubber industry in the state of Andhra Pradesh. Analyzing the pattern of manpower recruitment, their skills, skill gap, training status and its requirement based on the feedback received from the surveyed firms, it presents the current scenario, industry concerns and future requirement. The survey covered a sample of 43 rubber product manufacturing firms involved in the production of foam products, hoses, sports goods, rollers, dipped goods, tread rubber, auto and cycle parts, tyre, tube and flap, moulded and extruded rubber products. The respondent firms belong to the newly created 29th state of the Indian Union *Telangana* and new Andhra Pradesh. The firms belonging to the following cities provided their inputs for undertaking the skill gap analysis in the state:

- Hyderabad
- Autonagar
- Medak
- Medchal
- Mehboobnagar
- Nalagoda
- Outhbulapur

Given the different scale of production (small, medium and large) and existing organizational structure, the skill gap prevalent in the industry is analyzed across various job roles attached to different operational departments. The analysis of the data collected from the select rubber products manufacturing firms across the different segments would not only help in understanding the existing skill gaps but also the emerging skill gaps with respect to the rubber industry in Andhra Pradesh.

Fig 3.1: Survey Coverage



Through analyzing the responses of the surveyed firms in the state, the focus of the chapter is on understanding the present structure of employment, future expansion plans, educational and training status and the industry players' expectations from the various stakeholders viz, RSDC, Industry Association, Educational Institutes and other stakeholders.

Here, we examine the overall employment in rubber industry in the state w.r.t.:

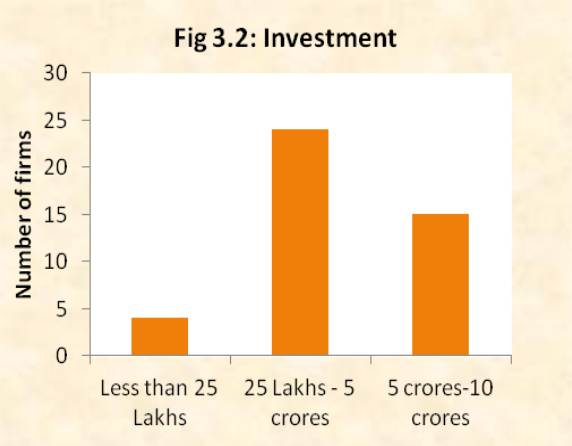
a) Current Status
b) Issues/concerns
c) Possible actions

A) CURRENT STATUS

A1. Scale of Operations

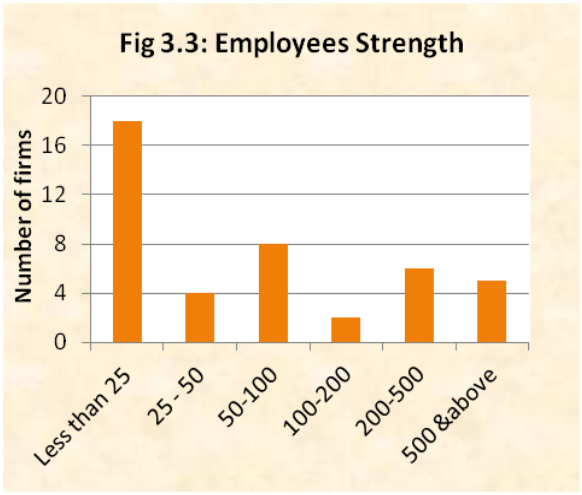
Interestingly, the sample selected for the survey belongs to the tiny, small and medium size enterprises only based on the investment information revealed by them. Among the respondents, there are 65 percent tiny and small scale and 35 percent medium scale firms with respect to their total investment in the business. However, the total turnover varies as compared to the total investment of the firms.

Eighty four percent of the entrepreneurs are handling only manufacturing of rubber products only for one production unit whereas others are involved in managing operations of two or more manufacturing units.



Majority of the firms did not share their future expansion plans as well as capital investment plans, thus providing no indication towards any change in scale of operations in near future. Above all, the firms have not envisioned any major change in the production in any of the segments of rubber product manufacturing.

Another important variable reflecting the size of the firm relates to the total number of employees in the organization.



The human resource requirement varies depending on the nature of the product produced, scale of automation and production. The employment pattern reveals that except for three firms, all the firms investing upto 5 crores (tiny and small scale) employ less than 100 persons. It has been noticed that two third of the small scale firms have less than 25 employees.

Medium scale firms employ relatively larger number of employees ranging from 50 to 1500. The medium scale firms belonging to the Tyre, Tube and Flaps segment hires the highest number of employees according to the details shared by the respondent firms.

According to the survey response, each and every firm has maintained that they face problem in getting skilled manpower.

However, most of the firms did not see any additional requirement for human resource.

Considering the time zone related to the establishment of the surveyed firms, no striking fact has been noticed with respect to the size of operations in the last fifty years. There has been a clear tilt towards the small and medium scale firms in the industry in the state over the years. The survey provides a coverage of a combination of old established firms as well as newly established firms in the beginning of 21s century. This particular phenomenon helps in identifying the problems with respect to skilled manpower in the industry for older and newer firms as well as highlights the similarity for both. More than half of the respondent rubber products manufacturing firms were established before the beginning of 21st century in the state of Andhra Pradesh.

Table 3.1: Periodic Development

Year of Establishment	Number of Firms		
Respondent Firms	Tiny	Small	Medium
1970-1985	2	8	3
1986-2000	1	8	7
2001-2015	1	8	5

It is important to note that whether the firms are in operation for many years or established in recent past, they all face the problem of skilled manpower and reported that there is lack of knowledge about the process and product among the workers.

A2. Recruitment Strategy

Majorly, the firms engaged in rubber industry are interested in hiring the employees on their roll irrespective of their production capacity, investment, product segment and number of total personnel employed. An analysis of the recruitment strategy of the firms belonging to the rubber industry in the state of Andhra Pradesh depicts that 60 percent of the surveyed firms have hired all the employees on their roll. No single firm has all employees hired on off roll basis. Those firms which have off roll employees also do not indicate any correlation with the size of the production and investment by them.

Table 3.2: On Roll Employees

Percentage of on roll employees	**Surveyed Firms (%)**
Less than 25	2
25-50	19
50-100	19
100	60

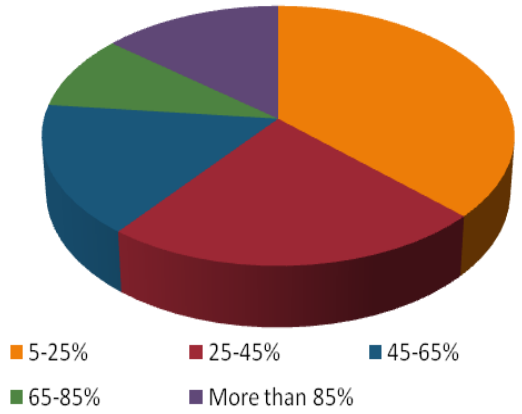
The most effective method of employing workers is through internal references and direct interview for almost all of the surveyed firms. However, there are only few firms which are using the consultancy, placement agency and their HR department to get the relevant people for the vacant positions in their production unit.

A2.1 Employees Recruitment

Among the total firms surveyed in the state, it has been noticed that no single firm have recruited all the employees from Andhra Pradesh only. There are employees coming from other states to work in rubber product manufacturing firms for each of the surveyed firm however the percentage of employees coming from outside varies for

different segments of the industry. They mainly belong to the states of West Bengal, Odisha and Bihar. Importantly, there is no organization which has recruited all the workers from outside the state. However,

Fig 3.4: Employment Pattern : Employees from Andhra Pradesh



Availability of educated manpower is the only main reason listed by the firms hiring the people from the state but all of them reported that skilled manpower is difficult to get. However, some of them have not mentioned any specific reason for hiring from Andhra Pradesh. Overall, each of the surveyed firms has employees coming from the other states to work in their factory premises. The employment trend depicts that majority of the firms surveyed preferred recruiting the employees from outside have their origin mainly from the three neighbouring states. Karnataka too contribute to the workforce engaged in the surveyed rubber industries in Andhra Pradesh though in a very small proportion.

The main job positions for outside people have not been specified by the respondent firms. Majority of the firms have clearly mentioned that outside people are easily available and show less absentees that means they are more regular.

the firm employing 90 percent of its workforce from outside state is involved in the production of dipped goods (bottle nipples).

A2.2 Attrition Trend

A noticeable trend related to the employment in the rubber products manufacturing unit is that the employees remain associated with the organizations for longer periods irrespective of the total number of people employed as a low level of attrition has been reported by 80 percent of the firms. Such trends are similar for tiny, small and medium scale firms. Also, the firms established in the 21st century and that operating for more than 15-20 years, employee's attrition has remained low.

Table 3.3: Attrition Rate

Less than 10 %	•80%
10- 20 %	•20%

Lower attrition rate could be associated with the fact that the firms train the employees on their own for their work and skilled labour is difficult to find. Therefore, the firms do not want the employees to leave. On the other hand, people coming from outside the state would not prefer to

change job frequently in case there is no

A2.3 Retention Strategy

Skilled manpower is more valuable as compared to their unskilled counterparts and therefore it becomes important for firms to retain the skilled workers with them. However, the survey results show that the employed personnel do not possess any technical skill before joining and gain experience through shop floor work only. Here, it is interesting to understand that if the firms spend time and resources in training people on the job then they should have effective retention strategy. However, it is found that almost one fourth of the firms do not have any retention strategy. For rest of the firms, it is the monetary aspect related to pay, bonus and increment as well as good working conditions which play an important role in encouraging people to remain associated with them for a longer period.

Table 3.4:Retaining Employees

Retention Strategy	Firms Response (%)
No retention Strategy	23
Good pay, increment, bonus and facilities	63
Basic Employees facilities	14

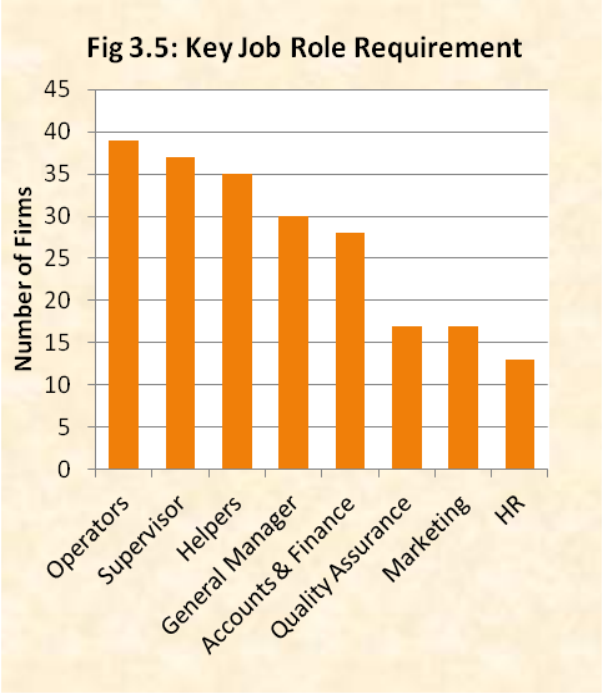
No firm has given importance to long term career growth plan as their retention strategy.

A2.4: Workforce Status

A2.4.1 Requirement & Availability of Manpower

issue with respect to monetary rewards.

The survey analysis for the key job roles for recruitment clearly shows that the main roles for employment in rubber industry are not only related to production activity but also for administrative, accounts and HR. It is important to note that nearly two fifth of the respondent firms mentioned that there is a requirement for people for undertaking marketing role. However, it is interesting to note that a large number of firms have highlighted requirement for supervisory role and non-core activities specific to quality assurance, a trend which has not been seen in majority of the other states.



In Andhra Pradesh, finding requisite number of people for carrying out the rubber products manufacturing by the firms is not a major concern for 75 percent of the respondent firms. However, the shortage of skilled manpower has been identified as a

common problem by those firms. There are very few firms which do face difficulty in hiring people for packaging job.

It is interesting to note that majority of the firms have not mentioned about the any problem in finding people for different roles. Based on the responses of the firms, it is noted that there is a presence of large number of outside workers in the industry. It has been pointed out that firms hire a large proportion of their workforce from outside the state and the availability of migrant workers helps them in continuing their manufacturing activity without any major human resource availability issue.

A2.4.2 Workforce Distribution: Core and Non- Core

The proportion of employees engaged in production section stands higher in the manufacturing units as compared to the administrative and managerial departments. In the rubber products manufacturing firms across all segments, two third of the firms surveyed are hiring 80 percent or more of their total employees in the production section. All the firms at least have two third of their total employees engaged in the core activity. Moreover, the trend is in line with the findings related to the key job roles for employment in this sector.

Table3.5: Core and Non-Core Distribution

Recruitment in Core Functions of Production	Surveyed Firms (%)
90% and above	23
80 to 90 %	44
70 to 80 %	19
60 to 70 %	14

A2.4.3 Actual Employment

The main categories for which firms have listed out their total employment pattern are as follows:

- Supervisor
- Operator
- Helper
- Senior Management
- Quality Assurance
- Sales/Marketing and Purchase
- Accounts
- Storage
- Utility and Maintenance

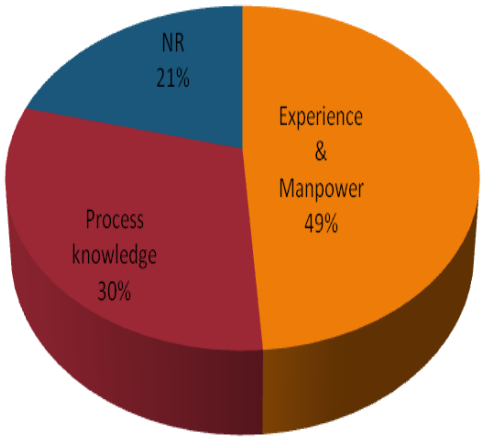
An analysis of the employment pattern reflects that for all of the firms there is at least one person for the supervisory role except a tiny firm with seven employees. There are as much as 150 supervisors working in a unit involved in the production of tyres. Interestingly close to fifty percent of the total respondents have no one recruited for quality assurance. The share of senior management for majority of the firms remains less than 20 percent. It should be noted that the fifty percent of the organizations have personnel separately recruited for Sales and Marketing. Two third of the surveyed firms have people recruited for accounts work whereas the firms which has no one working separately at the accountant's designation are operating at small scale. It

is only for the two third medium scale firms which has engaged personnel for Utility and Maintenance. No tiny and small scale firm has anyone recruited for such category.

A2.4.4 Drivers of Productivity

The firms need to pay attention towards the productivity of people employed by them for undertaking various job roles. Skill development of employees is one aspect for which employer should be careful about. However, from the point of view of employers what drives their productivity remains a big question to be answered. Eliciting the response for this question, it has been pointed by majority of firms that experience and manpower are the top most driver of productivity. Knowledge of the process guides the performance of the workers to a great extent. However, some of the firms have not been able to identify any reason that drives the productivity of the employees.

Fig 3.6: Drivers of Productivity

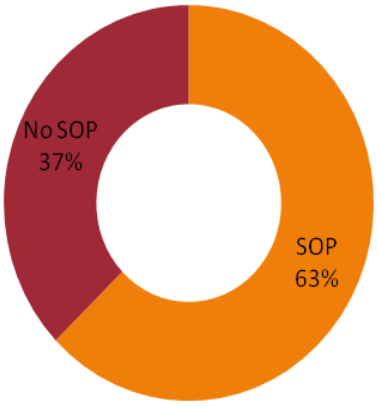


Considering these responses, it should be noted that experience and knowledge are the two main instruments with which the worker performs a task more efficiently. Thus, employer should pay attention towards training and education of the workers for developing skills of the workforce for improving productivity in the long run.

A3. Standard Operating Procedures (SOP)

Standard Operating Procedures are laid down by the firms to clearly list out the process to be followed at different levels in product manufacturing.

Fig 3.7: Standard Operating Procedure



It has been observed that almost two third of the respondent firms have the SOPs at their workplace which is a very positive side of the manufacturing practices in the industry in the state. Such trend does not have any correlation with specific segment of rubber manufacturing units. However, those respondent firms which do not have SOPs fall under small scale category. Nevertheless, these firms do not have any employees who have any vocational training or higher education (Engineering/ PhD) except one firm.

It follows from such observations that it is required for the employees to be educated to a particular level to follow the standard procedures.

Majority of the organizations surveyed do have Standard Operating Procedures at their units. Processes are carried out based on standard instructions and they revise it at different time intervals. For firms following SOP, 90 percent of them revise it as per the requirement (product or process modification/technology upgradation) and others on monthly and six monthly basis. However, no revision has taken place for some firms, reason being the same product and process followed.

B. ISSUES AND CONCERNS

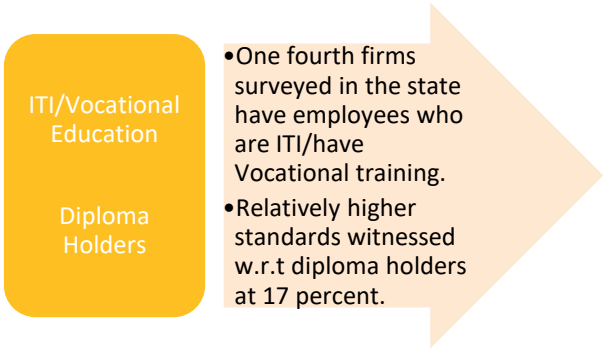
B1. Educational Front

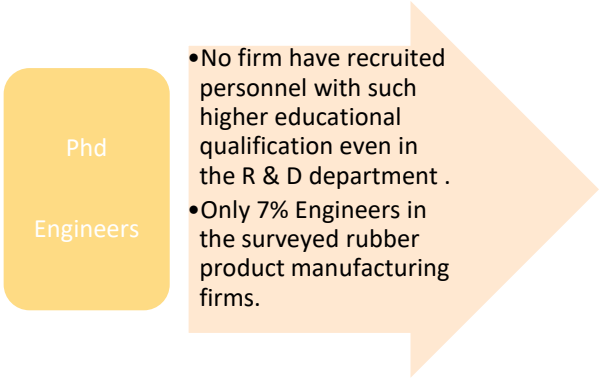
It is assumed that the skills do have a strong correlation with the educational background of the workers. Considering this fact, the section highlights in detail the present scenario of the educational status of the workers employed in the rubber industry in the state of Andhra Pradesh.

Table3.6: Minimum Education

Percentage of employees below 10th standard	Surveyed Firms (%)
Less than 40 percent	55
40-70 percent	40
70-100 percent	5
None	-

There is no single surveyed firms have all the employees who are metric pass and hold higher educational qualification. In all the firms taken together, there are 15 percent of total employees with basic education of less than Xth standard (it includes 2 percent illiterate workers as well). This situation for the state is far better than the condition in Gujarat where majority of the workforce employed in the industry are not even metric pass. It is interesting to note that four percent of the employees working in the rubber industry hold professional degrees such as CA, MBA etc. In Andhra Pradesh, on an average each firm has 30 percent of their employees who are not even metric pass.





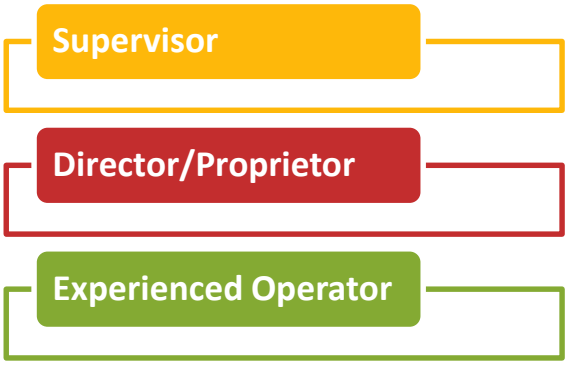
The area of concern is the vocational training and field specific educational qualification for the employees working in the rubber industry in different segments. It

is important to note that the industry employment should focus on vocational and specialized education. The survey results shows that there are 11 percent ITI/vocational education holders working in the rubber industry in the respondent firms. The presence of Diploma holders in the rubber manufacturing units is much higher as compared to the other states accounting for 15 percent of the total number of employees. Merely 7 percent of the total number of employees working in the rubber products manufacturing units surveyed are Engineers. It is important to highlight that no firm has hired qualified personnel in the research department who is a PhD holder. Graduates working in the rubber manufacturing units are mainly associated with the accounts, marketing, quality assurance and management department. On an average, there are 20 percent graduates working in each firm.

B2. Training

Out of the total surveyed firms, no firm has a separate training department for their employees. Neither had they appointed a trainer nor do they arrange any expert visit to their workplace. As a whole, all the firms have adopted the culture of on the job training, mostly prevalent all over the country in the manufacturing segment. These firms have not indicated separate resources especially for training their employees. All these firms are not tiny organizations but small and medium scale firms. This clearly indicates less interest shown by the organization in allocating separate resource for training the employees. However, the following chart depicts the persons who are mainly engaged in providing in house training to the work force working in the rubber products manufacturing units:

Fig.3.8: IN-HOUSE TRAINERS



Although majority of the firms do not have any separate training department, they provide training to the employees by utilizing their in-house resources. It has been noted that in the smaller organizations having less than 25 employees, the proprietor/director or the supervisor trains the operator and helpers in performing the assigned task. Experienced operators mainly take up the responsibility of training the helpers in small and medium organizations. Here, the attitude on the part of the organizations too does not reflect an encouraging trend towards resolving the issue of technical skills.

B2.1 Requirement for Training

Although the firms do not allocate specific resources for training department, but all of them responding to the requirement for training agreed unanimously that there is a sheer need for training the employees. However, only few organizations clearly outlined the roles for which there is specific requirement for training. Among the various job roles, the requirement for operators' training emerged as the top priority.

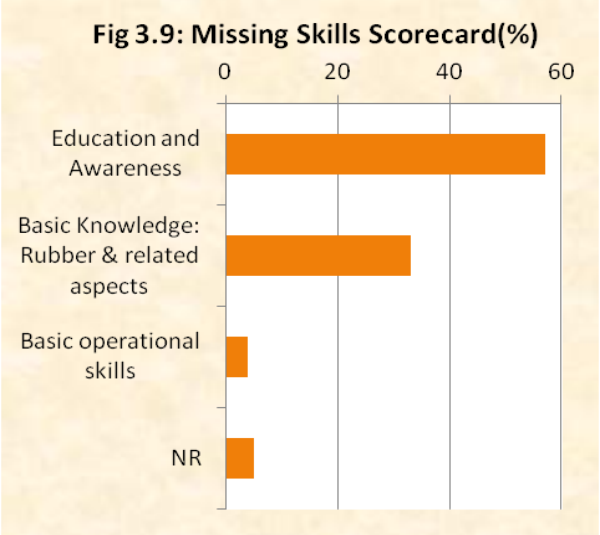
B2.3 Training Institutes

Regarding the association of rubber products manufacturing firms of different segments with the training institute, the survey results present a significant observation that 98 percent of the firms have no direct relation with the training institutes. Only one firm engaged in tyre and tube segment in Mehbubnagar has an association with Focus institute. No firm have any association with ITI Colleges and engineering colleges even for recruiting people for electrical, mechanical & maintenance department.

No major issue has been highlighted by the firms with respect to the dealing with training institutes in the state.

B3.Missing Skills

More than half of the firms who responded to the query related to the skills that the industry find missing in their employees believed that the workers lack basic education and awareness in this industry whether it is a small or medium scale organization. As the employees mainly gain knowledge on the job which has been highlighted throughout in the survey responses, the weakness on the part of knowledge regarding the properties of the material/product and their usage seems to be an important area of concern by one third of the respondent. Another area of concern that they reported relates to the requirement of basic skills for operations which means that the workers are not confident to perform their work unless and until any guidance /supervision is provided.



B3.1: Regional/State level Variation in Skill Gap

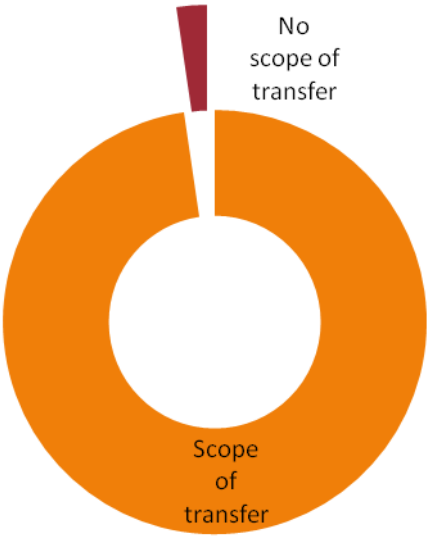
Around 90 percent of the surveyed firms have responded that there exist regional variation in skill gap but failed to provide any clear indication regarding the regional/state level variations in the skill gap that they witness. According to them the variation exists because people in the state are not willing to work in rubber

industry. However, some f the firms have not shared any views in this context.

B4.Role Transfer

Transfer of roles in the factory premises basically mean that a person recruited for performing a particular job role is also performing the other roles.

Fig 3.10: RoleTransfer



The survey results indicate that except for one firm producing gloves, all the other respondents admits that there exists a scope of transferring role among employees. Some of the firms maintain that job rotation is good for the performance of the workers. Few firms hold that they train the workers for performing multiple tasks/roles. However, the existence of such phenomenon of an employee handling multiple tasks in the factory premises is common for small as well as medium scale units of the industry in the state. In other words, the person specific role is not related to the size of the organization as reflected by the facts reported by the respondents.

It is now interesting to ascertain whether there is a particular category where role transfer is common or it exists at all levels. The survey findings do not clearly outline whether such multiple role performance happens among helpers, operators or supervisors. It has been clearly accepted by majority of the firms irrespective of their size and total number of persons employed that the workers are performing more than one task.

Such arrangements in the firms points towards an important finding while we discuss the skill gap issue in our present analysis, that is , employees have the capability of performing more than one role than can't we call is as multi skill employees. Then where is exactly the skill gap, here we have a reservoir of skills but the fact is that the employees are not trained to perfection in one role and upgraded on regular basis but use their services in multiple roles in adhoc manner.

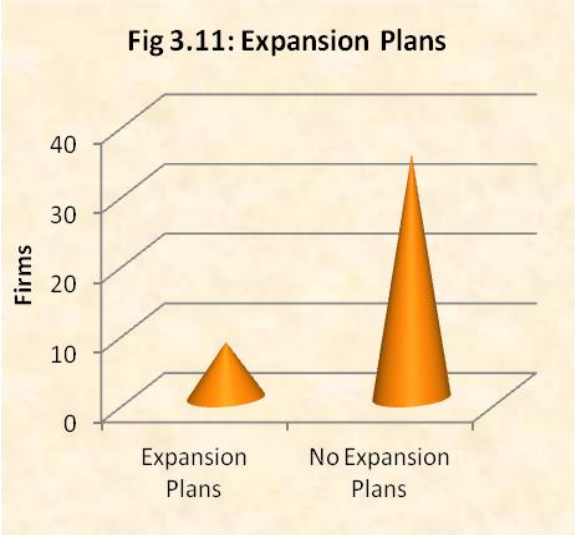
B4.1 Skill Gap or Saving on Resources

It has been reiterated by majority of the firms that transfer of roles among employee is taking place. However, one should think over it as it is really a skill gap or firms are saving on their resources. Even at the senior management level, the multiple roles are performed by the employees. The following intercepts which has been shared by the some of the firms can be taken for the consideration:

"The Owner himself plays the role of Managing Director and also together plays multiple roles that of marketing manager, HRM, procurement and production manager. The helpers do the finishing and packing. The supervisor along with the quality check worker does the quality check.

B5. Expansion Plan

There are very few firms in the industry in the state which have any future expansion plans and such a trend is quite alarming for the industry. It indicates that either the entrepreneurs are not concerned about their growth or they do not visualize any growth at present in the near future for the rubber products. Four fifth of the surveyed firms engaged in rubber product manufacturing in Andhra Pradesh reported that they do not have any future expansion plans regarding their manufacturing activities. Only twenty percent of the firms having expansion plans are either looking forward to expand capacity same line of business, enter a new extending product line, upgrade/modernize the technology, purchase new machinery or improve the infrastructure.



Firms expanding their business may require the additional workforce; however the respondent firms have not highlighted specifically the job roles. But they have clearly provided an estimate of the total number of additional workforce that will be required given their expansion plans. Almost, double workforce will be required in the near future by the firms which have shared their expansion plans. Also, some of the firms which are planning for expansion have shared the estimate for the required capital investment. There would be an additional 10 crore of investment coming in for these surveyed firms.

B6. Future Trends: Emerging Skill Gap

Technical education is one area where most of the respondents feel that the educational level skill gap would emerge. It has been outlined very clearly by each of the surveyed firms that the employees working with them have gained the process and work knowledge through shop floor experience only. Diploma, ITI and

engineering would be the most sought after courses for the various job roles associated with the rubber product manufacturing in coming five years. Such outlook for the industry is held by the entrepreneurs running small as well as medium scale units.

B7.Skills vs Performance Review

Performance of any employee depends on the ability to perform the work assigned efficiently, effectively and in timely manner. However, the output is important but the review of the performance is no less significant to develop and maintain new and existing skills. Performance review depends greatly on how one measures the output of the worker.

Table 3.7: Workers Output Measurement

Parameter	Firms (%)
Quantity produced	89
Finished products vs error rate	7
Production time	2
Hours spent	2

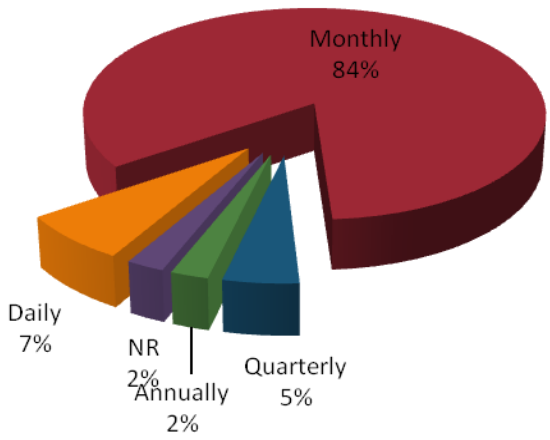
All the firms have responded to the way they measure the output of their workers and those who have shared their method regarding the output measurement disclosed that it is mainly by the way of quantity produced on daily basis. Only 7 percent of the firms surveyed mentioned the inclusion of error rate/defect aspect whereas for 2 percent of the respondent firms, it the production time taken and hours spent on the work forms the main component of output measurement by them.

Nearly 90 percent of the firms have reported that normally the targets are met by the workers. There are no major issues with regards to the achievement of the set targets.

It is important to carry out the performance review by the firms which are all engaged in the manufacturing activities. Not only the personal development is reflected through such activities but also the skill gaps get highlighted for each of the employees.

Majority of the surveyed firms have shared their process or method of reviewing their workers performance. The frequency of monthly review is the highest whereas there are only few firms reviewing the performance of their employees at other intervals such as daily, quarterly and annually.

Fig 3.12: Performance Review by Firms



C. Possible Actions

To address the skill gap issue in the rubber industry in the state of Andhra Pradesh, the

respondents from the different product segments have been asked to suggest the role Rubber Skill Development Council (RSDC), educational institutes and government should play in developing the human resource engaged in the rubber industry in the state. However, majority of the firms did not share any views on the role for RSDC, government as well as educational institutes, but some of the firms have strongly suggested all the stakeholders to encourage people to work and earn instead of offering them schemes proving free products and services. It is an important suggestion that has emerged from the survey findings for industry as a whole to develop skills of the workers.

SKILL GAP ANALYSIS

Before we move on to the skill gap analysis for the rubber industry in the state of Andhra Pradesh based on the survey conducted for the select manufacturing units, it is important to understand what we mean by Skill and Skill Gap. An ability and capacity acquired through deliberate, systematic and sustained effort to smoothly and adaptively carry out activities or job functions involving ideas, things and people is how we may define *Skill* in the industrial set up. Different types of skills are required in the manufacturing units for various job roles. Here it is noteworthy that we first need to define the skills required to perform a specific job role and then highlight the gap. The difference in the skills required on the job and the actual skills possessed by the employees is referred to as *skill gap*. Skill gap analysis for the various job roles in the rubber industry helps achieve the following objectives:

- Helps to define the skills required in the industry at present and in future
- Make employees aware about the critical skill they will need to develop/learn
- Helps in recruitment effort when current employee do not possess the required skills for the specific job role

This chapter presents the skill gap noted by the firms producing rubber products in the state, job role wise skill gap for different segments, skill gap intensity for each of the job role and emerging skill requirements in the future in the industry.

A) Missing Skills: An Analysis

An attempt is made to provide an industry's perspective regarding the employees' skill gap that the entrepreneurs have identified and experienced in their organizations. Whether it is a small scale or medium scale firm or it is an old established or a relatively new firm in the industry, the two main important skills they find missing relates to the education of the employee and their knowledge related to the rubber and

related processes in the rubber manufacturing.

Table4.1: Skill Gap: Product Category Wise

Category	Firm's response (%)		
	Education & Awareness	Knowledge : Rubber & Related Aspects	Operational Skills
Camel	2	7	2
back			
Footwear	2	2	-
Belts& hoses	-	2	2
Tyre, Tube & Flaps	19	5	-
Dipped goods	10	-	-
Others	21	18	-

As the employees mainly gain knowledge on the job which has been highlighted throughout in the survey responses, the weakness on the part of knowledge regarding the properties of the material/product and their usage seems to be an important area of concern.

B) Skill Gap: Based on Major Classification

As reported by the firms, there are distinct skill gaps prevalent at different levels. The intensity of skill gap is rated as low, medium and high. Broadly, here we will list down the main skill gap observed at helper, operator, supervisor and management level. Following the organizational hierarchy, let's begin from the bottom of the pyramid.

1. Helper

Entrepreneurs feel that the helpers are not trained at all. The individuals working as helpers in the factory premises are primarily less educated and only understand local language. Generally, they do not possess any technical knowledge about product, process and machinery. No formal training is attended by this category of workers and across all the segments firms believes that the intensity of their skill gap is low. An attitude towards self learning need to be developed which is extremely important for progress on professional front.

2. Operators

The operators handling a range of activities in the manufacturing unit are not experienced in performing their roles. On the job training is provided to most of the operators employed in the rubber products manufacturing units in Andhra Pradesh. Lack of attention/concentration while performing their jobs as well as lack of product knowledge is the main issues related to the employees handling machine operations. Issues arising in functioning of machine and its repair are not easily resolved by the operators. Less readiness before performing any task and lack of sincerity are some of the behavioral traits observed by the firms for operators working in their manufacturing units.

3. Supervisor

Supervisors are the main pillar of the manufacturing activities under whose guidance the work is carried out in the unit. One of their main roles is to train the workforce and get the product ready. Firms have reported that supervisors are not keeping themselves updated with the latest technology in use in the industry. Also, they have not received any formal training but gained knowledge based on work experience only.

4. Management

For the people involved in managerial tasks associated with production, storage, maintenance and factory operations, major skill gap has been identified on account of technical knowledge, experience level and equipment knowledge based on the survey responses.

There exist large number of employees who are involved in the production or manufacturing process who receives training in the factory premises only after getting employed, therefore the skill gap at the entry level is at the highest level.

Table 4.2: Job Roles and Skill Gap: Andhra Pradesh

Segment	Job Role	Skill Gap	Intensity
Tyre, Tube and Flap	General Manager	• Less experienced • Lack of knowledge about the industry	High
	Operations Head	• Less Experienced	Medium
	Marketing Head	• Lack of technical know how	Medium
	Planning Head	• Lack of experience • Lack of equipment knowledge • Lack of dedication towards work	Medium
	Purchase Head	• Lack of industrial knowledge • Lack of experience	Medium
	HR Head	• Lack of experience • Difficulty in resource allocation	Medium
	Store Supervisor	• Lack of experience	Medium
	Procurement Head	• Lack of experience	Medium
	Dispatch Manager	• Lack of experience	Medium

	Quality Supervisor	• Lack of complete knowledge about product • Lack of formal training	Medium
	Plant Head	• Lack of knowledge about industry • Less experience • Lack of formal training • Lack of knowledge about latest technology	High
	Section Incharge	• Lack of knowledge about the process	Medium
	Mixing Operator	• No formal training	Medium
	Extruder Operator	• No proper knowledge about the machine • Less attention during work • Lack of formal training	High
	Jointing Operator	• Low technical knowledge • Less experience	Low
	Threading Operator	• Lack of technical skill • Lack of experience	Low
	Bead Winding Operator	• Lack of technical knowledge • Lack of experience	Medium
	Valve Fixing Operator	• Lack of concentration during work • Lack of experience	Low
	Curing Operator	• Less knowledge about the machine • Lack of knowledge about temperature and time parameter	High
	Finishing and Packaging	• Lack of sincerity • No formal training	Low
	Helper	• Lack of technical knowledge • No formal training	Low

		• Lack of basic education	
	Floor Supervisor	• Lack of knowledge about latest technology in rubber sector • Lack of formal training	High
	Sanding Operator	• Lack of knowledge about process • Lack of attention • Lack of formal training	Low
Tread Rubber	Manager	• Less experience • Lack of knowledge about industry	High
	Mixing Mill Operator	• No formal training	Medium
	Extruder Operator	• No proper knowledge about the machine • Less attention during work • Lack of formal training	High
	Curing Operator	• Less knowledge about the machine • Lack of knowledge about temperature and time parameter • Less readiness	High
	Helper	• Lack of technical knowledge • No formal training • Lack of basic education	Low
	Floor Supervisor	• Lack of knowledge about latest technology in rubber sector • Lack of formal training	High
	Marketing Head	• Lack of technical know how	Medium
	Purchase Head	• Lack of knowledge about the industry • Lack of technical know how	Medium
	Buffing Operator	• Less knowledge about the	High

		machine • Less readiness	
	Finishing & Packaging	• Lack of sincerity • No formal training	Low
	GM Quality	• Lack of complete knowledge about the product • Lack of formal training	Medium
	GM Export	• Lack of knowledge about international market • Lack of experience	High
Dipped Goods	Production Manager	• Less experience • Lack of knowledge about industry	High
	Helpers	• Lack of technical knowledge • No formal training	Low
	Mixing Mill operator	• No formal training	Medium
	Dipping Operator	• No proper knowledge about the process • Less attention during work • Lack of formal training	High
	Finishing Operator	• Less knowledge about finishing work • Lack sincerity	Medium
	Packaging Operator	• Lack of sincerity • No formal training	Low
	Quality Check	• Lack of complete knowledge about product • Lack of formal training	Medium
	Floor Supervisor	• Lack of knowledge about latest technology in rubber sector • Lack of formal training	High
	Store Supervisor	• Lack of experience	Medium
Moulded & Extruded Products	Mixing Mill Operator	• No formal training • Proper understanding of rubber & chemicals	Medium

		• Proper training on different machines	
	Extruder Operator	• No proper knowledge about the machine • Less attention during work • Lack of formal training	High
	Moulding Operator	• Not able to perform the task in one go • No proper knowledge about the process • Lack of attention • Lack of formal training • Training on upgraded machines	High
	Curing Operator	• Less knowledge about the machine • Lack of knowledge about temperature and time parameter • Less readiness	High
	Trimming Operator	• Less accuracy • Low sincerity during work	Low
	Helper	• No formal Training • Lack of technical knowledge	Low
	Quality Check	• Lack basic skill of measuring • Lack of complete knowledge about product	Medium
	Supervisor/Floor Manager	• Lack of knowledge about the latest technology in use in rubber sector • Lack of formal training • Lack of motivating skill	High
	Marketing Manager	• Lack of technical know how • Lack of formal training	Medium
	Packaging	• Lack of sincerity • No formal training	Low
	Purchase Head	• Lack of knowledge about	Medium

		the industry • Lack of experience	
	Inspection Head	• Lack of equipment knowledge • Lack of experience	Medium
Footwear	Mixing Operator	• No formal training	Medium
	Cutting Operator	• No proper knowledge of cutting sheets • Lack of attention • No prior training	Low
	Moulding Operator	• No proper knowledge about the process • Lack of attention • Lack of formal training	High
	Curing Operator	• Less knowledge about the machine • Lack of knowledge about temperature and time parameter • Less readiness	High
	Finishing & Packaging	• Less experienced	Low
	Helper	• Lack of technical knowledge • No formal training	Low
	General Manager	• Less experienced • Lack of knowledge about the industry	High
	Floor Supervisor	• Lack of knowledge about latest technology in rubber sector • Lack of formal training	High
	Marketing Head	• Lack of technical know how	Medium
	GM Quality	• Lack of complete knowledge about the product • Lack of formal training	Medium
	GM Export	• Lack of knowledge about international market	High

		• Lack of experience	
	Plant Head	• Lack of knowledge about industry • Less experience • Lack of formal training • Lack of knowledge about latest technology	High
Hoses	Operations Head	• Less experience	Medium
	Mixing Mill Operator	• No formal training	Medium
	Extruder Operator	• No proper knowledge about the machine • Less attention during work • Lack of formal training	High
	Vulcanizing Operator	• Less knowledge about the machine • Lack of knowledge about temperature and time parameter • Less readiness	High
	Helper	• Lack of technical knowledge • No formal training • Lack of basic education	Low
	Floor Supervisor	• Lack of knowledge about latest technology in rubber sector • Lack of formal training	High
	Marketing Head	• Lack of technical know how	Medium
	Maintenance Head	• Lack of equipment knowledge • Lack of experience	Medium
	Braiding Operator	• Less knowledge about the machine • Less experience	High
	Quality Supervisor	• Lack of complete knowledge about the product	Medium

		• Lack of formal training	
	Finishing & Packaging	• Lack of sincerity • No formal training	Low

Skill gaps have been highlighted in the above section for the different categories of the employees segment wise in the state but it is significant to understand its intensity to take necessary action for improving the efficiency of performing assigned tasks. For example: the employees working as helpers across the rubber product manufacturing segments have not shown any intense skill gaps, therefore the job roles falling under this category may not require any immediate action. But, higher intensity of skill gap at operator and managerial level is an issue need to be resolved at the earliest.

C) Skill Gap Intensity

The intensity of skill gap is listed under three categories by the firms covered in the sample of the study i.e. Low, Medium and High. However, the analysis of the responses is listed under following categories based on the given criteria:

Table 4.3: Skill Gap Intensity Criteria

Category	Criteria (Response of firms)
Low	Low: 80 percent or more
Low to Medium	Low: 60 to 80% and Medium:20-40 %
Medium	Medium: 80 percent or more
Medium to High	Medium: 60 to 80% and High:20-40 %
High	High: 80 percent or more

Analyzing the responses of the firm for the intensity of the skill gap noted by them for the various job roles, it is interesting that the intensity of skill gap is rated high for floor supervisor's role across the different segments. However, there are other supervisory roles mentioned by the organization at the senior level which are specific to different job roles but their intensity of skill gap is medium.

The skill gap intensity for operator's role for various activities has been rated low, medium and high by the respondent firms. Nevertheless, the helpers' role assumes very low intensity for skill gap.

An analysis of skill gap intensity indicates that the firms have rated low skill gap intensity for trimming, finishing and packaging jobs at operator level. However, most of the machine handling operators is facing medium and high level of skill gap which need to be corrected by technical training.

D) Emerging Skill Gap

It is difficult to find skilled manpower in the current scenario as there are mainly unskilled and semi-skilled workers are available as per the feedback of the firms

engaged in rubber product manufacturing in Andhra Pradesh. The firms believe that in the coming five years, the major educational skill gap would emerge of account of finding employees with Diploma, ITI and engineering in the industry. Also, some of the firms have clearly outlined that there will be availability issues w.r.t the skilled operators in near future. It is noteworthy that firms do not envision any major change in their line of production. However, majority of them would like to expand the same line of their business.

Following these two sets of responses, it is estimated that the requirement for the job roles would be more or less same for the industry as a whole however technological advancement (if any for small and medium scale firms) may demand employees trained with operations of automated machines.

Fig 4.1: SKILL GAP INTENSITY

Job Role	Low	Low to Medium	Medium	Medium to High	High
Supervisor					
Production Manager					
Mixing Operator					
Extruder Operator					
Curing Operator					
Moulding Operator					
Threading operator					
Jointing Operator					
Bead Winding Operator					
Valve Fixing Operator					
Buffing Operator					
Sanding operator					
Braiding Operator					
Cutting Operator					
Trimming Operator					

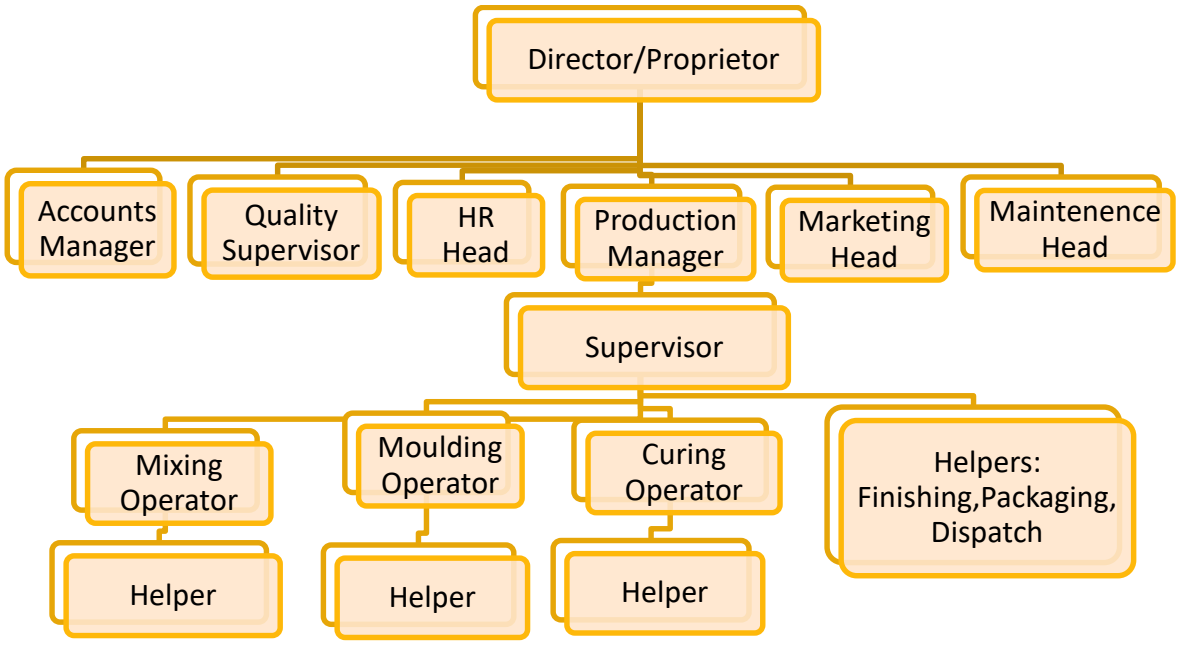
Dipping Operator					
Finishing Operator					
Packaging Operator					
Helper					
Inspection Head					
Purchase Head					
Marketing Head					
Maintenance Head					
Quality Supervisor					
GM Export					
Operation Head					
Planning Head					
HR Head					
Procurement Head					
Store Supervisor					
Dispatch Manager					
Section Incharge					

SEGMENTS AT A GLANCE

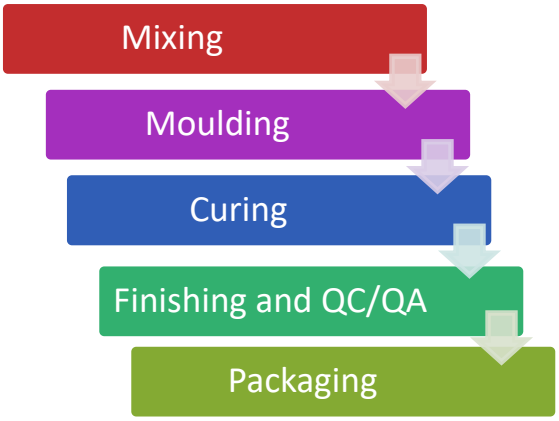
MOULDED PRODUCTS

Only one of the respondent firms producing moulding products mentioned that it recruits only local people for their manufacturing process. Rest of the firms is employing outside people in this segment (ranging from 70-90 percent of their total employees) and those employees are coming from the state of West Bengal, Bihar, Odisha and Uttar Pradesh. The survey findings reveal that the firms do not envision any major change in this segment of rubber manufacturing in near future.

Organization Structure



Process Outline:

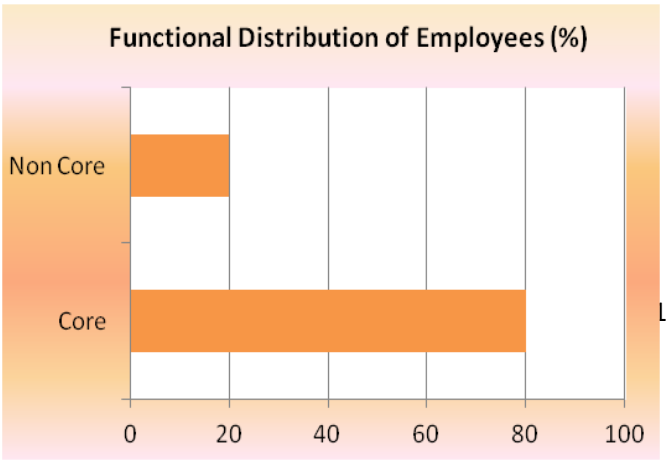


Compound is obtained by mixing the raw materials in a mixing machine. The mixing takes place as per the required specification and then the Moulds or cavities are used to get the required shape of the end products, after that curing takes place. Finishing of the product is carried out. The produced goods are thoroughly checked for compliance to customer specification. The finished products are then packed and made ready to deliver.

Sample Units	Tiny	Small	Medium	Large	Total
Moulded Products	2	8	2	-	12

Manpower at a glance

The employees are recruited on roll as well as off roll in the rubber moulded goods producing firms in the state. Three fourth of the firms hiring 100 percent on



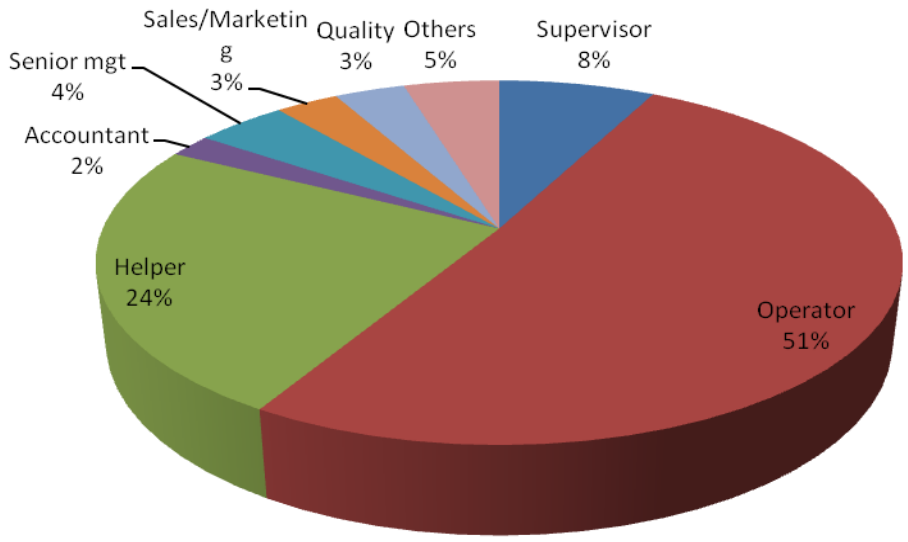
roll employees have either tiny or small scale of production. The major strategy for recruitment is referential hiring, direct interview and consultancy. Majority of the employees are engaged in the core production activity, only 20 percent of the total employees are taking up the administrative, managerial and accounting tasks. All the respondent firms feel that there is a scope for transfer of roles in the activities carried out by the workers in their units as they perform multiple tasks.

Half of the surveyed firms have clearly mentioned that they easily find the requisite number of employees required to carry out the production whereas others have highlighted that there is a shortage of skilled manpower especially operators. Also, the employees lack skills with respect to technical knowledge and quality awareness as per the respondent firms in moulded goods producing units.

As per the classification of employees, the segment indicates mainly the requirement of operators followed by helpers. Interestingly, three fourth of the firms do not have any one recruited for quality control/assurance. On the other hand, the role of accountant has been clearly outlined in most of the firms.

An analysis of operator level employment reflects that there is mainly the requirement for mixing and moulding followed by vulcanizing operation. The requirement for extrusion emerges as some of the firms involved in the production of moulded products also produces extruded product.

Job Role Distribution in Sample Units



Educational Qualifications (% of total employees)

Educational Qualification	Tiny	Small	Medium
Ph.D/Research	-	-	-
Engineers	4	-	5
Graduate	6	30	15
Diploma Engineers	-	2	7
ITI/Vocational Education	-	-	9
XII/X/School Education	33	47	42
Below Xth standard	56	20	20
Others (CA, CS, ICWA, MBA etc.)	1	1	2

Training

Firms surveyed in the moulded goods segment in the state do not have any separate training department. All the firms highlighted that they mainly provide on the job training. Moreover, it is interesting to note that no firm has any relation with the training institutes.

Main Roles and Skill Gap

1. **Mixing Mill Operator**

Mixing Mill Operator	Skill Gap			
	Tiny	Small	Medium	Large
• Receive the raw rubber and the mixing agents from the helper. • Check the chemicals • Mixing the raw material and the Chemical in proper proportion as set aside by the management. • Clock the cycle time for the machine. • Prepare batches as per Compound card • Maintain the pressure and the	• No formal technical training	• No formal training	• No formal training	

temperature of the machine so that mixing occurs properly • Maintain the machine as per the guidelines of the management. • Check that the preparations are without any deformities and blending has occurred properly; as is suitable for the next process.				

Skill Gap Intensity: Medium

Skills Required

Technical Skills:

- Good understanding of the machine at work.
- Knowledge of identifying the chemicals to be added to raw material.
- Putting the chemicals in sequence.
- Attentive towards the work process.
- Know the composition and required specification.
- Visual inspection of the compound to understand the condition.
- Avoid contamination of the compound.

Managerial skills:

- Guiding the helpers for routine work

Soft Skills:

- Good communication skills
- Good listening skills.
- Understanding skills for performing work quickly

2. Moulding Operator

Moulding Operator	Skill Gap

• Operate the machine properly. • Checking that the moulds are properly fixed • Maintaining the temperature of the machine which has been set by the supervisor. • Maintain the machine. • Take care of safety while working on the process as per org. guidelines.(as the temperature is very high) • Help in maintenance of the machine with the management. • Report to the in-charge/supervisor in case of trouble	Tiny	Small	Medium	Large
	• No formal technical training	• No proper knowledge about the process • Lack of attention • Lack of formal training	• No proper knowledge about the process • Lack of attention • Lack of formal training	

Skill Gap Intensity: Medium

Skills Required

Technical Skills:

- Operating the machine skillfully and taking due care while working.
- Handling the moulds as prescribed
- Finely work on the preparation based on the dimensions set by the management.
- Maintain the machine so that it is suitable to work on for the next shift

Managerial skill:

- Good communication skills for guiding helpers.
- Guide the helpers in proper application of the produced product

Soft Skills:

- Effective communication skill

3. Curing Operator

Curing Operator	Skill Gap			
• Maintenance of the machine. • Control of temperature when the product is inside it. • Keeping track of curing time for each product.	Tiny	Small	Medium	Large
	• Lack of training • Lack of attention	• Lack of knowledge of curing temperature , pressure and timing • Lack of training Lack of interest		

Skill Gap Intensity: High

Skills Required

Technical Skills:

- Thorough knowledge of curing process and press and it's working.
- Maintain the appropriate temperature and pressure at all times.

Managerial skill:

- Good communication skills.

Soft Skills:

- Good knowledge of metric system (time, temperature, pressure)
- Good reading skills

4. Quality Control

Quality Control	Skill Gap			
• To check finish product by visual inspection and quality tests and	Tiny	Small	Medium	Large

procedures as per the standards • To perform the various documentation functions. • Identify the process where defects are originating.		• Lack of experience and technical knowledge	• Lack of experience in rubber sector • Lack of equipment's knowledge	
Skill Gap Intensity: Medium **Skills Required** **Technical Skills:** • Knowledge of testing procedures • Knowledge of lab equipment and its handing • Knowledge lab chemicals and preparations **Soft Skills:** • Good communication skills				

5. **Supervisor**

Supervisor	Skill Gap			
	Tiny	Small	Medium	Large
• Manage the shop floor activities. • Responsible for running of unit and production • Planning for production schedule • Understand the end user requirement and design processes to incorporate the customer needs in the final product.	• No formal training • Lack of experience	• No formal technical training	• Lack of latest technology used in rubber sector • Lack of experience	

• Get involved in quality control				

Intensity of Skill Gap: High

Skills Required

Technical Skills:

- Knowledge of the rubber industry
- Knowledge of the current trends in rubber technology

Managerial Skills:

- Should be able to supervise the team and guide them so that quality is maintained
- Ability to schedule work and manage time
- Ability to motivate workers.

Soft Skills

- Effective communication skill

6. Accountant

Accountant	Skill Gap			
	Tiny	Small	Medium	Large
• To perform the various documentation functions. • To assist the marketing, purchase, HR and accounts function as and when required. • To communicate with the external parties.		• No skill gap manifested	• No skill gap manifested	

Skill Gap Intensity: Low

Skills Required

Technical Skills:

- Knowledge of various documents and their importance.
- Mathematical and accounting Skills.
- Ability to communicate in English language
- Good IQ level.
- Ability to communicate and negotiate with the external parties.

Soft Skills

- Effective communication skill

8. Production Manager

Production Manager	Skill Gap			
	Tiny	Small	Medium	Large
• Manage the shop floor activities. • Responsible for running of unit and production • Planning for production schedule • Understand the end user requirement and design processes to incorporate the customer needs in the final product. • Get involved in quality control	• No formal training	• No formal technical training • Lack of experience and dedication	• Lack of experience in specialize sector	

Intensity of Skill Gap: Medium

Skills Required

Technical Skills:

- Knowledge of the rubber industry
- Knowledge of the current trends in rubber technology

Managerial Skills:

- Should be able to supervise the team and guide them so that quality is maintained
- Ability to schedule work and manage time

- Ability to motivate workers.

Soft Skills

- Effective communication skill

9. Helper

Helper	Skill Gap			
	Tiny	Small	Medium	Large
• Shift the material from the different process (i.e. mixing to press to cutting to packing to storing) • Clean the shop floor as when guided by the supervisor. • Loading and unloading the rubber into the mixing mill • Powdering the sheet after the curing. • Finishing and packing the product in respective packing material. • Do all work as directed by the supervisor	• No formal training	• Lacks technical knowledge	• Lack of technical knowledge • No formal training	

Skill Gap Intensity: Low

Skills Required

Technical Skills:

- Proper finishing and packaging
- Do all the work as directed
- Remove the moulds from the rubber in line with the guidance of the supervisor

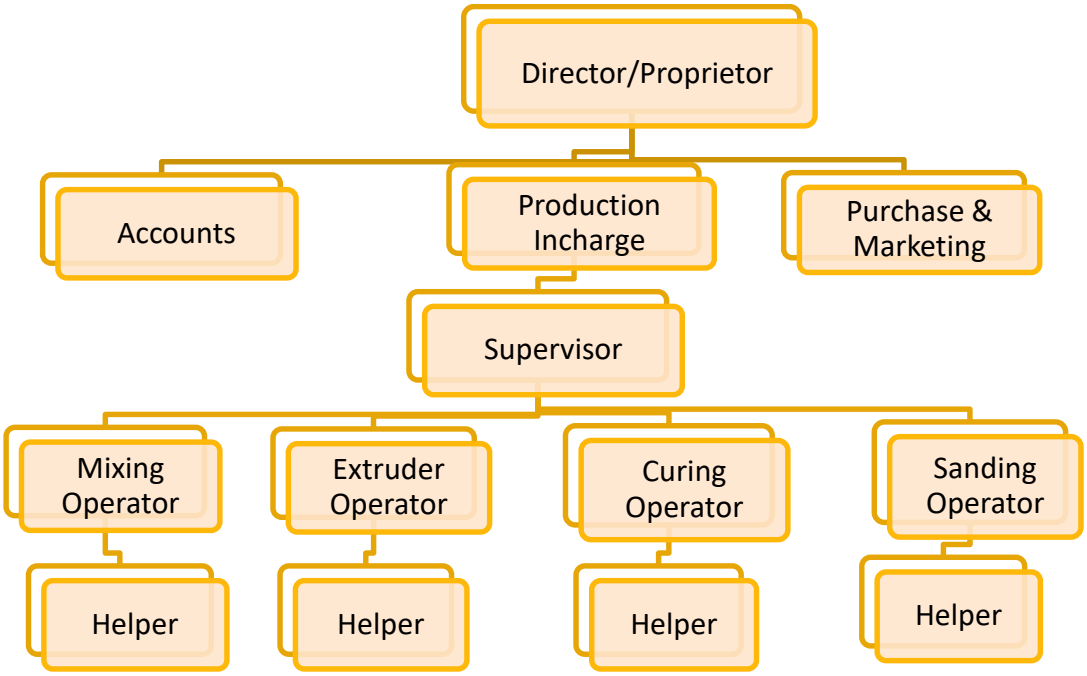
Soft Skills:

- Basic mathematical skills for product counting, identification of numbers etc.
- Good reading skills

TREAD RUBBER

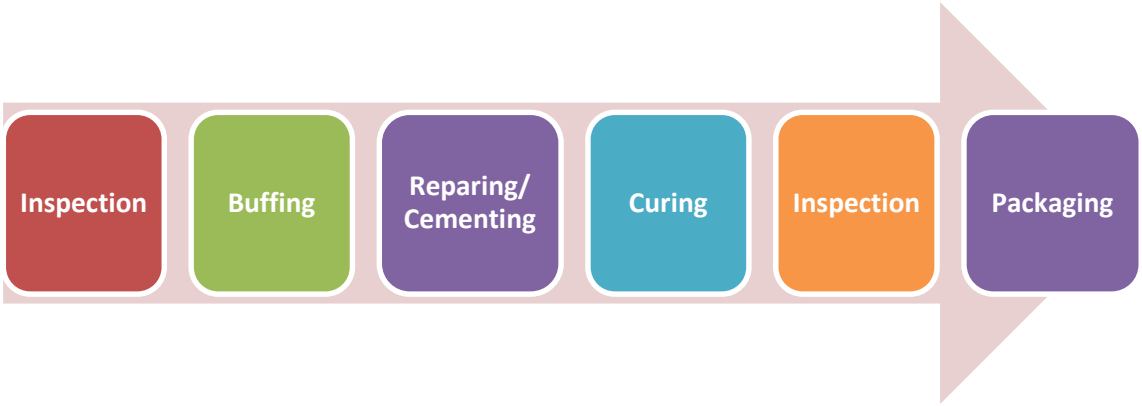
In the last thirty years, a clear trend of employees performing multiple roles in the manufacturing of tread rubber products has been observed by all the responding firms. The entrepreneurs accept that there is ample scope of transfer of roles for employees in their units. Majority of recruitment takes place for operators and helpers job role. Firms involved in tread rubber and retreading in the state hire a large proportion of their workforce from outside, mainly from the states of West Bengal, Bihar and Odisha.

Organization Structure



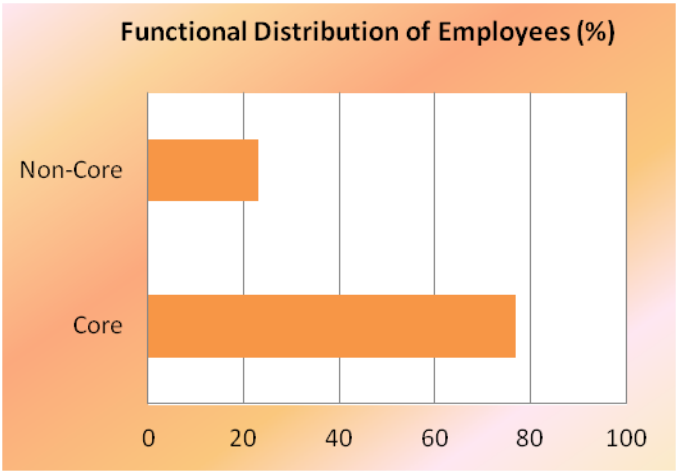
Process Outline:

Compound is obtained by mixing the raw materials in a mixing and milling machine. Machine heats up and softens the rubber as it goes through a die. The extruded rubber goes through curing/vulcanization process. The additional flashes are removed by knives. The back side of the thread rubber is made rough in the sanding process. Supervisor carries out dimension, appearance and quality checks.
The finished products are then packed and made ready to deliver. In case of retreading, the product is inspected carefully then sent for buffing.
Retreading is carried out either through cold or hot process. Curing is undertaken and the product is then sent for final inspection.

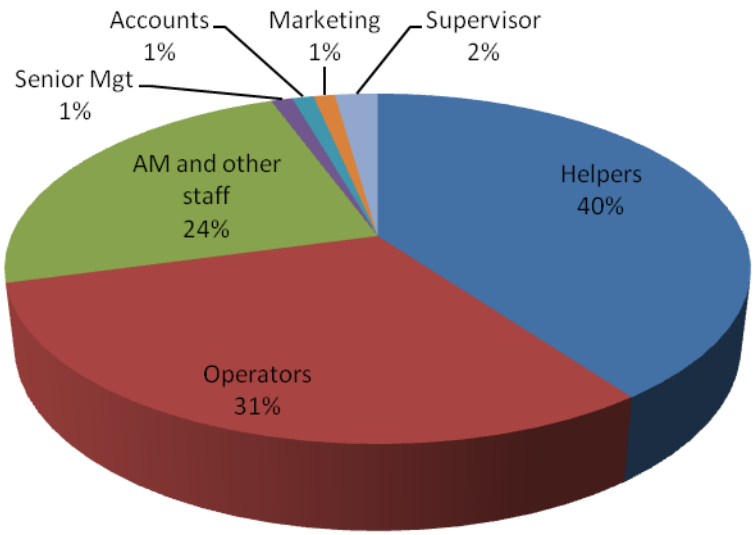


Sample Units	Tiny	Small	Medium	Large	Total
Tread Rubber and Retreading	-	4	1	-	5

Manpower at a glance



Except one medium scale firm, on an average, the number of employees in the select units is not more than 20, as all the other responding firms are small scale manufacturing units. Most of the employees are recruited on roll in the select firms involved in manufacturing of tread products and retreading in the state, there exist off roll recruitment of employees only for the medium scale firm. Majority of the employees are engaged in the core production activity, whereas one fifth of the total employees are taking up the administrative, accounting and managerial tasks. The employees are recruited mainly through direct interview. The attrition rate is not higher than 10 percent in these units and they primarily follow the retention strategy of paying bonus and annual salary increment. Eighty percent of the surveyed firms easily find the employees required by them and do not face any shortage. However, the transfer of roles is frequently noticed in these firms as the workers handle multiple tasks. Training is provided to the workers in the unit only, neither there is any separate training department nor there do any recruitment from training institute.



In the units covered in the sample, the information shared about their employees classification has helped in identifying the proportion of different level of employees in this segment. The main job role is for helpers and operators in the tread products and retreading units. Standard operating procedures are followed by only one firm in this segment of the industry and its SOPs are revised as per requirement.

Regarding the educational qualification of the employees in different categories, office staff and supervisor hold degree of graduation whereas the helpers have mainly completed secondary/senior secondary. Surprisingly, majority of the operators have either completed graduation or passed vocational education/ITI/ diploma. However, there are personnel holding engineering degree undertaking mainly the task of maintenance in the medium scale enterprise.

Educational Qualifications (% of total employees)

Educational Qualification	Small	Medium
Ph.D/Research	-	-
Engineers	-	10
Graduate	12	30
Diploma Engineers	-	10
ITI/Vocational Education	-	15
XII/X/School Education	38	20
Below Xth standard	50	10
Others (CA, CS, ICWA, MBA etc.)	-	5

Training

Training department is not in existence for any of the firms surveyed in the referred segment. The responding firms highlighted that there is a need to train employees, but they do provide on the job training after hiring them. Although each firm covered in this segment has raised the issue of availability of skilled labour force but there is no relation with any training institute of these firms operating in the southern state of the country.

Main Roles and Skill Gap

1. Mixing Operator

Mixing Operator	Skill Gap			
	Tiny	Small	Medium	Large
• Check the raw material • Prepare batches as per instructed. • Maintenance of the machine. • Report to Production In-charge • Guiding the helpers in unloading/loading • Add additives and chemical in sequence and manner guided by the supervisor. • Authority to stop the production in case of any quality issues • Maintain the safety aspects as shared by the supervisor • After mixing, get the compound checked by lab assistant • Follow standard operating procedures		• No formal training	• No formal training	
Intensity of skill gap: Medium Skills Required Technical Skills:				

- Knowledge about the chemicals and rubber.
- Operate the machine skillfully.
- Attentive towards the work process.
- Know the composition and required specification.
- Visual inspection of the compound to understand the condition.
- Avoid contamination of the compound.
- Quality Awareness

Managerial skills:

- Guiding the helpers for routine work
- Ability to communicate with the plant in-charge in case of any faults or technical issues

Soft Skills:

- Good communication skills
- Good listening skills.
- A quick learner and clearly understand and implement what the Supervisor /Proprietor say
- Ask for any help and report to the work-in-charge.

2. Extruder Operator

Extruder Operator	Skill Gap			
• Maintenance of the machine. • Read work orders, examine parts to determine parts/sections of the products to be produced. • Make sure that machine is working properly • Send the material/product for further processing. • Precautions to be taken to avoid accidents				
	Tiny	Small	Medium	Large
		• Lack of formal training	• No proper knowledge about extruder machine • Lack of attention • Lack of formal training	

Intensity of Skill Gap: High **Skills Required** **Technical Skills:** • Operating the machine skillfully and taking due care while working. • Should be able to follow the standard operating procedures • Handling of equipments properly • General maintenance skills • Select production equipment according to product specifications. **Managerial skill:** • Good communication skills for guiding helpers. • Guide the helpers in proper loading and unloading of material • Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions. **Soft Skills:** • Effective communication skill • Quick learner • Basic arithmatic				

3. Press Operator

Press Operator	Skill Gap			
	Tiny	Small	Medium	Large
• Operate the curing machine • Set the temperature and heat pressure control • Check proper functioning of machine and maintenance of the press. • Shut down production in case of quality problem and immediately report to the		• Less knowledge about machine operation • Lack of knowledge about time	• Lack of technical knowledge	

production manager/ supervisor • Take care of safety issues		and temperature setting • Less readiness		

Intensity of Skill Gap : High

Skills Required

Technical Skills:

- Thorough knowledge of curing process and working of press.
- Maintain the appropriate temperature and pressure at all times.
- Knowledge of various controls
- Knowledge of impact of temperature
- Pressure duration of exposure to heat on the final product's properties

Managerial Skills:

- Managing helpers
- Managing the flow of work

Soft Skills:

- Good knowledge of metric system (time, temperature, pressure)
- Good communication skills
- Interpersonal skill

4. Supervisor

Supervisor	Skill Gap			
	Tiny	Small	Medium	Large
• Manage and control production activities. • Planning for production schedule • Instructing/guiding operators and helpers • Understand the end user requirement and design		• Lack of knowledge about the latest technology in rubber	• Lack of knowledge about the latest technology in rubber	

processes to incorporate the customer needs in the final product. • Maintain the smooth flow of work • Motivate the workers • Get involved in quality control • Resource Management • Give Technical Instruction – machine & job • Assure the compliance w.r.t safety issues • Listen the complaints of workers and take appropriate actions		sector • Lack of formal training	sector Lack of formal training	
Intensity of Skill Gap: High Skills Required Technical Skills: • Knowledge of the rubber industry • Knowledge of the current trends in rubber technology • Ability to measure dimensions using industrial measuring instruments. Managerial Skills: • Should be able to supervise the team and guide them so that quality is maintained • Ability to schedule work and manage time • Ability to motivate workers. Soft Skills • Effective communication skill				

5. Sanding Operator

Sanding Operator	Skill Gap			
	Tiny	Small	Medium	Large
• Setting machine as per the requirement/instructions. • Work on sanding machine carefully • Read work orders or examine parts to determine parts or sections of products to be produced • Get the required amount of roughness • Finding defect/problems in machines		• Lack of attention • Lack of formal training • Lack of domain specialization		

Skill Gap intensity: Medium

Skills Required

Technical Skills:

- Knowledge of sanding
- Knowledge about how to get desired roughness

Managerial Skill

- Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems
- Providing information to Ability to communicate in English and local language
- Good IQ level.

Soft Skills

- Effective communication skill
- Good observation and co-ordination skill

6. Helper

Helper	Skill Gap

• Shift the material for the different processes • Clean the shop floor as and when guided by the supervisor. • Loading and unloading the material • Finishing and packing the product in respective packing material. • Do all work as directed by the supervisor/operator	Tiny	Small	Medium	Large
		• Lack of technical knowledge • No formal training		
Skill Gap Intensity: Low **Skills Required** **Technical Skills:** • Proper finishing and packaging • Do all the work as directed • Pay attention towards direction • Consistency in work • Identify the products • Complete the task in prescribed time **Soft Skills:** • Basic mathematical skills for product counting, identification of numbers etc. • Good reading skills • Discipline				

7. Marketing Head

Marketing Head	Skill Gap			
• Getting the product marketed in an effective manner	Tiny	Small	Medium	Large

• Engaging new customers • Knowing the market in depth • Maintain high contacts • Knowledge about other competitors • Promotion of the products • Satisfying the dealers • To perform the various documentation functions.		• Lack of knowledge about the industry • Lack of technical know how		

Skill Gap Intensity: Medium

Skills Required

Technical Skills:

- Knowledge about their products
- Knowing the manufacturing process
- Knowing the positives of their products

Managerial Skill

- Managing the customers and the dealers
- Maintaining a good relation with the customers and dealers
- Managing to market the product with minimum cost involved
- Proper documentation
- Maintaining confidentiality as per the requirement

Soft Skill

- Good communication skill
- Excellent convincing skill

8. Product Incharge/GM operations

Product Incharge/GM Operations	Skill Gap			
• Manage the entire organization	Tiny	Small	Medium	Large

• Give instructions to supervisor as per customers order • To Maintain a proper flow of raw material • To handle the supervisors and workers • Sometimes recruit people • To look for new clients • To keep track of official work • To see that the production is done on time		• Less experience • Lack of knowledge about the industry	• Less experience Lack of knowledge about the industry	

Intensity of Skill Gap: High

Skills Required

Technical Skills:

- Knowledge of the rubber industry
- Knowledge of products getting manufactured
- Knowledge about the machines in use

Managerial Skills:

- Ability to manage people working under him
- Managing a smooth flow of work
- Managing a healthy work force
- Managing clients and their quarries
- Ability to handle different kind of files and data

Soft Skills

- Proper co-ordination with Director and higher authorities
- Ability to convince clients
- Ability to motivate workers
- Effective communication skill

9. GM Exports

GM Exports	Skill Gap			
• Handling the export properly • Dealing with exporters • Managing records • Keeping a check on price movements • Handle documentation properly	Tiny	Small	Medium	Large
			• Lack of experience • Lack of knowledge about the internation al market	

Intensity of Skill Gap: High

Skills Required

Technical Skills:

- Knowledge about the whole process of product manufacturing
- Knowledge about international market
- Knowledge about the exporters
- Knowledge about international rules and regulations

Managerial Skills:

- Managing exports
- Managing records

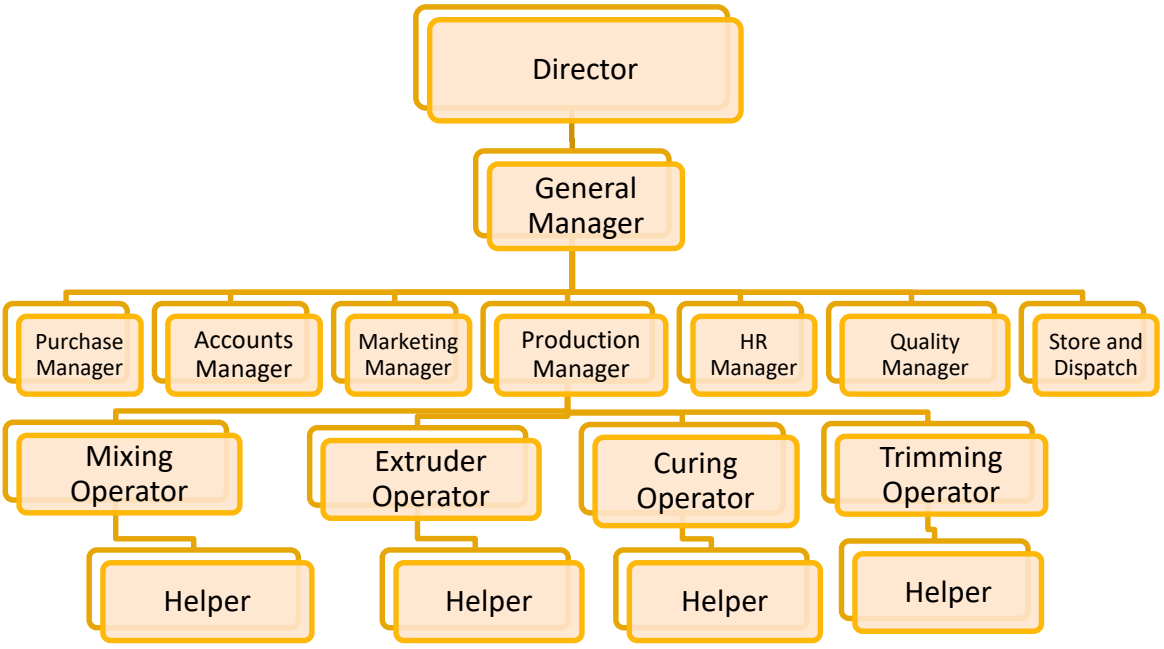
Soft Skills

- Proper co-ordination with Plant Head
- Ability to convince clients
- Effective communication skill

TYRE, TUBE AND FLAP

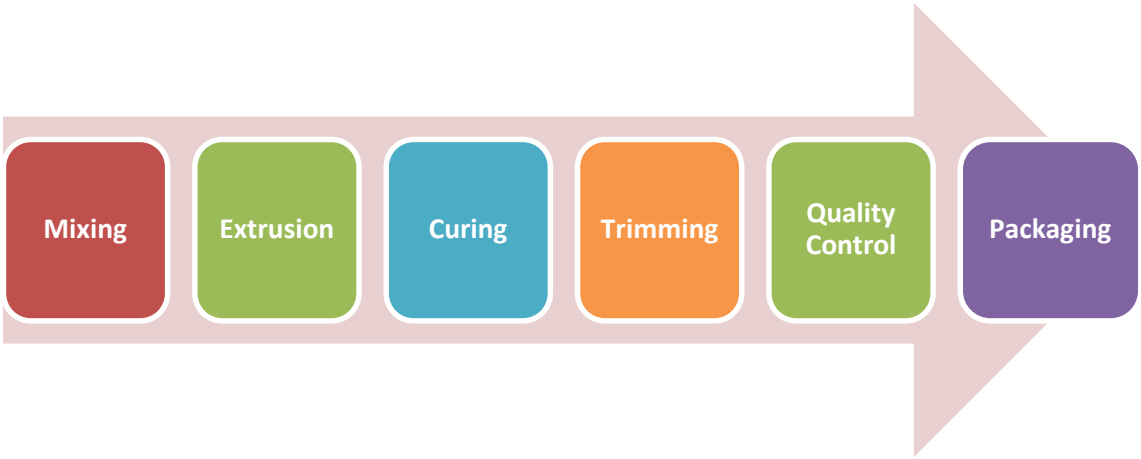
All the respondent firms engaged in the production of tyre, tube and flap mentioned that the main human resource availability issue is associated with finding the skilled manpower. The survey findings reveal that except one firm involved in the manufacturing of tyres and tubes, there is no other firm which has tried to contact any training institute for their requirement of supervisor, operators and helpers in the production. The employees' strength for small and medium scale units producing falling under this category ranges from 12 to 1500. A large proportion of the employees are hired from outside the state. West Bengal, Bihar and Odisha are the three states from where majority of hiring takes place for outsiders.

Organization Structure (Flaps)



Process Outline (Flaps):

For flap preparation, the mixing of compound is executed as per the required specification and then the extrusion process takes place. Curing process is carried out by the operators as per the SOPs. With the completion of curing process, the product gets ready for trimming, finishing and inspection. Product is checked thoroughly and finally packaging is done.

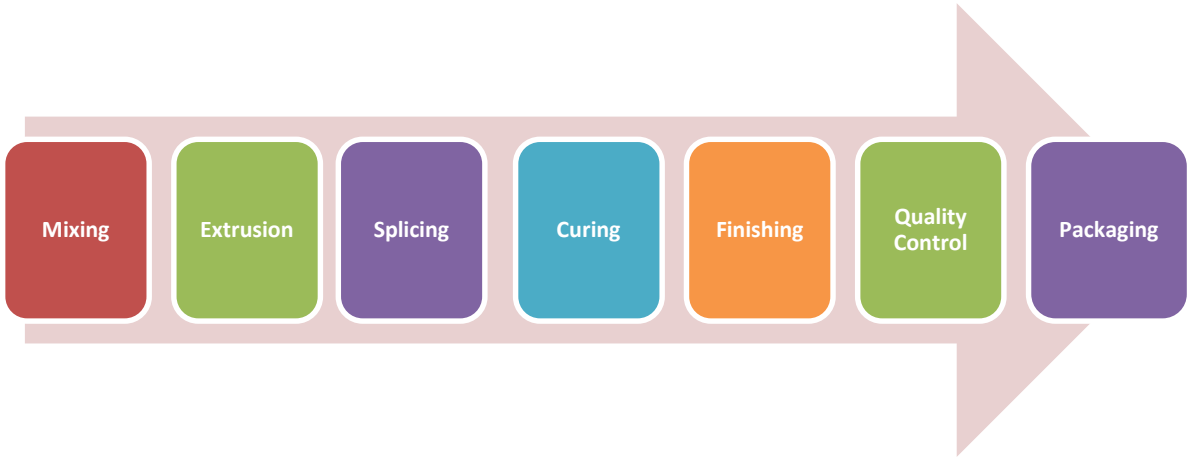


Process Outline (Tube):

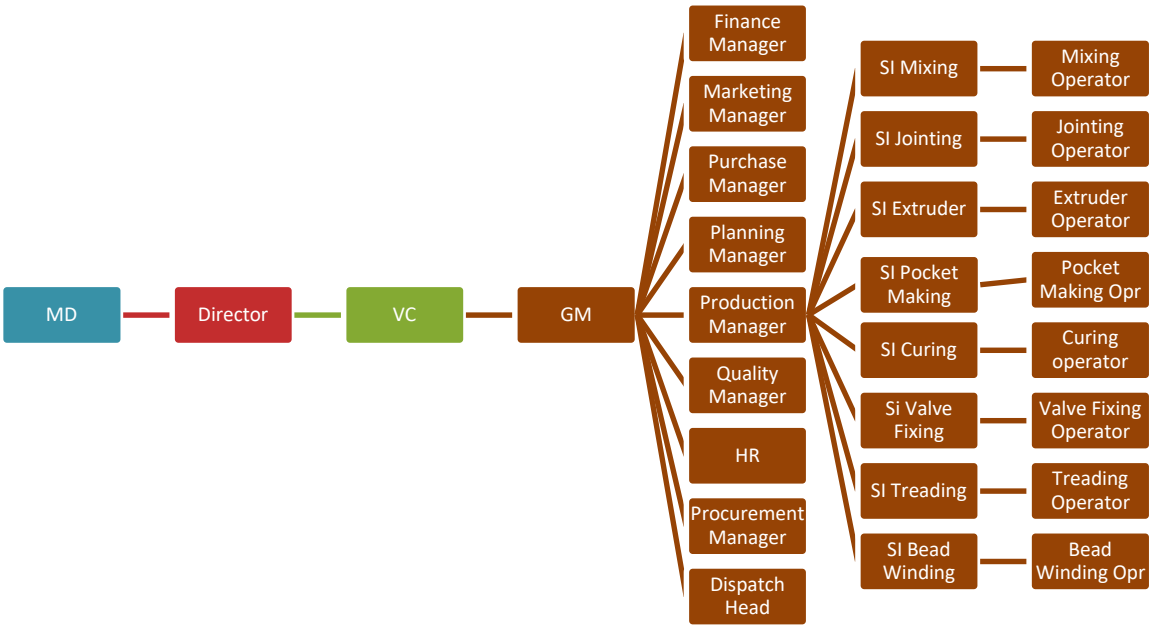
For tube preparation, the mixing of compound is executed as per the required specification and then the extrusion process takes place. Splicing of the tubes is carried out by the operators as per the SOPs. With the completion of curing process, the product gets ready for the inspection and finishing. Product is checked thoroughly and finally packaging is done.

Organization Structure (Tube)

The firms involved in tube preparation do not envision any major changes in the near future. Neither they have any expansion plan nor do they have any plans for additional capital investment. The employees follow the SOPs at the manufacturing units and changes are made as per the requirement.



Organization Structure (Tyre)

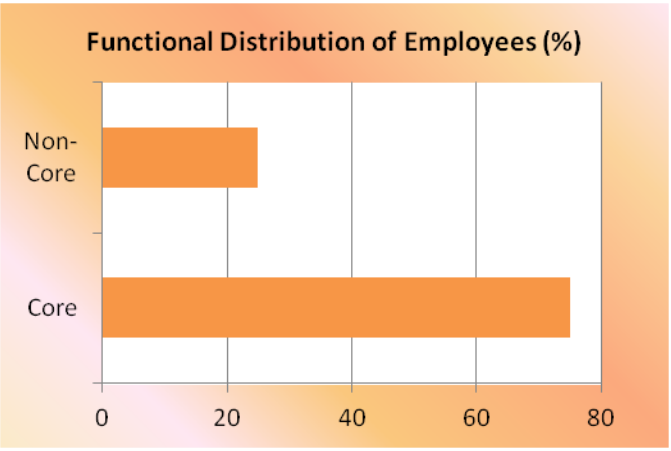


Tyre manufacturing units generally hire greater number of employees as compared to the tube and flap manufacturers given the very nature of the tyre manufacturing activity. The firms recruiting large proportion of employees from within state underlined the fact that they find educated manpower in the state itself.

Sample Units	Tiny	Small	Medium	Large	Total
Tyre, Tubes & Flaps	-	4	6	-	10

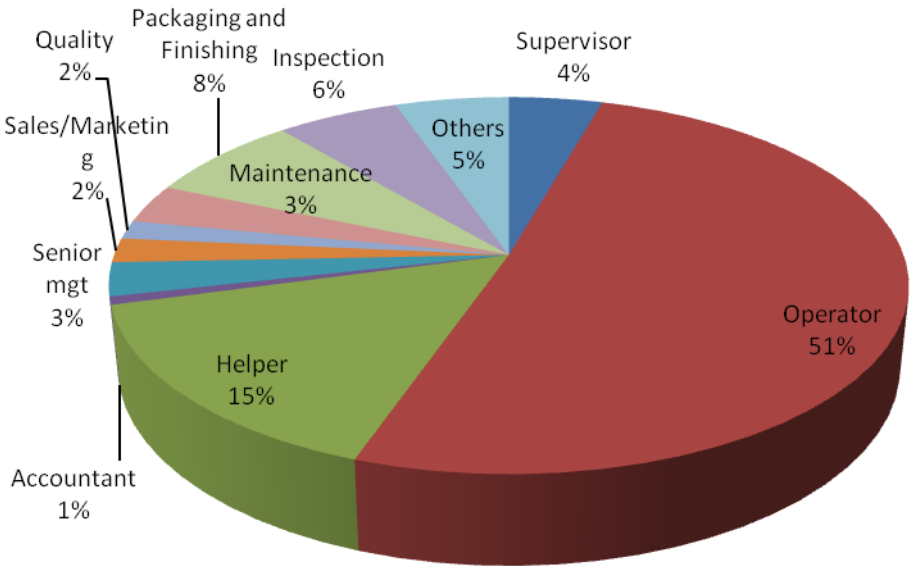
Manpower at a glance

For two third of the firms operating in this segment, all the employees are recruited on roll. The major strategy for recruitment is through reference and direct interview. Majority of the employees are engaged in the core production activity; however one fourth of the total employees are taking up the administrative, accounting and managerial tasks. On an average, attrition rate is 10 percent in the surveyed firms producing tyre, tubes and flaps.



The main job requirement is for operator level in tyre, tube and flap manufacturing. In the units covered in the sample, it has been pointed out that the entrepreneurs do not see any great change in future in the product segment. The firms admit that their requirement for employees in the future course of production would be need based. The main requirement is for skilled operators. Technical skill is the main skill gap for which concerns are raised by majority of the surveyed firms.

Job Role Distribution in Sample Units



Educational Qualifications (% of total employees)

Educational Qualification	Small	Medium
Ph.D/Research	-	-
Engineers	-	8
Graduate	8	32
Diploma Engineers	1	18
ITI/Vocational Education	1	13
XII/X/School Education	25	18
Below Xth standard	63	8
Others (CA, CS, ICWA, MBA etc.)	2	5

Medium scale firms have relatively greater number of highly educated employees as compared to small scale firms.

Training

Training department is not in existence for any of the firms surveyed in the tyre, tube and flap segment. There are no relations of the firms with any of the training institutes in the state. The experienced operators/supervisor provides training in the firm. However, firms put forth their views that operators need to be trained for machine operations and helpers for product handling.

Main Roles and Skill Gap

1. **Mixing Mill Operator**

Mixing Mill Operator	Skill Gap			
	Tiny	Small	Medium	Large
• Guiding the helpers in unloading the material into the mixing machine. • Add additives and chemical in sequence and manner guided by the supervisor. • Work on machine as instructed by the manager/supervisor. • Maintain the machine		• No formal training • Not efficient in handling the machine operations	• No formal training	

parameters i.e, temperature & pressure • Maintaining quality of output and cleanliness of the machine • Checking the safety while working on the machine. • Carry out routine maintenance				
Skill Gap Intensity: Medium **Skills Required** **Technical Skills:** • Operating the machine skillfully and taking due care while working. • Identify the operation of the machine at hand. • Know the chemical and additives which need to be added. • Knowledge about the proper proportion of the compound mix • Maintenance of machine **Managerial skill:** • Good communication skills for guiding helpers. • Decision taker **Soft Skills:** • Basic metric system • Co-ordination with other team members				

2. **Extruder Operator**

Extruder Operator	Skill Gap			
• Operate the extruder machine	Tiny	Small	Medium	Large

skillfully. • Checking that the safety aspects are followed • Maintaining settings of the machine which has been set by the supervisor. • Maintain the machine. • Take care of safety while working on the process as per org. guidelines.(as the temperature is very high)		• No formal technical training. • Lack of attention	•No formal technical training. • Lack of attention •No proper operational Knowledge about machine	

Skill Gap Intensity: High

Skills Required

Technical Skills:

- Good knowledge of machine and its operation.
- Knowledge about how much pressure and temperature to be used.
- Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.

Managerial skill:

- Good communication skills for guiding helpers and coordinating with other operators.
- Motivate team members

Soft Skills:

- Good knowledge of metric system (time, temperature, pressure)
- Good reading skills

3. Splicing Operator

Splicing Operator	Skill Gap			
• Work for jointing the tube(hot	Tiny	Small	Medium	Large

joint & cold joint) of cycle and rickshaw • Operating the splicer machine for jointing the tube of automobile • Guide the helper		• Lack of formal training	• Lack of formal training	

Skill Gap Intensity: Medium

Skills Required

Technical Skills:

- Good knowledge of machine and its operation.
- Knowledge of hot joint and cold joint in cycle tube case
- Knowledge to operate the splicer machine
- Maintenance skill

Managerial skill:

- Motivate team members
- Ability to take decisions and get work done by the helpers
- Motivate peers and subordinates
- Team spirit

Soft Skills:

- Good knowledge of metric system (time, temperature, pressure)
- Good reading skills
- Interpersonal skills
- Ability to communicate with superior to clear doubts

4. Curing Operator

Curing Operator	Skill Gap			
• Curing the tube by putting the	Tiny	Small	Medium	Large

mandrel in vulcanization Pan • Curing of green tube have done as per the given specification • Proper cleaning and maintenance and cleaning of vulcanizer • Guide the helper • Properly maintain the machine, and report any issues to the Supervisor/Proprietor • Work for the proper upkeep of the machine		• No formal technical training • Lack of experience to perform operation	• Less knowledge about the machine • Less readiness • Lack of knowledge about temperature setting	

Skill Gap Intensity: High

Skills Required

Technical Skills:

- Operating the machine skillfully and taking due care while working.
- Proper curing of tubes
- Should be able to follow the guidelines
- Ability to manage waste

Managerial skill:

- Good communication skills for guiding helpers.
- Guide the helpers

Soft Skills:

- Effective communication skill
- Quick learner
- Basic arithmatic

5. **Helper (Machine Operations, Finishing, Packaging)**

Helper	Skill Gap			
• Shift the material for the different processes (i.e. for	Tiny	Small	Medium	Large

mixing, press, cutting, packing, storing etc) • Clean the shop floor as when guided by the supervisor. • Loading and unloading the rubber into the mixing mill • Packing the product in respective packing material. • Do all work as directed by the supervisor/operator		• No formal training • Lack of product knowledge • Lack of basic education	• No formal training • Lack of technical knowledge	
Skill Gap Intensity: Low **Skills Required** **Technical Skills:** • Proper finishing and packaging • Do all the work as directed • Consistency in work **Soft Skills:** • Basic numeric aptitude • Good reading skills • Good listening skill				

6. Supervisor

Supervisor	Skill Gap			
• Manage the shop floor activities. • Responsible for running of unit and production • Planning for production schedule • Understand the end user requirement and design	Tiny	Small	Medium	Large
		• Lack of knowledge about latest technology in rubber	• Lack of knowledge about latest technology in rubber	

processes to incorporate the customer needs in the final product. • Monitoring the work of helpers and operators • Checking that standard operating procedure is followed.		sector • Lack of formal training	sector • Lack of formal training	

Intensity of Skill Gap: High

Skills Required

Technical Skills:

- Knowledge of the rubber industry
- Knowledge of production process.
- Ability to measure dimensions using industrial measuring instruments.
- Ability to supervise plant operation
- Knowledge of the current trends in rubber technology

Managerial Skills:

- Should be able to supervise the team and guide them so that quality is maintained
- Ability to schedule work and manage time
- Ability to motivate workers.
- Ability to manage manpower on plant level.
- Leadership qualities

Soft Skills

- Effective communication and co-ordination skill

7. Quality Supervisor

Quality Supervisor	Skill Gap			
• To check finish product by visual inspection and quality tests and	Tiny	Small	Medium	Large

procedures as per the standards • Responsible for assuring quality • Responsible for rejection • Identify the process where defects are originating. • Perform lab operations		• Lack of complete knowledge about the product • Lack of formal training	• Lack of complete knowledge about the product Lack of formal training	
Skill Gap intensity: Low Skills Required Technical Skills: • Knowledge of testing procedures • Knowledge of lab equipment (Rheo meter, Tensile Tester etc) and its handing • Knowledge lab chemicals and preparations • Product Knowledge Soft Skills: • Good communication skills • Proper feedback to the concerned person				

8. Jointing Operator

Jointing Operator	Skill Gap			
	Tiny	Small	Medium	Large
• Proper Joining of nylon sheet and calendared sheet. • The quality of the cover should be made as per the end product • They should be evenly joined and passed through a roller properly • Guide the helper		• Less experience • Less technical knowledge	• Lack of formal training • Less experience • Less technical	

			knowledge	

Skill Gap Intensity: Low

Skills Required

Technical Skills:

- Good knowledge about rubber and nylon sheet and its operation.
- Knowledge about the roller
- Maintenance skill

Managerial skill:

- Ability to get work done by the helpers
- Ability to take decisions
- Managing the use of different products

Soft Skills:

- Good knowledge of metric system (time, temperature, pressure)
- Good reading skills
- Interpersonal skills
- Ability to communicate with superior to clear doubts

9. Treading Operator

Treading Operator	Skill Gap			
	Tiny	Small	Medium	Large
• Making tyre treads as per requirement • Getting the right tread on green tyres • Co-coordinating with other operators • Guide the helper		• Less experience • Lack of technical skill	• Less experience • Lack of technical skill	

Skill Gap Intensity: Low

Skills Required

Technical Skills:

- **Good knowledge about treading**
- **Knowledge about green tyres**

Managerial skill:

- **Ability to get work done by the helpers**
- **Ability to take decisions**
- **Managing tyres and the use of treads**

Soft Skills:

- **Good knowledge of metric system (time, temperature, pressure)**
- **Good reading skills**
- **Interpersonal skills**
- **Ability to communicate with superior to clear doubts**

10. Bead Winding Operator

Bead Winding Operator	**Skill Gap**			
	Tiny	**Small**	**Medium**	**Large**
• Using the proper bead for proper Tyre • Make sure the beads are as per requirement • Make sure the machine works properly • Guide the helper		• Lack of technical knowledge • Lack of experience	• Lack of technical knowledge • Lack of experience	

Skill Gap Intensity: Low

Skills Required

Technical Skills:

- **Good knowledge about machine operation**
- **Knowledge about bead application**

Managerial skill:

- **Ability to get work done by the helpers**
- **Ability to take decisions**

- Managing tyres and the use of beads

Soft Skills:

- Good knowledge of metric system (time, temperature, pressure)
- Good reading skills
- Interpersonal skills
- Ability to communicate with superior to clear doubts

11. Valve Fixing Operator

Valve Fixing Operator	Skill Gap			
• Fixing the valve properly into the tyre without any damage • Make sure the valves are fixed as per requirement • Make sure the tyres are handled properly • Guide the helper	Tiny	Small	Medium	Large
		• Lack of concentration • Lack of experience	• Lack of technical knowledge • Lack of experience	

Skill Gap Intensity: Low

Skills Required

Technical Skills:

- Knowledge about how to fix the valve into the tyres
- Knowledge about which valve to use in which tyre

Managerial skill:

- Ability to get work done by the helpers
- Ability to take decisions

Soft Skills:

- Good knowledge of metric system (time, temperature, pressure)
- Good reading skills
- Interpersonal skills
- Ability to communicate with superior to clear doubts

HUMAN RESOURCE REQUIREMENT

In the rubber industry, there are people employed mainly in the two main segments i.e. tyre and non-tyre manufacturing. However, in addition to this, there are a large number of human resources engaged in the repair and maintenance of the tyre and tube which forms an important segment of employment for the rubber industry in the country. Here, we first attempt to estimate the current employment in the rubber industry in the state of Andhra Pradesh which forms the basis of our estimation for the human resource requirement in the coming years.

A1. Employment in Rubber Industry

Around 1.47 lakh people are estimated to be engaged in the rubber industry in the state of Andhra Pradesh. The employment for the following segments have been considered to arrive at the workforce associated with the rubber industry.

a) Tyre and Tube Companies
b) Non-tyre companies
c) Repair and Maintenance
d) Recycle, Reuse and Waste

As the tyre and tube manufacturing firms are mainly operating in the organized segment, the employment in these firms has been estimated based on the industry feedback. The employment for the firms engaged in the non-tyre segment has been arrived at on the basis of data collected in the survey conducted for the rubber industry by the RSDC. However, the repair and maintenance segment employment is estimated considering the various parameters such as road network in the country, number of villages and number of petrol pumps. An emerging segment of recycle, reuse and waste accounts for an estimated 3 percent of the total employment in the industry in the three segments discussed above.

A2. Future Requirements

Human resource requirement in any industry in coming years depends on the expansion of existing units, setting up of new units and development in technology in use. In addition to this, the overall growth of the state economy, manufacturing sector and social development are important factors facilitating growth in any industry and thus the employment in the associated segment.

An estimation based on responses collected in the sample survey regarding their expansion plans, automation; recently set up major tyre plants and expansion in coming year; and other factors such as Gross State Domestic Product (GSDP) growth, Manufacturing sector growth in the state, capital investment, Human Development Index (HDI) and rubber consumption in recent past, has been attempted to highlight the human resource requirement in the rubber industry in the state. It is estimated that in the coming five years, we may witness an overall 26 percent

increase in the employment in the rubber industry in the state. A forecast for the human resource requirement in next five years is presented below to indicate the future trend in the rubber industry in the southern state of the country, i.e. Andhra Pradesh.

Table6.1: Five Year Forecast	
Category	**Incremental Human Resource Requirement**
1. Auto tyres & tubes*	28564
2. Camel back	1861
3. Footwear	2463
4. Belts and hoses	1619
5. Latex foam	650
6. Dipped goods	944
7. Others@	2537
Total	**38638**

Human Resource Requirement in the tyre segment is estimated based on the recently started large tyre plants in the state and on-going projects in this segment. Moreover, the growth in the state domestic product and manufacturing segment in the state, rubber consumption, positioning of human development index and capital investment in the last five years is considered to arrive at the estimated requirement for the human resources in the various segments. The estimation for the category of Auto tyre and tubes includes requirement in the Repair and Maintenance segment as well as Recycle, Re-use and Waste segment.

The incremental human resource requirement for thirty eight thousand workers in the rubber industry in the state is based on the trends witnessed in the past, the current industry scenario and survey responses received from the respondent firms. The estimations provide a direction of change, however, in an ever changing environment in which the production takes place the exact requirement may vary as the time unfolds.

Taking a note of the job role requirement in the manufacturing units, the survey feedback underlines the main requirement of skilled operators in coming years. Moreover, the fact that the firms are looking towards the modernization and automation, there will be greater demand for operators handling automatic machines. Table 6.2 provides a direction for the industry requirement under the major job category in the state. At the operator level, the highest demand would be emerging for mixing operators. Skilled operators would find greater opportunities knocking at their door in the manufacturing segment.

Table 6.2: Job Role wise Requirement	
Job Role	**% of human resource requirement**
Supervisor	2
Manager	6
Operator	*49*
• *Mixing*	*18*
• *Curing*	*12*
• *Moulding*	*9*
• *Cutting*	*2*
• *Extruder*	*8*
Helper	28
Packaging/Dispatch	8
QC	3
Office/Marketing	4

The industry feedback on expected profile of major human resource for major job roles and analysis of their availability is presented below:

Employee profile	Industry feedback on expected qualification and profile	Analysis
Helper	Needs to complete basic education and get formal training in product and machine handling.	There is adequate availability of helpers in all the select states however they need to complete at least basis education to develop skills to move on career path.
Operator	Needs to know the semi automatic /automatic machine operation and maintenance. Training on machine exposure for about 6-12 months will be ideal.	There is a shortfall of skilled operators across all segments in rubber industry reported by the firms in all select states. Sufficient re-skilling and upskilling needs to be done to improve the performance and quality.
Supervisor	Needs to hold technical certification and remain updated about latest technology. Able to manage the shop floor.	The personnel performing supervisory role do not remain updated about the latest technology in the industry.
QC	Needs to have chemistry/rubber technology/polymer technology background	The requirement for QC personnel has been reported mainly by medium and large scale firms.