

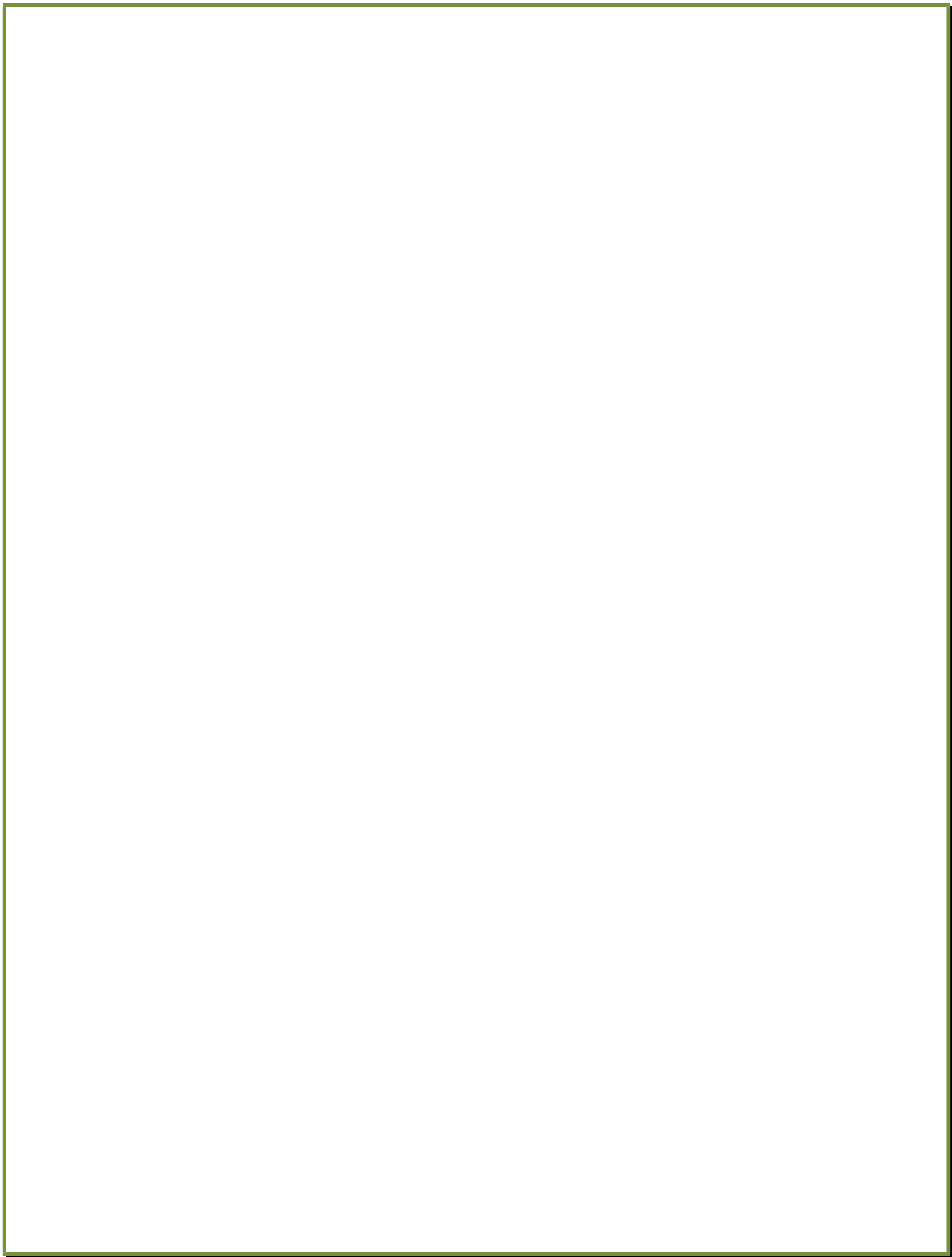


# *SKILL GAP ANALYSIS*

*UTTAR PRADESH*

## *Chapter Scheme*

- 1. Introduction*
- 2. Survey Analysis*
- 3. Product Segment wise Analysis*
- 4. Skill Gap Analysis and Human Requirement*



## INTRODUCTION

*“Learn to Earn”* – it could be an apt saying for highlighting the importance of economic strength derived through skill development. One should remember that skills and knowledge are the driving forces of economic and social development for any country/state/region. Individuals with higher and better levels of skills adjust more effectively to the challenges and opportunities in the world of work. Potentially, the target group for skill development comprises all those in the labour force, including those entering the labour market for the first time, those employed in the organized sector and those working in the unorganized sector. Any industry contributing to the economy through its products or services demands people to fit in the job roles specific to their industry. However, the present educational system does not focus on industry specific requirements therefore we witness skill gaps with respect to different industry requirements.

Major challenge of skill development initiatives in a given industry is to address the needs of new entrants by providing skills in order to make them employable and help them secure decent work as well as to make the already employed workforce in that industry more efficient. Skill development for persons working in the industrial sector creates greater awareness towards environmental, safety and health concerns.

A collective, not an individualistic effort, is the need of the hour where all the stakeholders in the manufacturing sector should take part in skill development to enhance productivity, competitiveness and employability. As stated in the *National Policy on Skill Development*, the task of skill development has many challenges which include:-

- a) Increasing capacity and capability of existing system to ensure equitable access to all.
- b) Promoting lifelong learning, maintaining quality and relevance, according to changing requirement particularly of emerging knowledge economy.

c) Creating effective convergence between school education, various skill development efforts of government and between government and Private Sector initiative.

d) Capacity building of institutions for planning, quality assurance and involvement of stake holders.

e) Creating institutional mechanism for research development quality assurance, examinations and certification, affiliations and accreditation.

f) Increasing participation of stakeholders, mobilizing adequate investment for financing skill development, attaining sustainability by strengthening physical and intellectual resources.

In the current scenario, most of the skill learning in the industry happens through unstructured, on-the job training. The large organizations or organized companies mainly hire matriculates, ITIs & Diploma holders and give them structured on the job training. The MSME and unorganized segment of manufacturing sector hire even uneducated workers and supervise them to learn skill which is totally unstructured. The new apprentice is taken as a helper and learns various aspects of the job with time, under the guidance of his seniors. As such, there has not been much improvement and development in skill levels in the industry. The phenomenon of unskilled hiring is similar at the macro level for various industries but skill requirement is unique for each industry.

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 northern state of Haryana in India, let us have a look at the development with respect to production, consumption and trade for the main component of the rubber manufacturing industry.

### **Rubber in Focus**

In the year 2013, India occupied the position of the fifth largest producer and second largest consumer of rubber in the world. Global ranking of countries in terms of Natural Rubber (NR) supply changed during 2013. Vietnam and China moved up to occupy the third and fourth positions respectively pushing down India to the fifth and Malaysia to the sixth positions.

**Table 1.1: Production of Natural Rubber in Major Producing Countries (000 tonnes)**

Country	2013	2012
Thailand	4170	3778
Indonesia	3180	3040

Vietnam	949	864
China	856	802
India	849	919
Malaysia	826	923
<b>World</b>	<b>12041</b>	<b>11603</b>

Source: Rubber Statistical News, May 2014

Adverse weather and fall in prices affected the production of natural rubber (NR) in India during the year ended March 2014. The production fell during the year by 7.6 per cent to 844,000 tonnes from 913,700 tonnes produced a year ago. This was largely due to the severe summer that prevailed in the State of Kerala during April and May 2013, interruption to tapping caused by unusually continuous south-west monsoon during June and July 2013 and loss in yield due to leaf diseases. Moreover, low rubber prices and high wages have compelled smallholders to reduce application of inputs and adoption of recommended farm-management practices. During 2014-15, the country is anticipated to produce 950,000 tonnes of NR up 12.6 per cent on year.

Continuing economic slowdown and the resultant low pace in automobile industry affected domestic consumption of NR during 2013-14. The consumption grew only by 0.9% to 981,520 tonnes during 2013-14 from 972,705 tonnes in the previous year. While the consumption grew in the auto-tyre manufacturing sector at 2.7 per cent rate, it fell 2.4 per cent in general-rubber goods sector. **Of the total quantity of NR consumed in the country during 2013-14, auto-tyre sector accounted for 66.5 percent and the balance 33.5% was absorbed in the general rubber goods sector.** During 2014-15, the consumption of NR in the country is anticipated to rise 2.9 per cent to 1.01 million tonnes.

**Table 1.2: Consumption of Natural Rubber in Major Consuming Countries (000 tonnes)**

Country	2013	2012
China	4150	3857
India	962	988
USA	913	950
Japan	712	728
Thailand	520	505
Indonesia	603	548
Malaysia	434	441
<b>World</b>	<b>11397</b>	<b>11079</b>

Source: Rubber Statistical News, May 2014

The extent/proportion of rubber consumption in the different segments has a correlation with the employment requirement. Not only the industry that is using the natural and synthetic rubber demand skilled labourer but the reclaim rubber sector do presents the greater job opportunities with the production crossing 1.24 lakh tonnes in 2013-14.

The country produced 112,886 tonnes of synthetic rubber (SR) during 2013-14, up 3.9 per cent on year. The consumption of SR in the country rose by 8.9 per cent to 483,575 tonnes during the year under review. The consumption grew faster at 11.5 per cent rate in the general rubber goods sector as against 7.9 per cent growth attained in the auto-tyre manufacturing sector.

**Table 1.3: Rubber Balance at a Glance**

<b>2013-14</b>	<b>Production</b>	<b>Consumption</b>
<b>Natural Rubber</b>	<b>844000</b>	<b>981520</b>
Ribbed Smoked Sheet	622540	560230
Solid Black Rubber	106815	322250
Latex Concentrates	68075	77515
Others	46570	21525
<b>Synthetic Rubber</b>	<b>112886</b>	<b>483575</b>
Styrene Butadiene	22105	220950
Poly Butadiene	80685	158260
Others	10096	104365
<b>Reclaimed Rubber</b>	<b>124325</b>	<b>123725</b>

Source: Rubber Statistical News

The relative shares of NR and SR in the total volume of NR and SR consumed in the country continued to tilt in the favour of SR during 2013-14. As a result, the relative NR share fell by 1.7 percentage point from 68.7 per cent in 2012-13 to 67.0 per cent in 2013-14. The declining NR share may be traced against the increasing dominance of passenger car tyres in the country's total production of auto-tyres.

For natural as well as synthetic rubber, consumption is higher than the production in the country indicating towards the existence of external trade for the commodity. The import and export of the raw material as well as manufactured products (tyre as well as non-tyre) takes place between India and other countries.

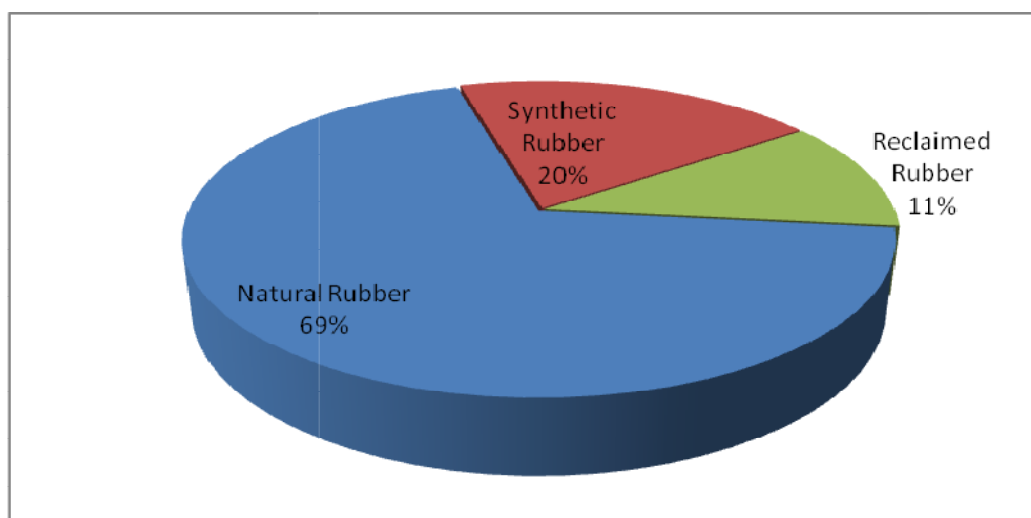


After discussing the rubber consumption pattern at the all India level, let's have a look at the trends in rubber industry in the state in focus, i.e. Uttar Pradesh.

### **Rubber Consumption in Uttar Pradesh**

Uttar Pradesh is not among the top rubber consuming states in the country. In the year 2013-14, Uttar Pradesh consumed less than one fifth of the total rubber consumption of the top rubber consuming state in India, i.e. Tamil Nadu. The total consumption of 52,285 tonnes of rubber comprised of 36,020 tonnes of natural rubber, 10,275 tonnes of synthetic rubber and 5,990 tonnes of reclaimed rubber. Tamil Nadu, Kerala, Maharashtra, Andhra Pradesh and Rajasthan are the top five rubber consuming states in the country.

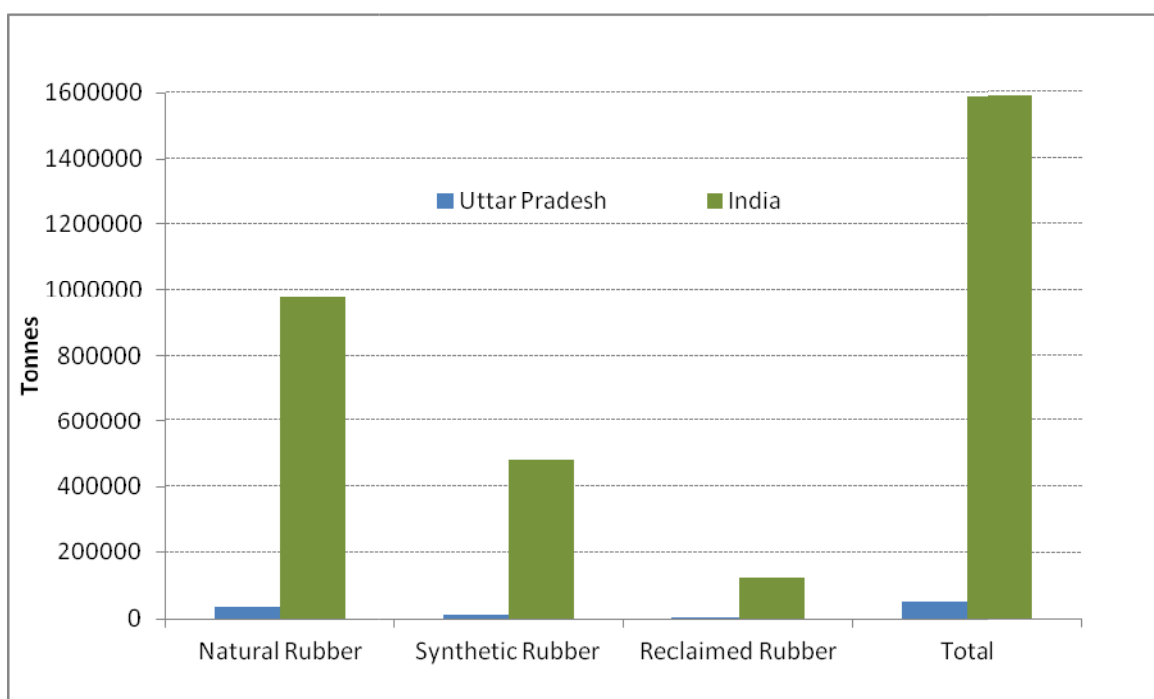
**Fig 1.1: Total Rubber Consumption: Uttar Pradesh**



Source: Rubber Board

The total consumption of rubber in the year 2013-14 for the northern state stood at 3.3 percent of the total rubber consumption in India. For the state of Uttar Pradesh, natural and synthetic rubber constituted 3.7 percent and 2.1 percent of the total national consumption in the respective segment while share of reclaimed rubber consumption for the state constituted 4.8 percent of the total reclaimed rubber consumption for India.

**Fig 1.2: Rubber Consumption 2013-14**



Source: Rubber Board

Out of the 75 districts, Kanpur, Meerut, Agra and Ghaziabad are among the main centers for the manufacturing of rubber products in the state. The number of licensed manufacturers in the state is 9.4 percent of the total licensed manufacturers in the country whereas number of licensed dealers remains less than 1 percent of the total for the country over the last five years.

**Table 1.4: Dealing in Rubber: Uttar Pradesh**

Year	No. of licensed manufacturers	No. of licensed dealers
2009-10	406	71
2010-11	395	68
2011-12	398	76
2012-13	394	71
2013-14	410	70

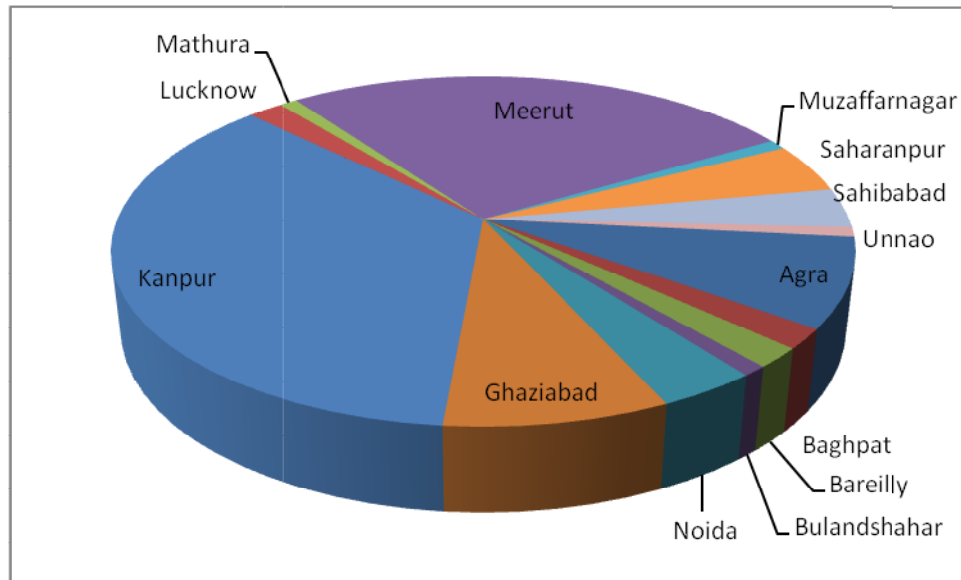
Source: Rubber Board

In order to understand the various factors affecting the employment in the rubber industry and skill requirement in the state, a survey of 110 units has been conducted. The next chapter presents the details, analysis and findings of the skill gap study in the state.

## *SURVEY ANALYSIS*

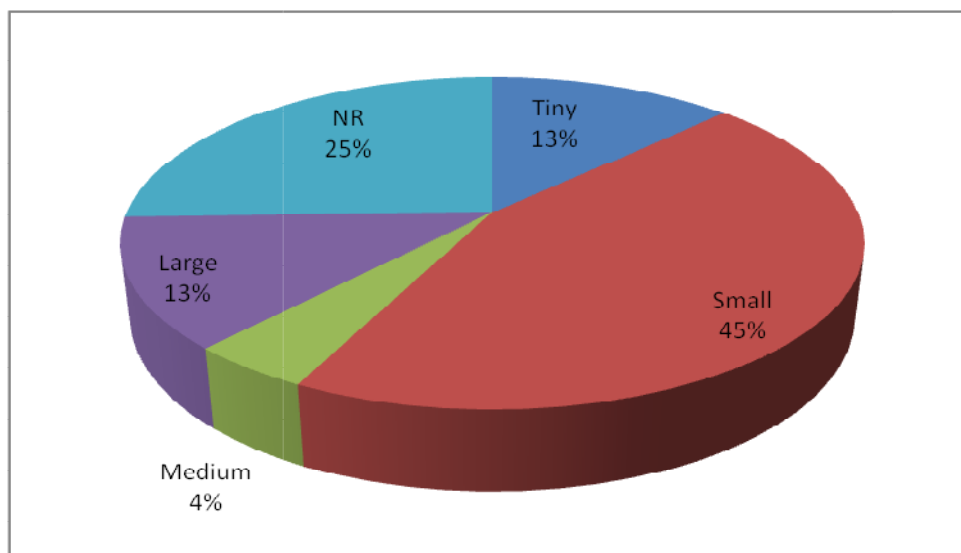
This chapter presents the analysis of the data collected from the select rubber products manufacturing firms across the different segments. A total of 110 firms were selected for the study of skill gap analysis in the rubber product manufacturing industry in 15 different cities of the state of Uttar Pradesh, including the capital city. The firms engaged in the production of different products were considered including footwear, adhesive-dry and latex based, rubber sheets and linings, belt, hoses, tread, foam products, gloves, rubberized coir mattress, auto and cycle parts, sports goods, moulded and extruded rubber products. The analysis focuses on to provide an insight into the pattern of manpower recruitment, their skills, skill gap, training status and requirement in the rubber industry of Uttar Pradesh based on the feedback received from the surveyed firms. It would help in understanding the existing and emerging skill gaps with respect to the rubber industry in Uttar Pradesh. The chapter concludes with summarizing the industry players' expectations from the various stakeholders viz, RSDC, Industry Association, Educational Institutes and other stakeholders.

**Fig2.1: Survey Coverage**



In order to provide a wide coverage across the industry based on investment and number of persons employed –tiny, small, medium and large scale firms have been covered in the survey. Majority of the respondent firms have invested upto 5 crores based on their revelation about total investment in the business. Tiny and small scale firms constitute 58 percent of the sample. Only 13 percent firms have invested more than 10 crores in their enterprise falling under the large scale category. However, 25 percent of the respondent firms did not disclose their investment levels.

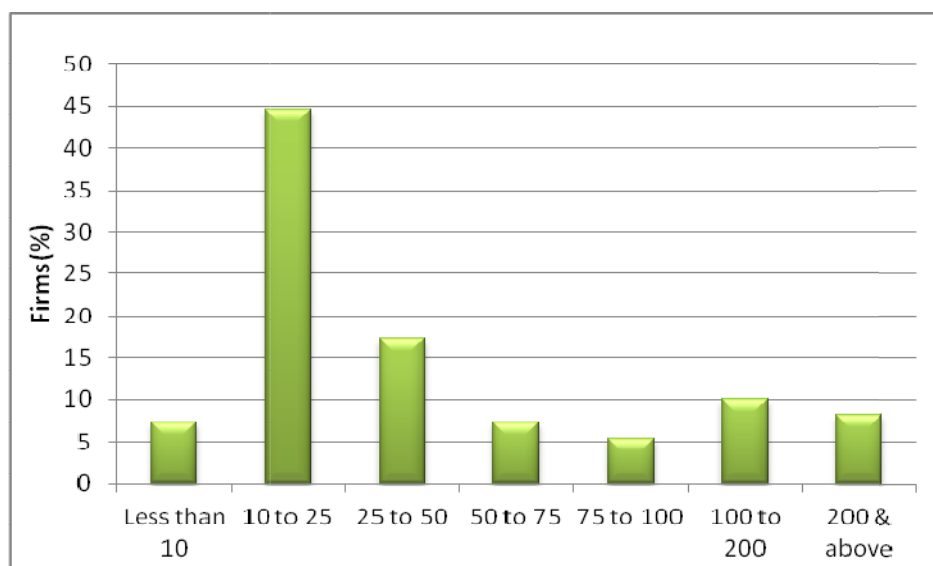
**Fig 2.2: Scale of Operation**



Another important variable reflecting the size of the firm relates to the total number of employees in the organization. The employment pattern reveals that half of the surveyed firms

employ less than 25 persons. All these firms having employees' strength below 25 have business investments less than 5 crores except for one firm. It indicates that those firms having lesser investment have less job opportunities to offer. Forty five percent of the rubber manufacturing firms surveyed in UP do not have any expansion plan which is not a good indication for employment generation by these firms in the coming years. However, rest of the surveyed firms are mainly looking forward for expanding same line of business or entering new product line in the coming years in the respective segment of their businesses.

**Fig2.3: Employment Pattern**



The survey provides coverage of a combination of old established firms as well as newly established firms in the beginning of 21st 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.

**Table 2.1: Commencement of Business**

Year of Establishment	Number of Firms
1940-1960	4
1960-1980	15
1980-2000	73
2000-2015	18

### **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

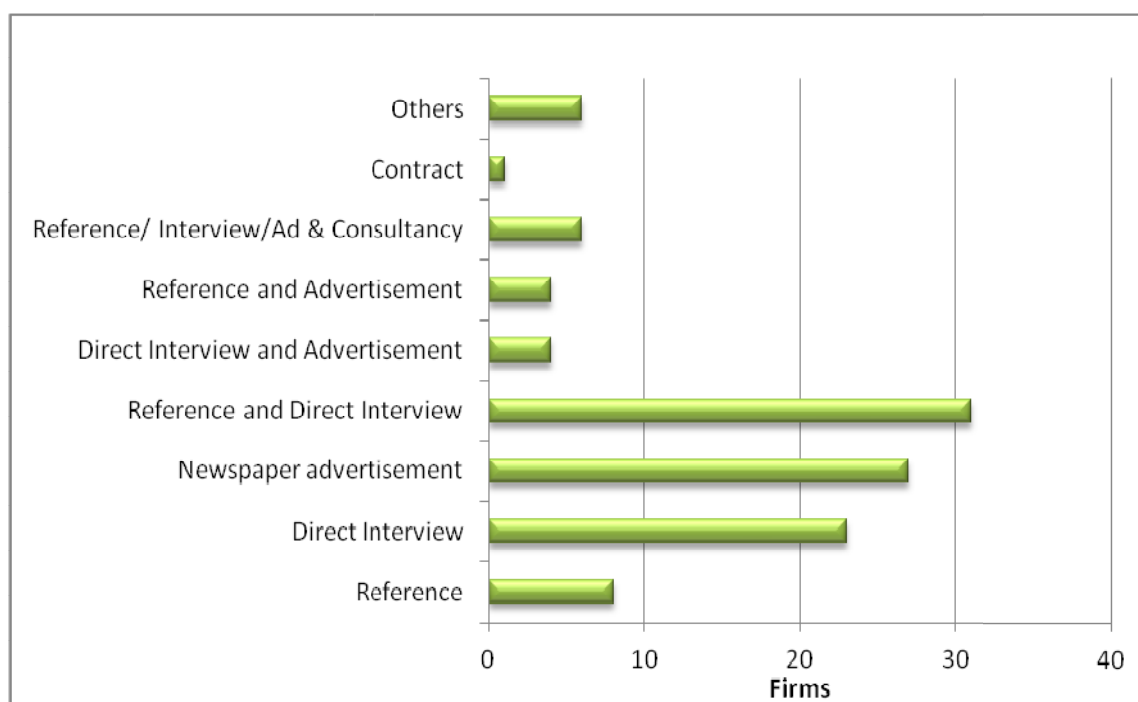
personnel employed. An analysis of the recruitment strategy of the firms belonging to the rubber industry in the state of Uttar Pradesh depicts that 70 percent of the surveyed firms have hired all the employees on their roll and only 30 percent have off roll employees. There is no firm in the sample which has 100 percent off roll employees.

**Table 2.2: Basis of Recruitment**

Percentage of on roll employees	Surveyed Firms (%)
Less than 25	2
25-50	4
50-75	16
75-100	11
100	77

Various methods have been adopted by the respondent firms to recruit people for different job positions in their organization. The most popular method of employing workers is through internal references and direct placement for a large proportion of the surveyed firms. Newspaper advertisement has emerged as an important channel for recruiting employees in rubber manufacturing units, but this channel as the only source of recruitment is seen mainly in the case of rubber products manufacturing units in Kanpur and Lucknow. It clearly indicates the features of a big city. However, there is only one firm which reported hiring employees through contractor.

**Fig 2.4: Recruitment Channel**

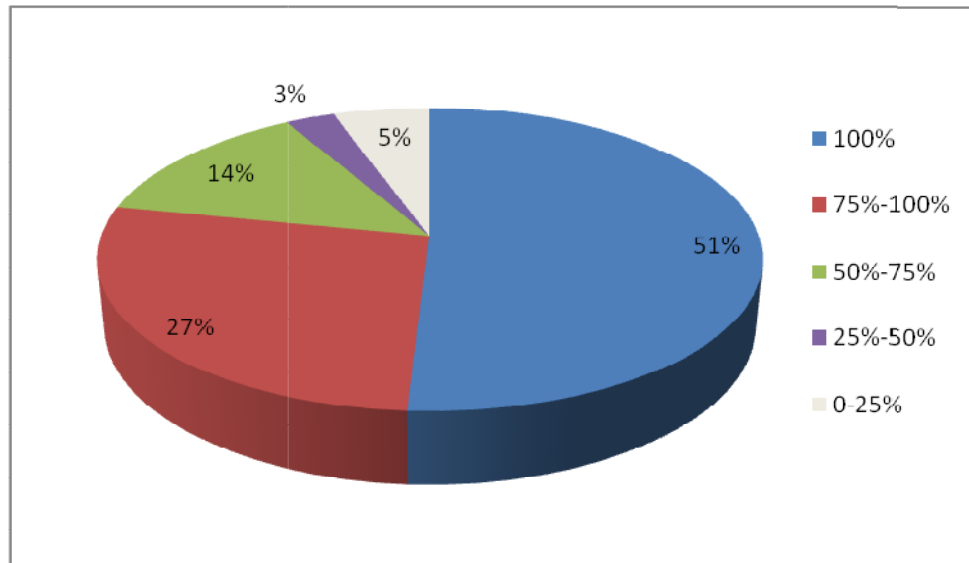


### **Employees Recruitment**

Among the total firms surveyed in the state, it has been noticed that almost 50 percent of them have recruited all the employees from Uttar Pradesh only. Majority of the firms have local people working in their manufacturing units. Very few organizations have all the workers coming from other states. The employment trend depicts that close to four fifth of the total firms surveyed preferred recruiting the employees from state only. Nearly 60 percent of the firms recruiting all the local employees reported that local employees are easily available which forms the main reason for their recruitment. However, some of the firms find less absenteeism, punctuality, no family problems and awareness about local area as the main reasons for hiring the people from Uttar Pradesh only.

In all those firms which have employees coming from the other states to work in their factory premises, the major contribution to the outside workforce is from the states of Bihar and Odisha. Around 31 firms have engaged people from these two states. However, the states of West Bengal, Karnataka, Tamil Nadu and Punjab do contribute to the workforce engaged in the surveyed rubber industries in Uttar Pradesh although in a smaller proportion.

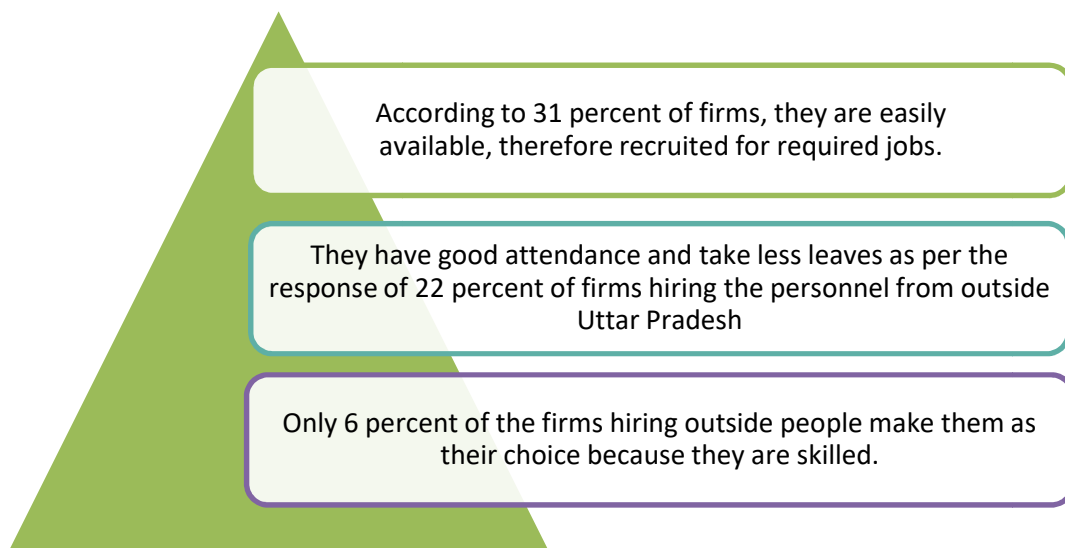
**Fig 2.5: Firms' Recruitment from Uttar Pradesh**



The job role for which outside people are hired mainly includes operator level job or high skill jobs. Firms have clearly mentioned that outside people are recruited for operator roles related to mixing, curing, lasting and moulding. Only few firms have hired helpers from outside UP.

Those firms hiring employees outside the state of Uttar Pradesh referred to the following as main reasons for hiring from outside the states:

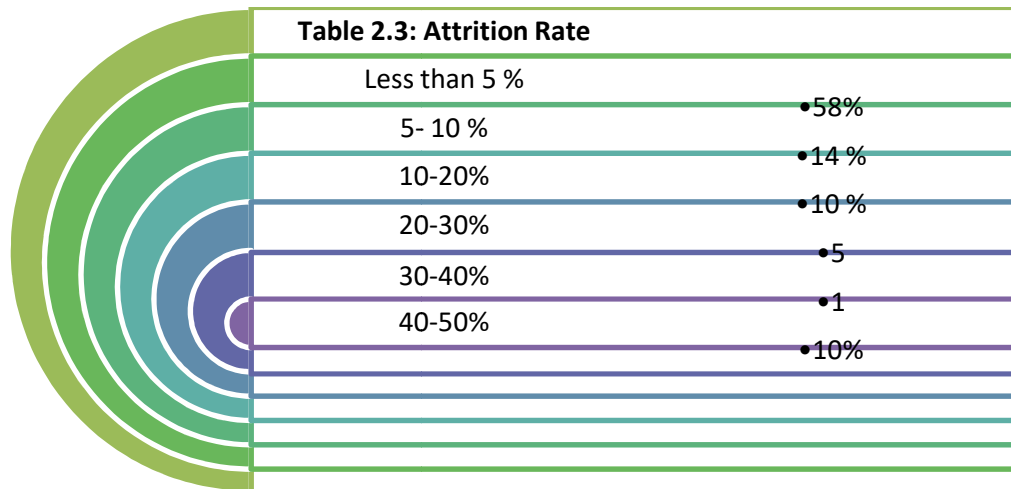
**Fig 2.6: Outside Recruitment**



### 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 and scale of the enterprise as a low level of attrition has been reported by 72 percent of the firms (less than 10%). Interestingly, all the firms reporting attrition as high as 50 percent belongs to the city of Meerut (only one firm from Agra).



### 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 mainly acquire technical skill through experience of 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 it is mainly the salary increments and other benefits that are used as retention tools. For majority of the surveyed firms, it is the monetary aspect related to pay, bonus and increment which play an important role in encouraging people to remain associated with them for a longer period.

**Table 2.4: Retention Strategy**

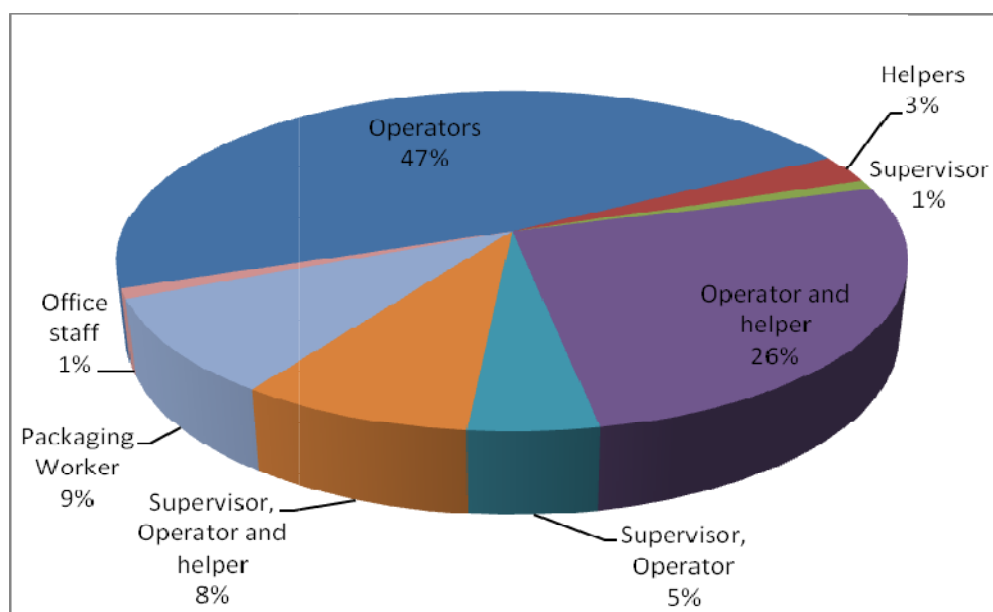
Retention Strategy	Firms Response (%)
Good pay, increment, bonus	53
Good pay, increment, bonus and accommodation	6
Good Pay, increment, bonus and overtime	7
Salary as per govt. norms and labour law	21
No retention strategy	1
Others (Good pay, increment, PF, insurance etc)	12

However, accommodation and overtime payments are also quoted by some of the firms for retaining workforce and except for one firm; all others have some sort of retention strategy in their organization.

### **Requirement and Availability of Manpower**

The survey analysis for the key job roles for recruitment clearly shows that the main roles for employment in rubber industry are related to operator level. Major requirement is mentioned for mixing, moulding, curing and lasting operator. However, nine percent of the firms have given importance to packaging as the key roles for recruitment.

**Fig 2.7: Key Role Requirement**



In Uttar Pradesh, there is no shortage reported in finding requisite number of people for carrying out the rubber products manufacturing by the firms by 44 percent of the respondent firms. However, the shortage of skilled manpower has been identified as a main problem by majority of the firms not finding the required employees for various job roles. Among operators, some of the firms have specifically highlighted the issues with respect to the availability of mixing and curing operator. Only five firms responded the shortage of labour.

It is interesting to note that not a greater proportion of firms have mentioned about the supervisor's role for recruitment nor they face any specific problem in hiring people for supervisory role. Based on the responses of the firms, it has been pointed out that people remain associated for the firms for longer duration and thus, it is believed that the requirement for supervisory role does not emerge. Also for the administrative and accounting, no issues have been highlighted.

## **Actual Employment**

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

- Supervisor
- Operator
- Helper
- Senior Management
- Accountants/Account Executive
- Sales/Marketing Executive/Manager
- Quality Check

An analysis of the employment pattern reflects that for around three fourth of the surveyed firms have the helpers and operators constituting 70 percent or more of their total employees. Interestingly 23 percent of the total respondents have no one recruited at the designation of a supervisor. Out of the 85 firms having Supervisors in their production unit, 72 percent firms have reported the recruitment of only one supervisor. The share of senior management for majority of the firms remains less than 20 percent. Around fifty five percent of the respondent firms have recruited at least one person for upkeep of their accounting work in their total work force. It should be noted that only twenty percent of the firms have personnel separately recruited for quality checks and assurance.

## **Workforce Distribution: Core and Non- Core**

The proportion of employees engaged in administrative and managerial work is not very significant in rubber products manufacturing firms across all segments. More than 85 percent of the firms surveyed are hiring 70 percent or more of their total employees in the production section. Moreover, the trend is in line with the findings related to the key job roles for employment in this sector.

**Table 2.5: Recruitment in Core Production Activity**

<b>Recruitment in Core Functions of Production</b>	<b>Surveyed Firms (%)</b>
90% and above	31
80 to 90 %	45
70 to 80 %	12
60 to 70 %	8
50 to 60 %	3
No response	2

## **Educational Profile**

It is assumed that the skills do have a strong correlation with the educational background of the workers and considering that this section highlights in detail the present scenario of the educational status of the workers employed in the rubber industry in the state of Uttar Pradesh. There are very few firms out of the total surveyed firms which have all the employees who are metric pass and hold higher educational qualification. Fifteen percent of the total respondent firms have 70 percent or more employees who are not even metric pass. It is interesting to note that 44 percent of the firms have more than 50 percent of the employees who are metric pass and twelfth pass.

**Table 2.6: Educational Concern**

Percentage of employees below 10th standard	Surveyed Firms %
Less than 40 percent	38
40-70 percent	16
70-100 percent	15
None	5
No response	25

It is important to note that the industry employment should focus on vocational and specialized education; the survey results depict that thirty two firms employed such qualified people and among those firms, twelve firms have 80 percent of the total number of employees working in those rubber products manufacturing units who have completed vocational/ITI education.

**Phd**

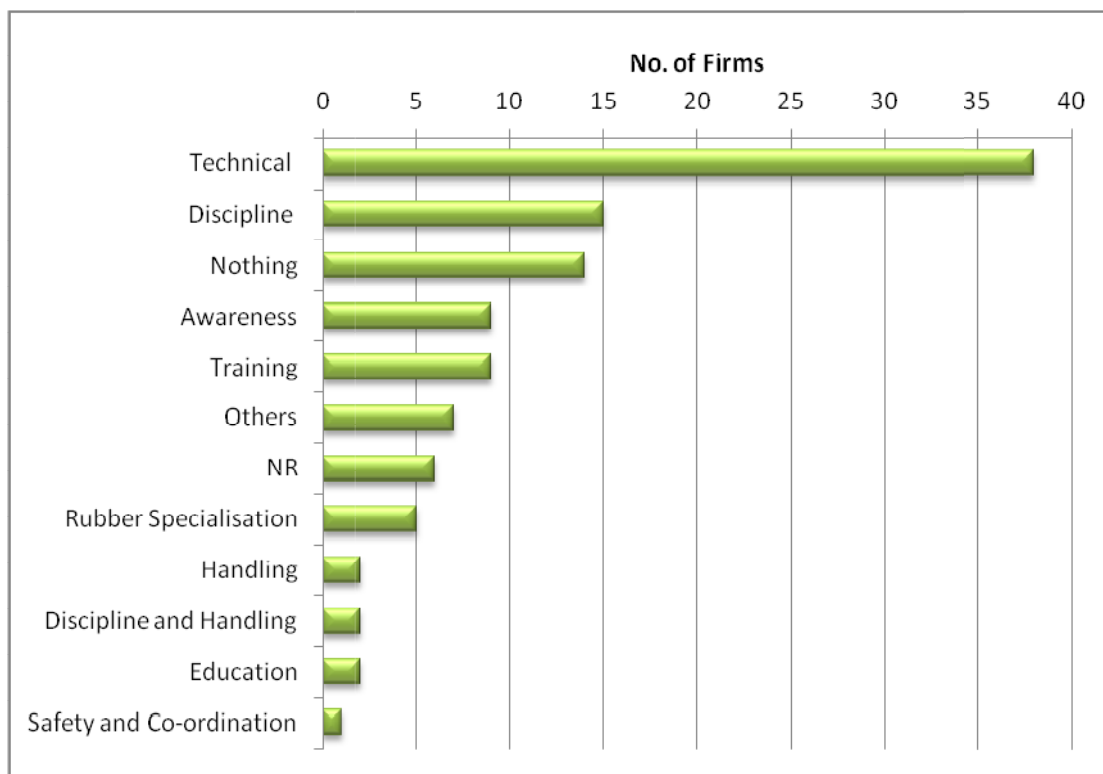
- Only three large scale firms have recruited personnel with such higher educational qualification in the R & D department only.

There are 27 firms engaging diploma holders in their production unit. Also, the firms which hire highly qualified personnel in the research department is only restricted to three firms. These are all large scale firms. The presence of Engineers in the rubber manufacturing units presents not very encouraging condition of technical personnel as only 20 firms employ very small proportion of their total number of employees. Graduates working in the rubber manufacturing units are mainly associated with the accounts, marketing, quality assurance and management department.

## **Missing Skills**

Those who responded to the query related to the skills that the industry find missing in their employees believed that the workers need to have technical knowledge whether it is a tiny, small, medium or large scale organization. An important area of concern emerges on the part of discipline which is an important behavioural trait. Nearly 12 percent of firms did not report skill issue in the industry which either means there are no skill issues or they find it difficult to identify. As the employees mainly gain knowledge on the job which has been highlighted throughout in the survey responses, the awareness about material, technology and quality seems to be another area of concern. Lack of training is also considered as a missing skill by some of the respondent firms.

**Fig 2.8: Missing Skills Scorecard**



## **Skill Gap**

For various job roles, the skill gap prevalent in the rubber industry in the state is analyzed in detail in the next section segment wise. However, an overview of the common skill gap reported at the two most important levels is given below.

---

### Operator Level

- Lack of understanding of importance of safety issues
- All the technical expertise gained is through shop floor work.
- Lack of formal training on the machine
- Lack understanding related to formulations related to the chemicals/materials that are added in particular format/proportion
- Technical and operational knowledge is missing
- Management guidance required for every new process
- Understanding difficulties on what happens if there is slight variation in the raw material used.
- Lacks capability to find faults in the product
- Unable to perform multiple tasks
- Needs constant guidance for the maintenance of various parameters of machines
- Not very efficient w.r.t. finishing and inspection activity

### Supervisor Level

- No formal knowledge on the chemicals and raw material used
- Lack of technical certification.
- All the knowledge of the floor activities gained through long experience.
- No theoretical knowledge
- No formal technical training

---

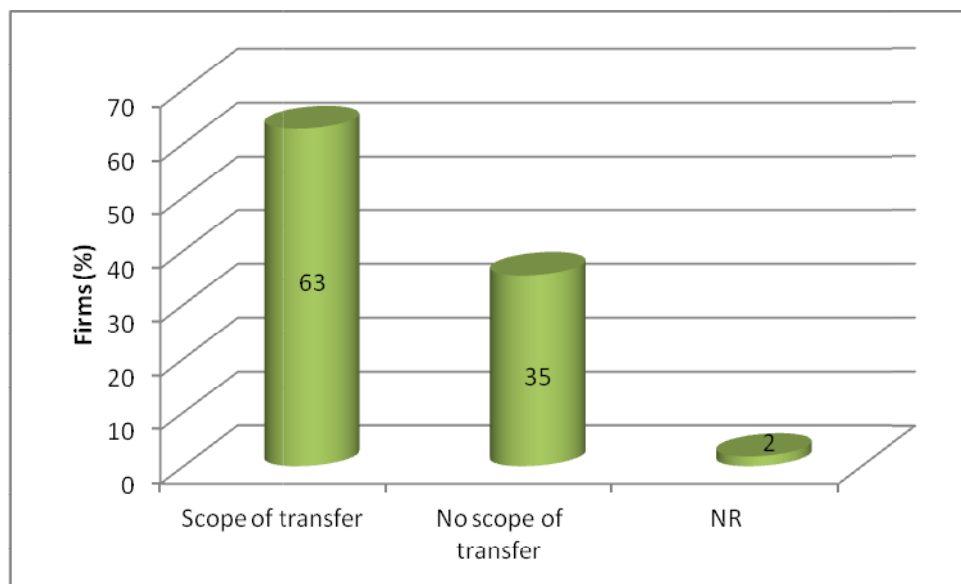
### Regional/State level Variation in Skill Gap

Around 76 percent of the surveyed firms did not see any regional variation in skill gap and 16 percent of the firms have not responded to provide any indication regarding the regional/state level variations in the skill gap that they witness. However, few firms hold the view that skill gap emerge on the part of the labour force of Uttar Pradesh as there is lack of specialized institute which provide skilled labour.

## 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. The survey results indicate that more than three fifth of the respondents admits that there exist a scope of transferring role among employees. However, those who have denied the existence of such phenomenon in their factory premises belongs to small, medium as well as large 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 35 percent respondents. Few firms mentioned that the transfer of role does not exist generally but occasionally in case of absenteeism and greater work load.

**Fig 2.9: Scope of Transferring Role**



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 highlights that the job roles are rotational and one person do perform more than one task as per the requirement. It has been clearly accepted by 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.

### **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.

### **Training**

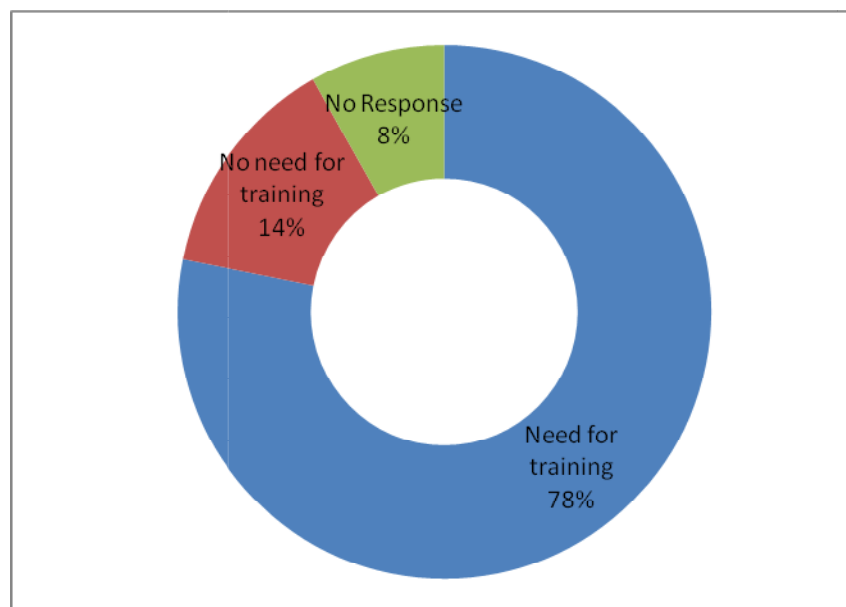
Out of the 110 firms, only eleven of them have a separate training department for their employees, seven are the large scale firms, one medium and two small scale units. Such a scenario presents a fact that the firm to have a training department is to a certain extent related to the scale of manufacturing unit. Almost half of the surveyed firms provide on the job training by the experienced employees which clearly indicates less interest shown by the organization in allocating separate resource for training the employees.

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 irrespective of the size of the firms experienced employees mainly take up the responsibility of training the new employees in the organizations.

### **Requirement for Training**

Although majority of the firms do not allocate specific resources for training department, those who responded to the requirement for training agreed that there is a need for training the employees.

**Fig 2.10: Requirement for Training**





However, among those agreeing for the need for training nearly thirty percent 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 for training requirement. The job roles outlined by them included mainly mixing, moulding, curing and calendering operator. There are some firms (15) maintaining that there is no need for training, possibly due to experienced employees working with them over the years.

### **Training Institutes**

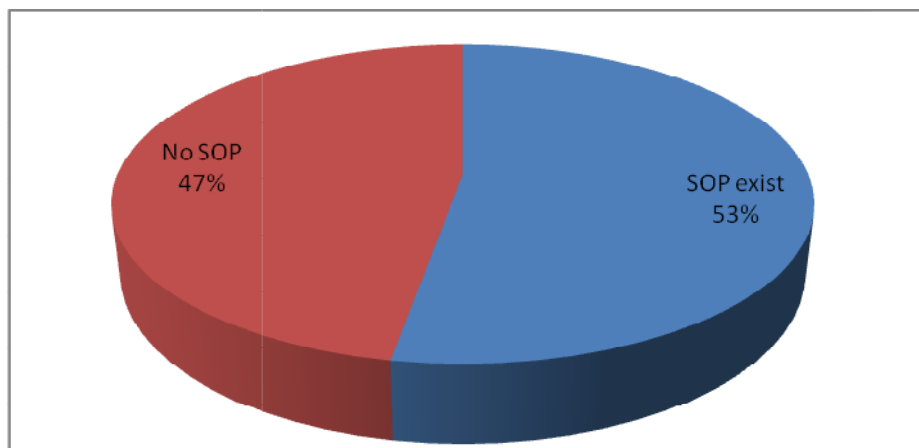
Regarding the association of rubber products manufacturing firms of different segments with the training institute, the survey results present a significant observation that 90 percent of the firms have no direct relation with the training institutes. Only four firms have an association with training institutes for recruiting people.

Moreover, a large number of surveyed firms (88) have no issues with respect to the training institutes as they have not tried to contact them and the possible reason could be that they themselves provide on the job training to their employees.

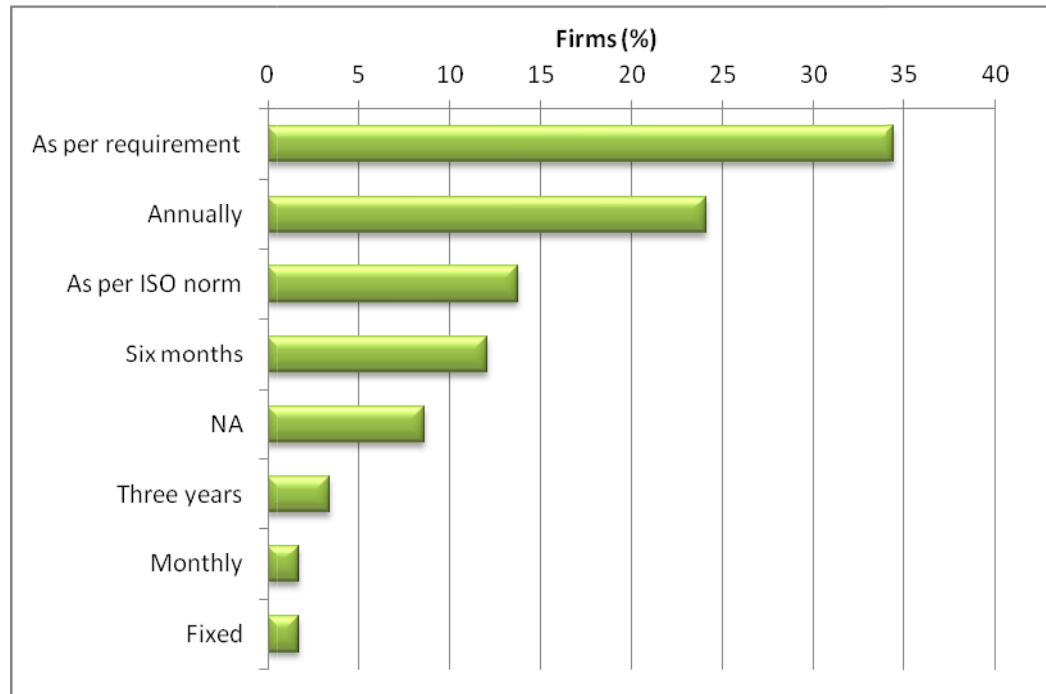
### **Standard Operating Procedures (SOPs)**

Standard Operating Procedures are laid down by the firms to clearly list out the process to be followed at different levels in product manufacturing. More than half of the organizations surveyed do have Standard Operating Procedures at their units and they revise it at different time intervals. Forty seven percent of respondent firms do not have SOP. For firms following SOP, 24 percent of them revise it annually and 34 percent as and when required in the production. However, no revision has taken place for one firm reason being the same product and process followed. Few firms follow ISO review norms and 12 percent based on six month period.

**Fig 2.11: Status of SOPs**



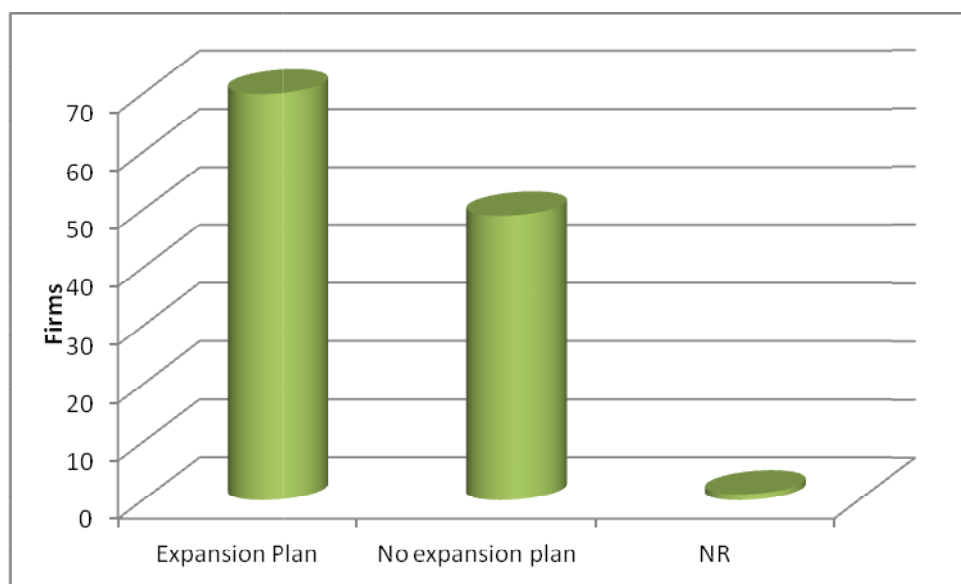
**Fig 2.12: Revision of SOPs**



### **Expansion Plans**

Almost two third of the surveyed firms reported that they have the future expansion plans. Those firms are either looking forward to expand same line of business, enter a new extending product line or upgrade the technology moving to the semi/ full automation technology.

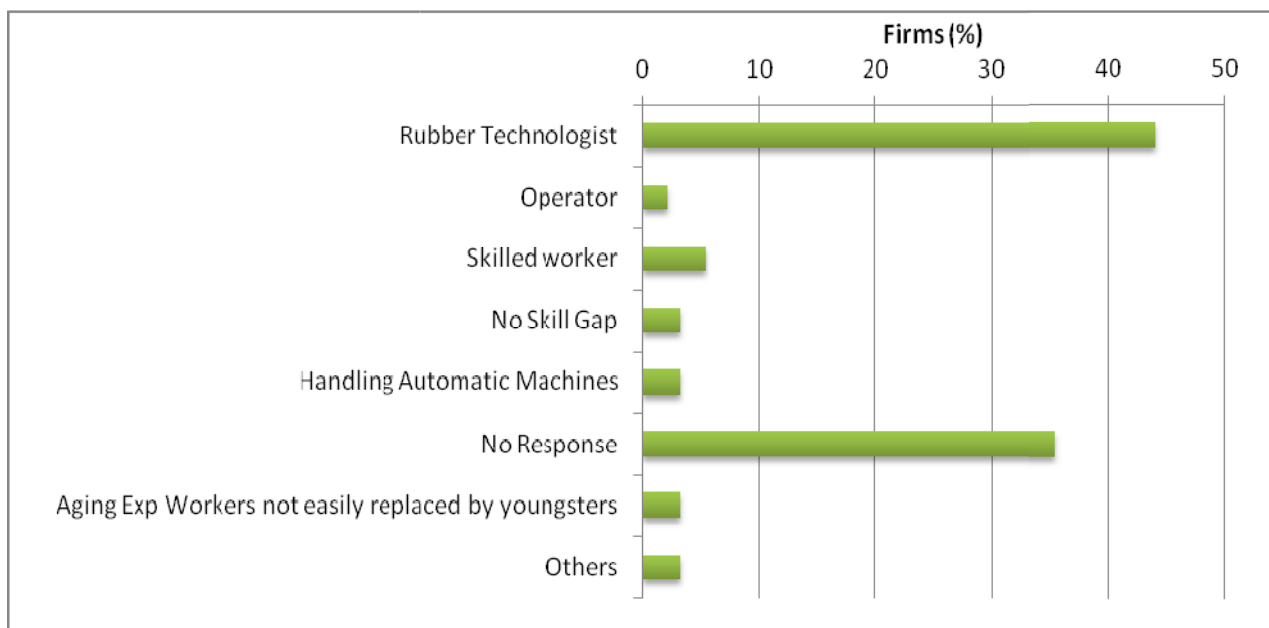
**Fig 2.13: Firms Vision**



### **Future Trends**

Within the various job roles associated with the rubber product manufacturing, Rubber Technologist is one role where most of the respondents feel that the 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. Forty four percent of the respondents clearly stated that Rubber Technologist would be main job work where skill gap would emerge in the coming five years. Some of the firms are having experienced workers with them at present; however, they are concerned about the emerging skill gap for youngsters who will not be able to match up as aged people will retire in some years. Few of the firms visualize the requirement for workers handling automatic machines.

**Fig 2.14: Future Employment Trend**



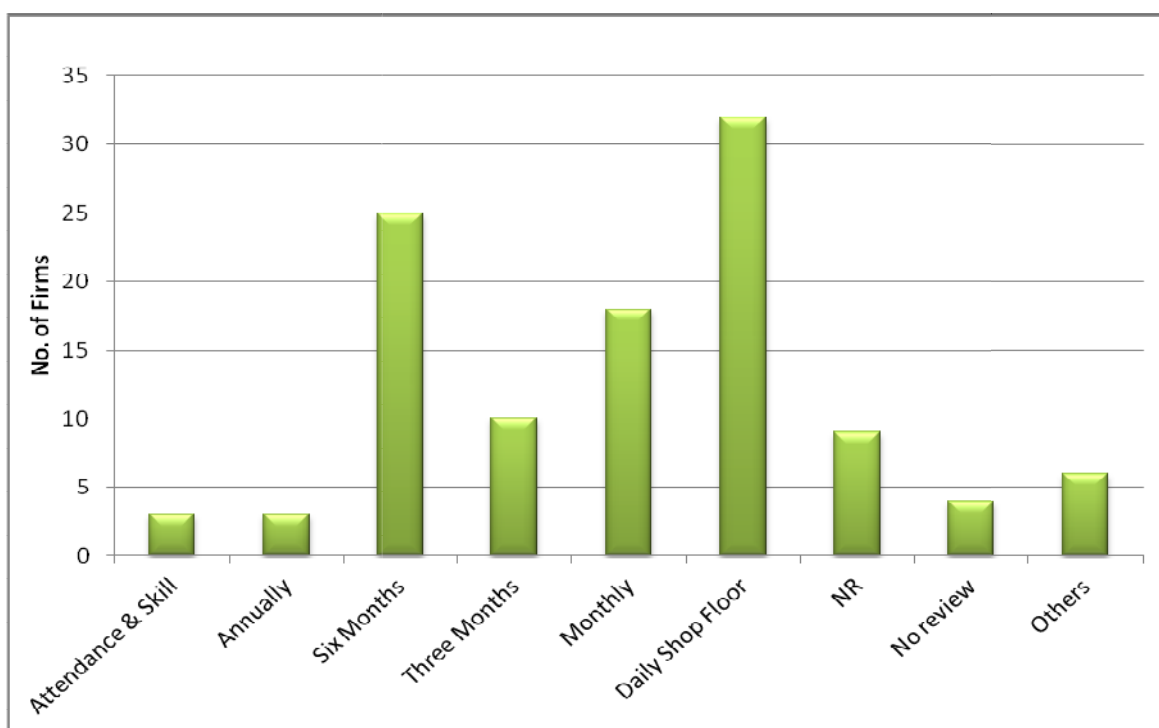
### **Skills vs Performance Review**

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. Those firms who have shared their method regarding the output measurement disclosed that it is mainly by the way of quantity produced of finished products that they measure workers output. Only 3 percent of the firms surveyed mentioned the aspect of target achievement in time whereas for 1 percent of the respondent firms it the amount of efficient production and number of rejections which forms the main component of output measurement by them.

**Table 2.7: Workers Task**

<b>Workers Output Measurement Parameter</b>	<b>Firms (%)</b>
Quantity produced	78
Hourly Basis	6
Target Achievement in given time	3
Attendance and output	7
Efficient production and no. of rejection	1
Others	5

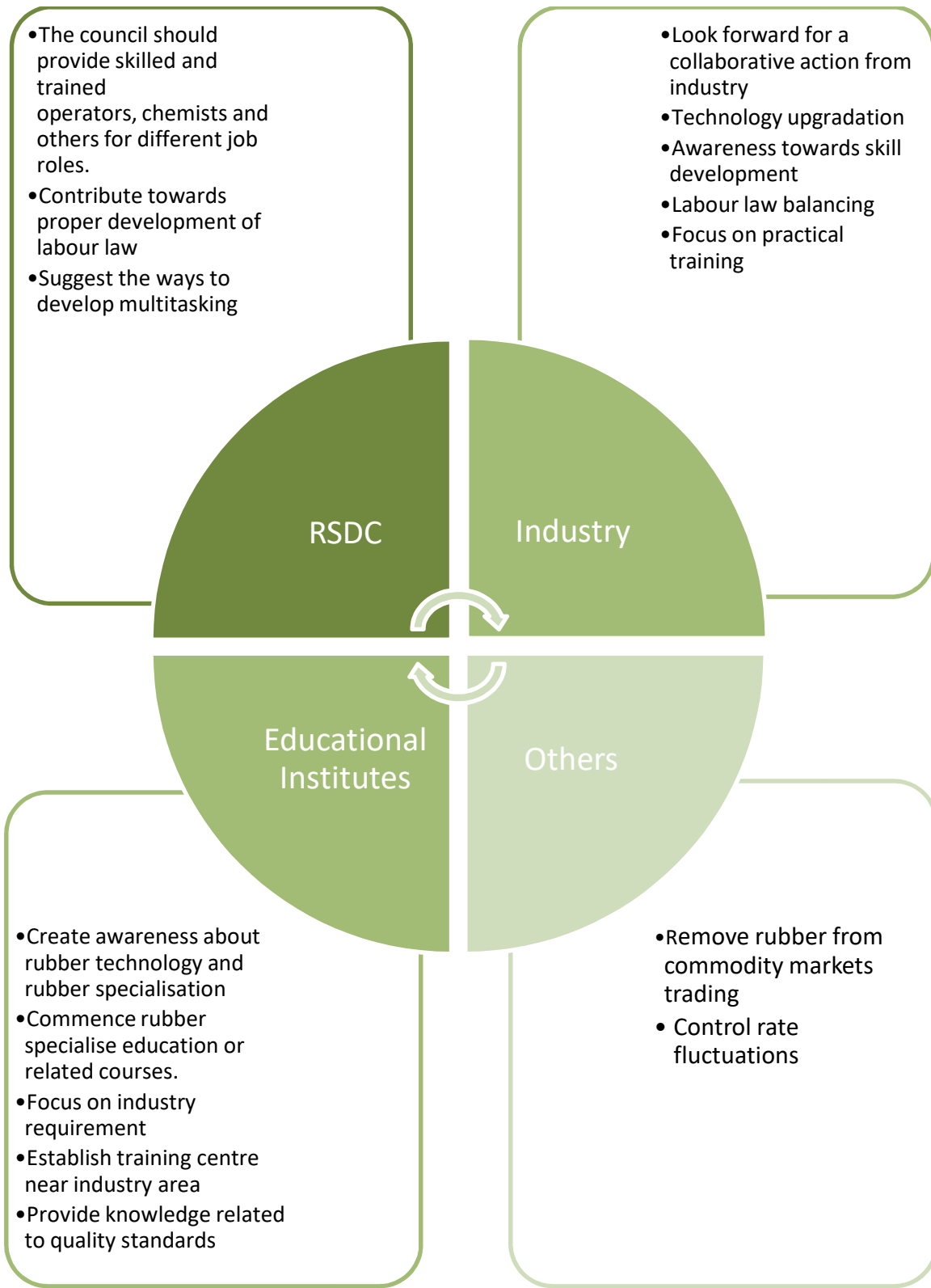
The performance review is taken up mainly on shop floor while supervising the workers activity by more than 30 firms irrespective of their investment size. Almost one fourth of the firms take up review of workers on half yearly basis. All the firms which are not doing any review belong to the Meerut city while there are some firms which have not responded to this aspect.

**Fig 2.15: Frequency of Performance Review**

### **In Focus: Stakeholders Actions**

To address the skill gap issue in the rubber industry in the state of Uttar Pradesh, the respondents from the different product segments have suggested the Rubber Skill Development Council (RSDC) to play a significant role in providing the skilled and trained labour force for this industry. However, majority of the firms did not seem to share their suggestions relating to the performance of educational institutes and have not shown much interest in their participation in skill development for rubber sector. An important suggestion that has emerged from the survey findings is related to make available a common Quality Control (QC)/Quality Assurance (QA) person for a number of small players in a region as well as suggesting the possibility of setting up a common testing laboratory.

### Possible Actions that can be taken by various stakeholders

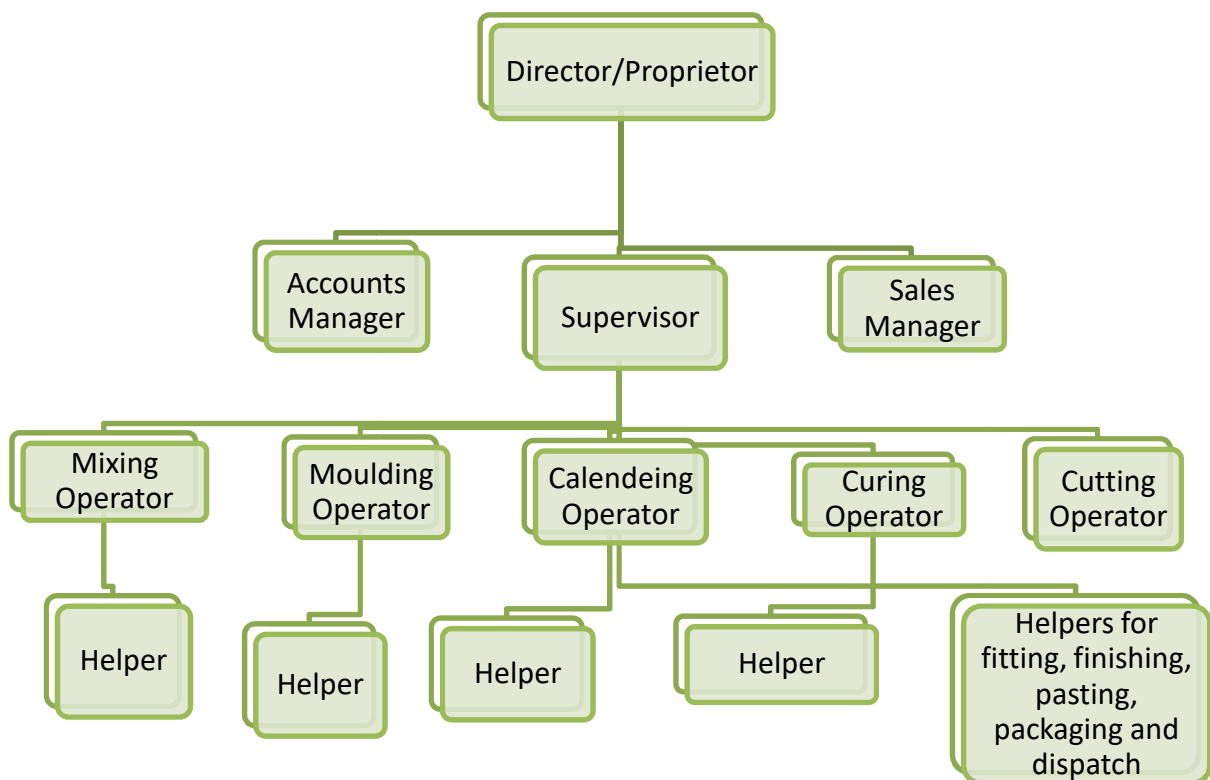


# PRODUCT SEGMENT WISE ANALYSIS

## Footwear

The survey findings reveal that there is a major requirement of operators and helpers in units preparing footwear (footwear sheeting, hawai chappal, sandals, shoes, footwear soles) constituting more than 80 percent of the total employees in the surveyed firms. It should be noted that firms have highlighted majorly the main job requirement for operators, they maintain that helpers are easy to get but it is difficult to find skilled manpower. However, the firms involved in the production of footwear has requirement for supervisory role as well for guiding operators, however there are very few firms engaging more than one supervisor in their units.

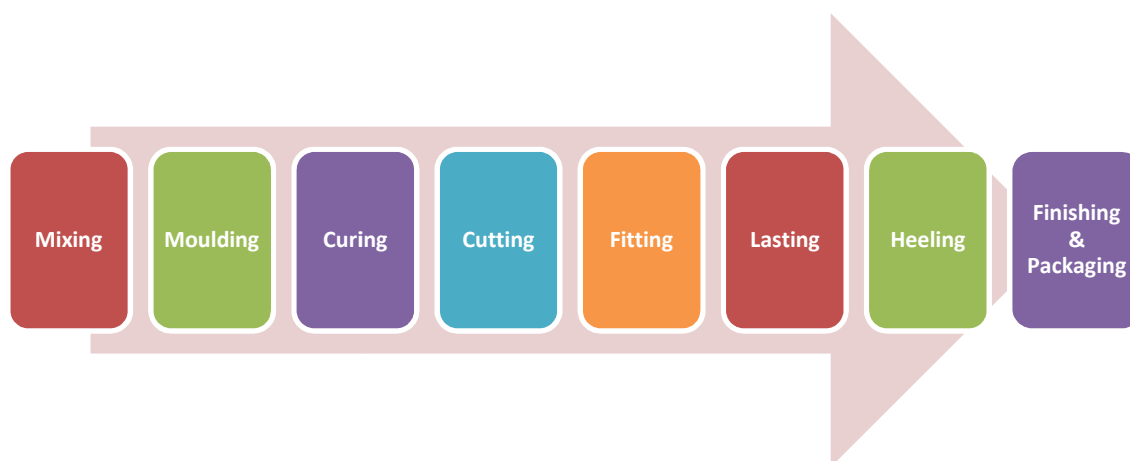
### Organization Structure



### Process Outline:

Compound is obtained by mixing the raw materials in a mixing and milling machine. Rubber strips are made to be put in the hydraulic press. Moulds or cavities are used to get the required shape of the end products. Hydraulic press is used for moulding the rubber into shoes

Hydraulic press requires setting the temperature, pressure and timing for the mould. Then, cutting of extra parts is done which are not required. Preparation of sole and attachment of upper to the sole is carried out. Then, helper attaches and shapes heel bottom to final form. The finished products are then packed and made ready to deliver. Accessories are added which makes shoes look better.

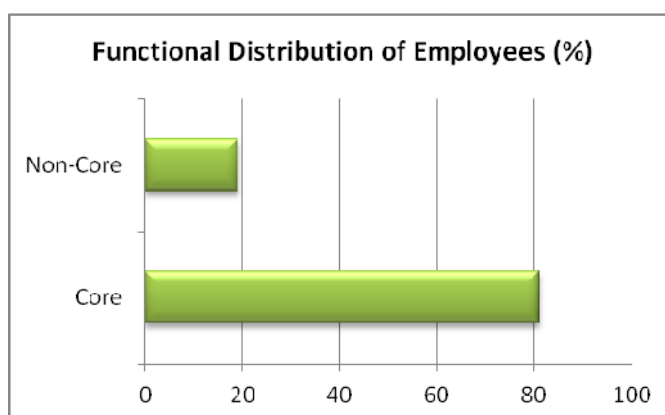


Sample Units	Tiny	Small	Medium	Large	Total
Footwear (UP)	2	7	3	2	24*
Kanpur		3	2		15*
Meerut	1				1
Sahibabad			1	1	2
Ghaziabad				1	1
Agra	1	3			4
Saharanpur		1			1

\*Rest of the firms have not disclosed their investment levels

### **Manpower at a glance**

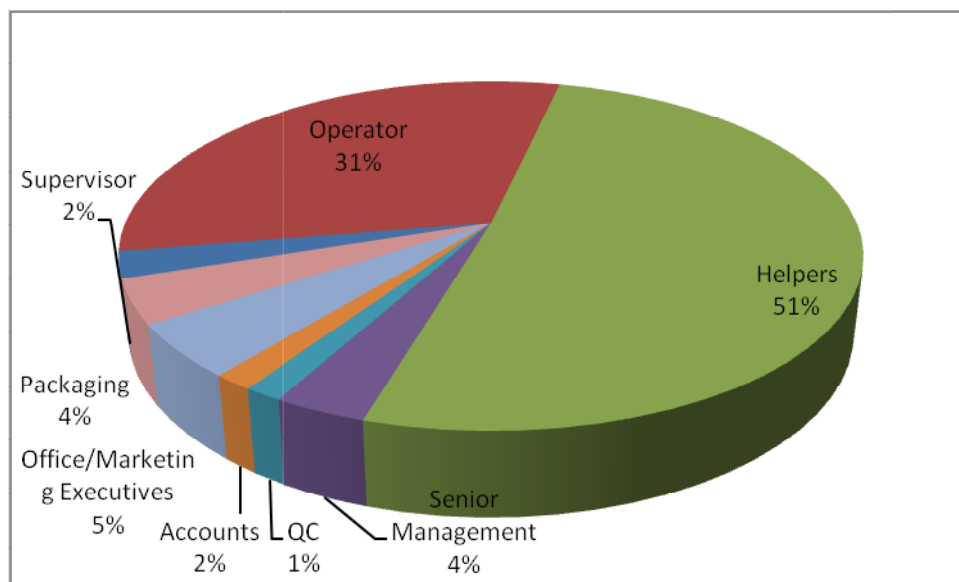
In the footwear producing firms surveyed in different cities of Uttar Pradesh, there are twenty firms having 100 percent on roll employees and only four units have off roll employees which do not constitute more than one third of their total employees. Majority of the employees are engaged in the core production activity, only 19





percent of the total employees are taking up the administrative, accounting and managerial tasks. In these units covered in the sample, the employees sourcing strategy is through employee's reference, direct interview and newspaper advertisements. Moreover, half of the respondent firms mentioned that they experience very low rate of attrition that is less than 5 percent in their manufacturing units whereas rest of them witnessed attrition at 10 to 25%. Salary payment as per government rule and labour law, increment, bonus, facilities and insurance are among the strategy followed by the firms to retain the workers with them for longer duration. Half of the respondent firms feel that there is a scope for transfer of roles in the activities carried out by the workers in their units; while others do not mentioned any such role transfer in their manufacturing units for workers.

**Job Role Distribution in Sample Units**



Sixty percent of the respondent firms have smaller or larger proportion (10-40%) of the workforce coming from outside Uttar Pradesh. The main states from where workers have come to work in Uttar Pradesh based footwear producing units are Bihar, Odisha and Karnataka. However, the major chunk is arriving from Uttar Pradesh.

There is no employee in the footwear segment in UP who hold the higher level degree such as Ph.D but it is good to see that some of employees have completed their vocational education and hold diploma. Tiny and small scale units have more workers who have not even completed secondary school as compared to medium and large scale organizations.

### Educational Qualifications (% of total employees)

Educational Qualification	Tiny	Small	Medium	Large
Ph.D/Research	-	-	-	-
Engineers	-	-	10	-
Graduate	12	4.5	-	16
Diploma Engineers	-	0.4	15	2
ITI/Vocational Education	-	-	-	10
XII/X/School Education	22	16	60	20
Below Xth standard	66	70.9	15	48
Others (CA, CS, ICWA, MBA etc.)	-	8.2	-	2

### **Training**

Except for one medium scale firm in Kanpur, training department is not in existence for any of the firms surveyed in the footwear segment. Majority of the responding firms highlighted that they provide on the job training and no separate department is allocated for training. However, the firms hold that there is a skill gap on part of workers with respect to technical knowledge, discipline, safety, co-ordination, awareness, positivity and proper handling of material and machines.

### **Main Roles and Skill Gap**

#### **1. Mixing Operator**

<u>Mixing Operator</u>	Skill Gap			
<ul style="list-style-type: none"> <li>Guiding the helpers in unloading the material into the mixing machine.</li> <li>Work on mixing machine and mixing mill.</li> <li>Add additives and chemical in sequence and manner guided by the supervisor.</li> <li>Switch on the machine and</li> </ul>	Tiny	Small	Medium	Large
	<ul style="list-style-type: none"> <li>Lack of technical knowledge of various chemicals and rubbers</li> </ul>	<ul style="list-style-type: none"> <li>Lack of basic technical knowledge of properties of various inputs.</li> </ul>	<ul style="list-style-type: none"> <li>No formal technical training</li> <li>Lack of basic technical knowledge of properties</li> </ul>	<ul style="list-style-type: none"> <li>Training, certification and recertification.</li> <li>Lack of rubber</li> </ul>

<p>the clock the cycle which has been set by the manager/supervisor.</p> <ul style="list-style-type: none"> <li>• Operate Mixing machine properly</li> <li>• Maintain the machine parameters i.e, temperature &amp; pressure</li> <li>• Cleaning the machine after each process.</li> <li>• Checking the safety while working on the machine.</li> <li>• Use safety measures to avoid injury</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of knowledge to operate the machine</li> </ul>	<ul style="list-style-type: none"> <li>• Works based on experience.</li> <li>• Lacks capability to find faults in the product</li> <li>• No formal technical training</li> </ul>	<p>of various inputs.</p> <ul style="list-style-type: none"> <li>• Works based on experience.</li> <li>• Lacks capability to find faults in the product</li> <li>• Training, certification and recertification.</li> </ul>	<p>specialization .</p> <ul style="list-style-type: none"> <li>• Unawareness towards operation</li> <li>• Proportion of raw material used .</li> </ul>
---	--	--	--	--

**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.
- Basic repair and maintenance of machine

**Managerial skill:**

- Good communication skills for guiding helpers.
- Ability to take decision.
- Ability to communicate with the plant in-charge in case of any faults or technical issues

**Soft Skills:**

- Basic behavioral skills
- Co-ordination skill

## 2. Moulding Operator

<u>Moulding Operator</u> <ul style="list-style-type: none"> <li>Operate the moulding machine skillfully.</li> <li>Checking that the moulds are properly fixed</li> <li>Maintaining the temperature of the machine which has been set by the supervisor.</li> <li>Maintain the machine.</li> <li>Take care of safety while working on the process as per org. guidelines.(as the temperature is very high)</li> </ul>	Skill Gap			
	Tiny	Small	Medium	Large
	<ul style="list-style-type: none"> <li>Lack of experience &amp; knowledge about operation.</li> </ul>	<ul style="list-style-type: none"> <li>No formal technical training.</li> <li>Lacks capability to find faults in the product.</li> <li>Training, certification and recertification.</li> </ul>	<ul style="list-style-type: none"> <li>No use of any safety equipments.</li> <li>Wastage is very much.</li> <li>One worker is doing many works.</li> <li>Equipment maintenance is done after long time</li> <li>Communication gap between workers</li> </ul>	<ul style="list-style-type: none"> <li>Training, certification and recertification .</li> <li>Lack of rubber specialization .</li> <li>Unawareness towards percentage of waste produces while moulding operations.</li> </ul>

Skill Gap Intensity: Medium

Skills Required

Technical Skills:

- Good knowledge of machine and its operation.
- Change the moulds with the guidance of the supervisor
- Molding is carried out at high temperature so safely handling is necessary with a necessary safety equipments

Managerial skill:

- Good communication skills for guiding helpers and coordinating with other operators.
- Ability to get work done by helpers.

- Motivate co-workers
- Efficient and always tries to minimize the waste

**Soft Skills:**

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

### 3. Curing Operator

Curing Operator	Skill Gap			
	Tiny	Small	Medium	Large
<ul style="list-style-type: none"> <li>• Operate the machine carefully</li> <li>• Attachments are produced upper to the sole.</li> <li>• Attachments should be accurate.</li> <li>• Handling should be done carefully because the material is very hot.</li> <li>• Use safety measures to avoid injury.</li> <li>• Work efficiently under high temperature.</li> <li>• Maintaining the temperature of the machine.</li> <li>• Maintain the machine.</li> <li>• Take care of safety while working on the process as per org. guidelines.(as the temperature is very high)</li> </ul>	<ul style="list-style-type: none"> <li>• No formal training</li> <li>• No knowledge of curing temperature , pressure and timing</li> </ul>	<ul style="list-style-type: none"> <li>• Safety is foremost thing in which the worker lacks.</li> <li>• High Wastage</li> <li>• Coordination between workers and helpers was poor.</li> <li>• One worker only perform many works.</li> </ul>	<ul style="list-style-type: none"> <li>• Not a professionally trained worker</li> <li>• Lacks capability to find error in products</li> <li>• No safety equipments is used by any workers.</li> <li>• Wastage is high</li> <li>• Maintenance of equipment is negligible</li> </ul>	
Skill Gap Intensity: Medium				
Skills Required				

#### Technical Skills:

- Good knowledge of machine and its operation.
- Identifying the correct input
- Able to understand the importance of raw material
- Knowledge of various controls of the vulcanizing oven.
- Knowledge of impact of temperature, duration of exposure to heat on the final product's properties

#### Managerial skill:

- Good communication skills for guiding helpers and coordinating with other operators.
- Ability to get work done by helpers.
- Motivate co-workers
- Efficient and always tries to minimize the waste

#### Soft Skills:

- Good knowledge of metric system (time, temperature, pressure)
- Good reading skills
- Communicate with others workers properly.

#### 4. Calendaring Operator

<u>Calendaring Operator</u> <ul style="list-style-type: none"><li>• Operate the machine carefully</li><li>• Calendaring done should be efficient with less wastage.</li><li>• Safety equipments should always be taken.</li><li>• Should be efficient in work</li><li>• Maintain the machine.</li></ul>	Skill Gap			
	Tiny	Small	Medium	Large
	Lack of experience & knowledge about operation.	<ul style="list-style-type: none"><li>• No safety equipments are used.</li><li>• Worker is trained on shop floor itself.</li><li>• No technical</li></ul>	<ul style="list-style-type: none"><li>• No safety equipments are used.</li><li>• Worker is trained on shop floor itself.</li><li>• No technical</li></ul>	

		knowledge	knowledge	
<b>Skill Gap Intensity: Medium</b> <b>Skills Required</b> <b>Technical Skills:</b> <ul style="list-style-type: none"> <li>• Good knowledge of machine and its operation.</li> <li>• Able to work under high temperature and pressure</li> <li>• Minimize waste and increase productivity</li> </ul> <b>Managerial skill:</b> <ul style="list-style-type: none"> <li>• Good communication skills for guiding helpers and coordinating with other operators.</li> <li>• Ability to get work done by helpers.</li> <li>• Motivate co-workers</li> </ul> <b>Soft Skills:</b> <ul style="list-style-type: none"> <li>• Good knowledge of metric system (time, temperature, pressure)</li> <li>• Good reading skills</li> </ul>				

## 5. Cutting Operator

<u>Cutting Operator</u>	Skill Gap			
<ul style="list-style-type: none"> <li>• Performing the work of cutting the cured sheet with dye by hydraulic cutting machine</li> <li>• Cut the flash skillfully</li> <li>• Work with speed and accuracy</li> <li>• Must have correct understanding of dimensions</li> <li>• Very accurate in his work.</li> </ul>	Tiny	Small	Medium	Large
	<ul style="list-style-type: none"> <li>• No proper knowledge of sole cutting</li> </ul>	<ul style="list-style-type: none"> <li>• Trained on shop floor</li> <li>• No technical training</li> <li>• Lack of</li> </ul>		

		attention		
<p><u>Skill Gap Intensity: Medium</u></p> <p><b>Skills Required</b></p> <p><b>Technical Skills:</b></p> <ul style="list-style-type: none"> <li>• Good knowledge of cutting tools/machine and its operation.</li> <li>• Minimize waste and increase productivity</li> </ul> <p><b>Managerial skill:</b></p> <ul style="list-style-type: none"> <li>• Good communication skills for guiding helpers and coordinating with other operators.</li> </ul> <p><b>Soft Skills:</b></p> <ul style="list-style-type: none"> <li>• Good knowledge of metric system (time, temperature, pressure)</li> <li>• Good reading skills</li> <li>• Good finishing and presentation skills</li> </ul>				

## 6. Helper (Machine Operations, Finishing, Packaging)

<u>Helper</u>	Skill Gap			
	Tiny	Small	Medium	Large
<ul style="list-style-type: none"> <li>• Shift the material from the different process (i.e. kneading to mixing to press to cutting to packing to storing)</li> <li>• Clean the shop floor as when guided by the supervisor.</li> <li>• Loading and unloading the rubber into the mixing mill</li> <li>• Movement of material, semi finished and finished product</li> </ul>	<ul style="list-style-type: none"> <li>• No formal training</li> <li>• Lack of awareness, education, communication gap.</li> </ul>	<ul style="list-style-type: none"> <li>•Lacks technical knowledge</li> <li>•No Formal training</li> </ul>	<ul style="list-style-type: none"> <li>• Lacks proper experience</li> <li>• High wastage</li> </ul>	Training, certification and recertification



- Packing the footwear in respective packing material.
- Do all work as directed by the supervisor

#### Intensity of Skill Gap: 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
- Ability to do work as guided by the operators and identify the products

#### Soft Skills:

- Number identification skills on the carton (footwear/chappal size)
- Good reading skills

### 7. Supervisor

<u>Supervisor</u>	Skill Gap			
	Tiny	Small	Medium	Large
		<ul style="list-style-type: none"> <li>• No formal technical training</li> </ul>		<ul style="list-style-type: none"> <li>• Plant operation knowledge</li> <li>• Man power handling</li> </ul>
<ul style="list-style-type: none"> <li>• Manage the shop floor activities.</li> <li>• Responsible for running of unit and production</li> <li>• Planning for production schedule</li> <li>• Understand the end user requirement and design processes to incorporate the customer needs in the final product.</li> <li>• Get involved in quality control</li> </ul>				
<u>Intensity of Skill Gap: Medium</u>				

## 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

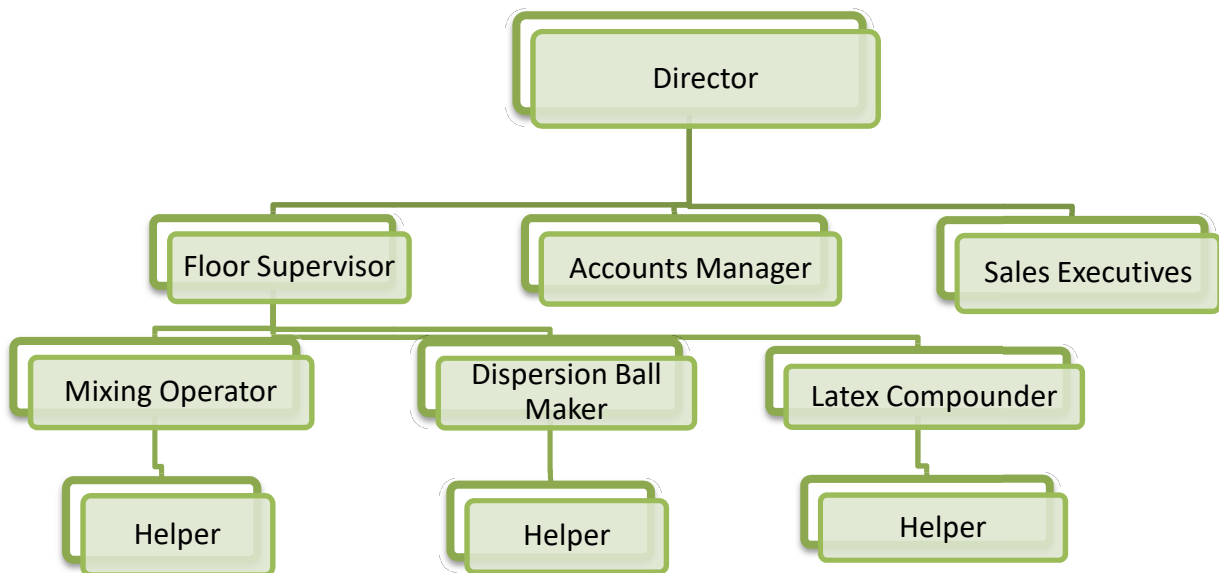
### Soft Skills

- Effective communication skill

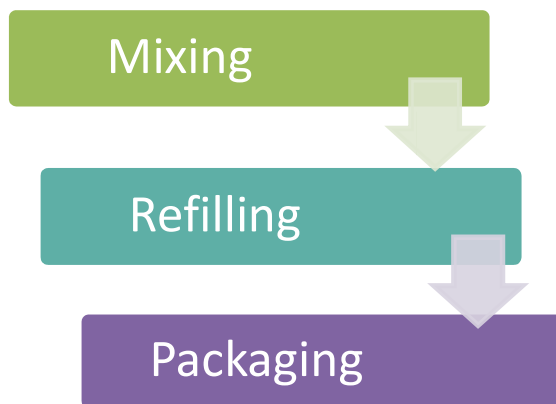
## Adhesive

The survey findings reveal that seventy percent of respondent firms engaged in the adhesive manufacturing segment easily find the requisite number of people thus they do not face any major challenge with respect to human resource availability. The main job requirement is for mixing mill operator, dispersion ball maker, latex compounder and helpers. The surveyed firms in this business line have majorly recruited all their employees from the city in which they operate.

### Organization Structure



### Process Outline:



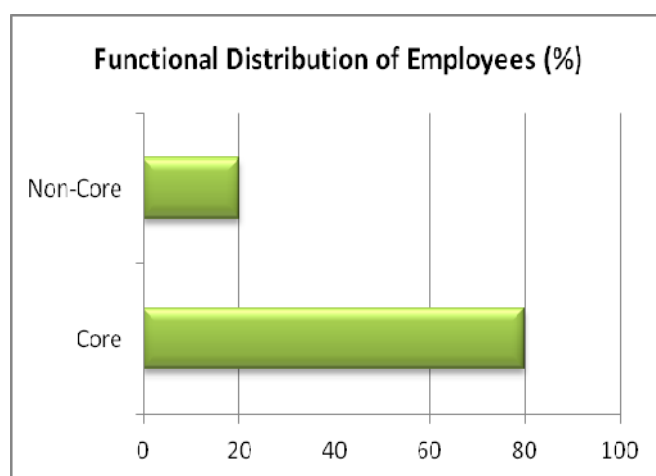
The operations at the adhesive manufacturing firms employing majorly 20 or less than 20 workers depicted simple manufacturing process. All raw materials are mixed and then chemical reagents are added to it. After mixing the compound, it forms a viscous liquid which then goes for refilling. The refilling of the liquid adhesives takes place into different containers. Packing is done by helpers and made ready to deliver.

Sample Units	Tiny	Small	Medium	Large	Total
Adhesive (UP)	3	6	-	1	20*
Kanpur	1	2	-	-	10*
Agra	-	1	-	1	2
Meerut	-	-	-	-	3*
Mathura	-	1	-	-	1
Saharanpur	-	1	-	-	1

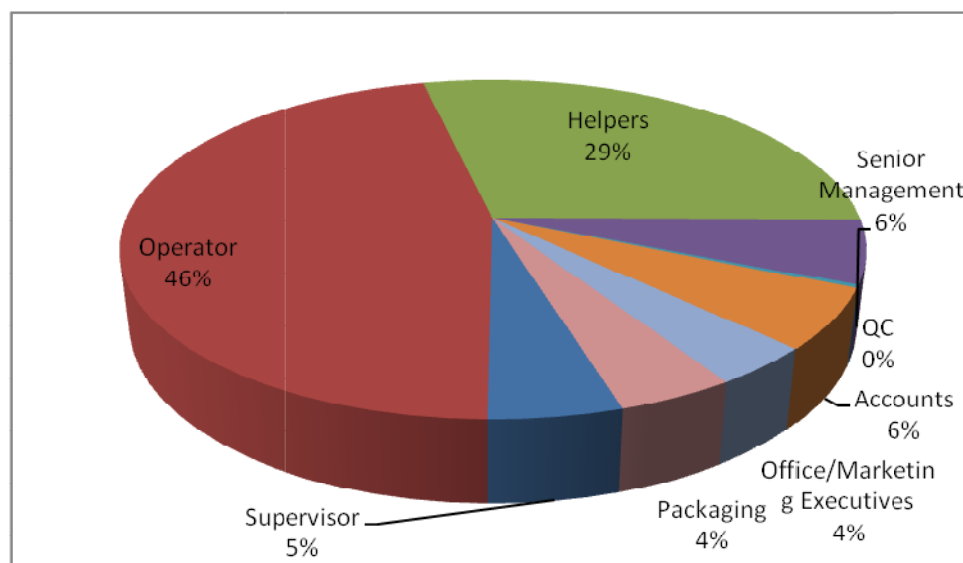
\* Rest of the firms did not disclose their investment levels.

### Manpower at a glance

All the employees in the adhesive producing firms are on roll employees, except for two firms hiring some employees off roll. The main sources of recruitment are through employee's reference, direct interview and newspaper advertisement. Majority (85 percent) of the firms have recruited local people in their production units, the participation of people coming for work in adhesive segment in UP is very minimal. The proportion of employees engaged in core activities employee constitute 80 percent of the total employees.



### **Job Role Distribution in Sample Units**



Moreover, seventy five percent of the respondent firms feel that there is no scope for transfer of roles in the activities carried out by the workers in their units. The respondent firms mainly hire local people. Main job role requirement is listed for operators relates to Mixing, Dispersion Ball Maker and Latex Compounder by most of the firms and for packaging workers mainly by Kanpur based units in adhesive segment.

#### Educational Qualifications (% of total employees)

Educational Qualification	Tiny	Small	Large
Ph.D/Research	-		na
Engineers	-	3	na
Graduate	-	2	na
Diploma Engineers	-	1	na
ITI/Vocational Education	-	4	na
XII/X/School Education	20	13	na
Below Xth standard	80	75	na
Others (CA, CS, ICWA, MBA etc.)	-	-	na

Note: Including those firms only which have given the description about educational qualifications

#### Training

Training is mainly provided on the job for different functions. No specific training departments are in existence as well as there is no association with training institutes which implies that this segment of rubber industry in Uttar Pradesh is delivering training in an unstructured manner.

#### Main Roles and Skill Gap

##### 1. Mixing Mill Operator

<u>Mixing Mill Operator</u>	Skill Gap			
<ul style="list-style-type: none"> <li>Mixing the correct (indicated) proportion of inputs.</li> <li>Operate the mixing machine</li> <li>Regular maintenance of the machine</li> <li>Work for long hours at high temperatures</li> </ul>	Tiny	Small	Medium	Large
	<ul style="list-style-type: none"> <li>Lack of technical knowledge of various chemicals and rubbers</li> </ul>	<ul style="list-style-type: none"> <li>Lack basic technical knowledge of properties of various</li> </ul>		<ul style="list-style-type: none"> <li>Specialization in latex compounding &amp; real time experience in latex</li> </ul>

<ul style="list-style-type: none"> <li>• Guide the helper</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of knowledge to operate the machine</li> <li>• Not a professionally trained worker.</li> <li>• Lacks capability to find error in products</li> <li>• No safety equipments is used</li> <li>• Wastage is high</li> <li>• Maintenance of equipment is negligible.</li> </ul>	<ul style="list-style-type: none"> <li>inputs.</li> <li>• Works based on experience.</li> <li>• No formal technical training.</li> <li>• Lacks capability to find faults in the product</li> </ul>		<ul style="list-style-type: none"> <li>compoundin g</li> </ul>
--	--	--	--	--

#### Skill Gap Intensity: Medium

#### Skills Required

##### Technical Skills:

- Identifying the different inputs
- Understand the importance of each raw material
- Knowledge of operating the m/c
- Technical Knowledge of each input.
- Ability to communicate with the plant in-charge in case of any faults or technical issues

##### Managerial skills:

- Guiding the helpers for routine work

- Manage the helpers
- Ability to take decisions
- Motivate peers and subordinates
- Team spirit

**Soft Skills:**

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

## **2. Dispersion Ball Maker**

<u>Dispersion Ball Maker</u> <ul style="list-style-type: none"> <li>• Operate the machine skillfully</li> <li>• Quantity of feed entered should be known</li> <li>• Make Zero defect products</li> </ul>	Skill Gap			
	Tiny	Small	Medium	Large
	<ul style="list-style-type: none"> <li>• No proper safety equipment usage</li> <li>• Communication Gap between workers</li> </ul>	<ul style="list-style-type: none"> <li>• No proper safety equipments usage.</li> <li>• Communication gaps observed between workers</li> </ul>		

### **Skill Gap Intensity: Medium**

**Skills Required**

**Technical Skills:**

- Identifying the different inputs
- Understand the importance of each raw material
- Knowledge of operating the m/c
- Technical Knowledge of each input.
- Ability to communicate with the plant in-charge in case of any faults or technical issues

**Managerial skills:**

- Guiding the helpers for routine work
- Manage the helpers
- Ability to take decisions
- Motivate peers and subordinates
- Team spirit

**Soft Skills:**

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

### **3. Latex Compounder**

<u>Latex Compounder</u>	Skill Gap			
	Tiny	Small	Medium	Large
a. Prepare compounds as per formulation.				
b. Guiding the helpers in unloading /loading.	<ul style="list-style-type: none"> <li>• Lacks of speed in work</li> </ul>	<ul style="list-style-type: none"> <li>•Lacks speed in work</li> </ul>		
c. Add additives and chemical in sequence and manner guided by the supervisor/proprietor.	<ul style="list-style-type: none"> <li>• Doing work unhygienically</li> </ul>	<ul style="list-style-type: none"> <li>•Doing work unhygenical ly</li> </ul>		
d. Switch on the machine and the clock the cycle which has been set by the supervisor/proprietor.	<ul style="list-style-type: none"> <li>• Lacks discipline</li> </ul>	<ul style="list-style-type: none"> <li>•Lacks discipline</li> </ul>		
e. Maintain the machine				
f. In case of any issues raise alarm to the supervisor/proprietor				
g. Maintain the safety aspects as shared by the supervisor				
h. Follow the standard operating				



<p>procedures of each operations with respect to latex compounding</p> <p>i. Prepare batch sizes as per the daily productions needs</p> <p>j. Determine the cure characteristics of compounded latex and its adjustments and controls at a critical condition.</p> <p>k. Allocate Batch / Lot numbers of the compounding done for traceability.</p> <p>l. Proper control utilities, viz, water, electricity, compressed air, weighing scale etc.</p>				
--	--	--	--	--

#### Intensity of Skill Gap: Medium

#### Skills Required

##### Technical Skills:

- Knowledge of various latex applications and its compounding
- Knowledge of proper compound mixing & preparation of dispersion and solutions
- Knowledge of quality certified products
- Remove the material from the mixers with the guidance of the proprietor
- Maintain the temperature, rotation of the mixers and the as per guidance of the proprietor

##### Managerial skills:

- Do as directed by the quality analyst and floor supervisor
- Good understanding skills

##### Soft Skills:

- Good communication skills

#### 4. Helper

<u>Helper</u> <ul style="list-style-type: none"><li>• Weight the adhesive and fill it into respective drum or cans &amp; pack it.</li><li>• Put it at proper storage area</li><li>• Load the unloading of drums</li><li>• Works as directed by proprietor</li></ul>	Skill Gap			
	Tiny	Small	Medium	Large
	<ul style="list-style-type: none"><li>• Lack of Technical knowledge</li><li>• No formal training</li><li>• Lack of proper work experience</li><li>• High Wastage</li></ul>	<ul style="list-style-type: none"><li>• No formal technical training</li><li>• Lack proper work experience</li><li>• Responsible for high wastage</li></ul>		
<u>Intensity of Skill Gap: Medium</u>				
Skills Required				
Technical Skills:				
<ul style="list-style-type: none"><li>• Perform all the work as directed</li><li>• Ability to communicate with proprietor</li><li>• Able to weight the chemicals</li><li>• Knowledge of metric system</li><li>• Remove the impurity from the rubber in line with the guidance of the supervisor</li><li>• Maintain the temperature of the latex and the solutions as per guidance</li></ul>				
Soft Skills:				
<ul style="list-style-type: none"><li>• Basic communication skills</li><li>• Basic Behavioral skill</li></ul>				

## 5. Supervisor

Supervisor	Skill Gap			
	Tiny	Small	Medium	Large
<ul style="list-style-type: none"> <li>• Manage the shop floor activities.</li> <li>• Responsible for running of unit and production</li> <li>• Planning for production schedule</li> <li>• Understand the end user requirement and design processes to incorporate the customer needs in the final product.</li> <li>• Manage the workers</li> <li>• Get involved in the quality control</li> <li>• Get involved in decision making process</li> <li>• </li> </ul>	<ul style="list-style-type: none"> <li>• Lack of proper training</li> <li>• Work based on experience</li> <li>• No formal technical training</li> </ul>	<ul style="list-style-type: none"> <li>• No formal technical training</li> <li>• Works based on experience</li> <li>• Lack of knowledge of latest technology</li> </ul>		<ul style="list-style-type: none"> <li>• Lack of specialization.</li> <li>• Unaware of new technology.</li> <li>• Behavior with production workers</li> </ul>

### Intensity of Skill Gap: Medium

#### Skills Required

#### Technical Skills:

- Knowledge of the rubber industry
- Knowledge of basic properties chemicals, additives used, etc used in production process
- Knowledge about the machines and their operation
- Ability to measure dimensions using industrial measuring instruments
- Power to recognize error

#### 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
- Interact with workers, superiors and external parties

### **6. Accountant**

<u>Accountant</u> <ul style="list-style-type: none"><li>• To perform the various documentation functions.</li><li>• To assist the marketing, purchase, HR and accounts function as and when required.</li><li>• To communicate with the external parties.</li><li>• Keep accounting record updated.</li><li>• Taking approval for expenses.</li><li>• Prepare account statement and share with director</li></ul>	Skill Gap			
	Tiny	Small	Medium	Large
		<ul style="list-style-type: none"><li>• No skill gap manifested</li></ul>		

**Skills Required**  
**Technical Skills:**

- Knowledge of various documents and their importance.
- Mathematical and accounting Skills.
- Ability to communicate in English language,
- Good IQ level.
- Knowledge of Tally and internet savvy

**Soft Skills**

- Effective communication skill
- Good presentation skills

## **7. Sales Executive**

<u>Sales Executive</u> <ul style="list-style-type: none"><li>• Identify sales ratio in given region</li><li>• Forecasting sales and planning according it.</li><li>• Monitor sales person and give them target.</li></ul>	Skill Gap			
	Tiny	Small	Medium	Large
		<ul style="list-style-type: none"><li>• No skill gap manifested</li></ul>		

**Skills Required**

**Technical Skills:**

- Knowledge of various products and sales strategy.
- Mathematical Skills.
- Ability to communicate in English language,
- Good IQ level.

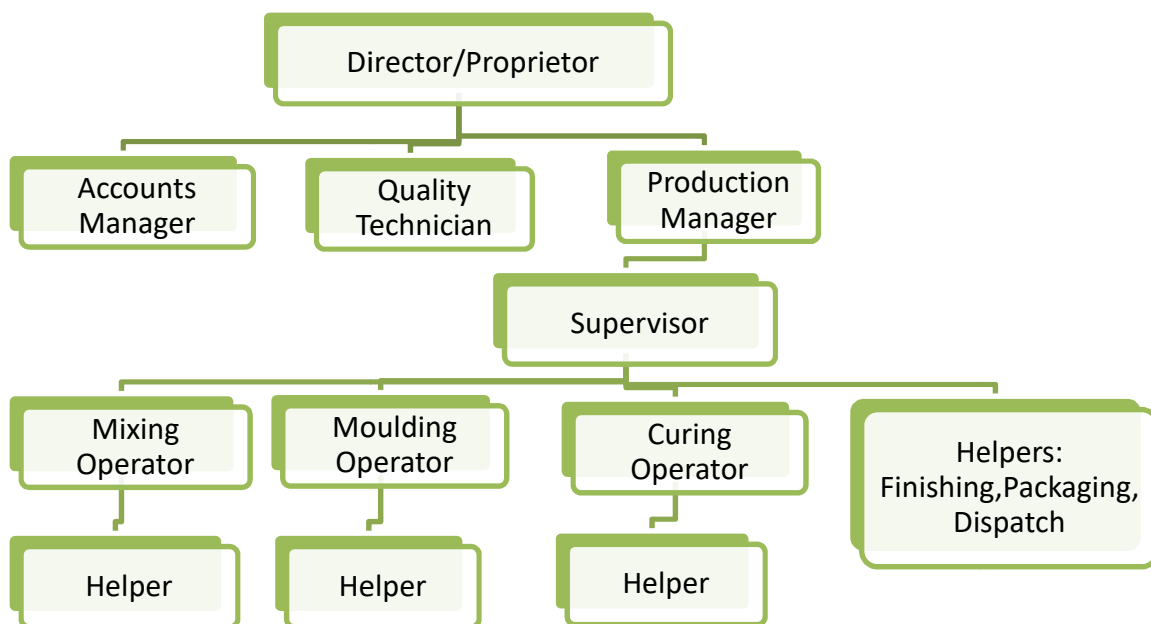
**Soft Skills**

- Effective communication skill
- Good presentation skills
- Good in negotiation and able to handle various parties to increase sales

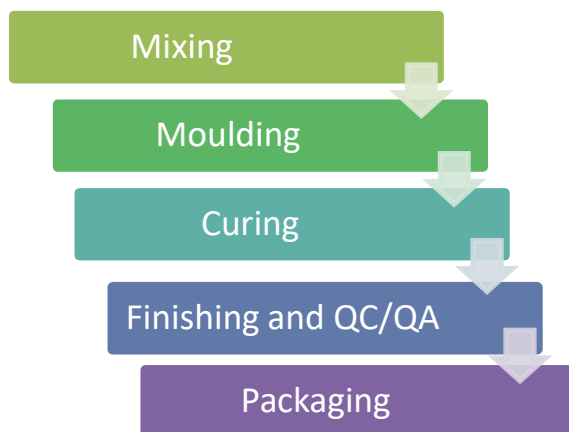
## Moulded Products

Almost half the respondent firms producing moulding products mentioned that they recruit only local people for their manufacturing process. Firms are majorly employing local people in this segment, those hiring from outside have employees coming from the state of Bihar, Odisha and West Bengal. The survey findings reveal that the firms are looking forward to move to automated processes.

### Organization Structure



### Process Outline:



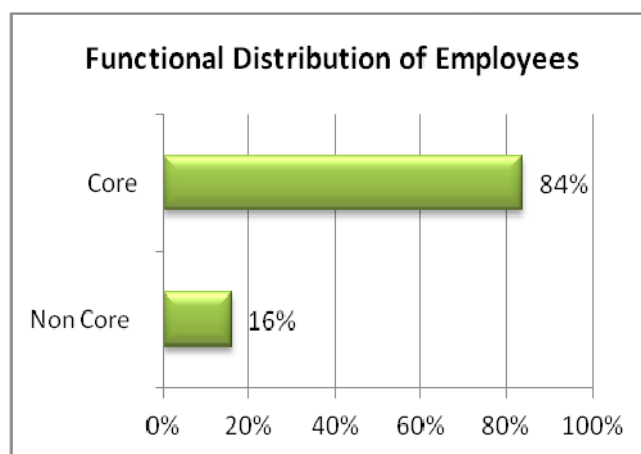
Compound is obtained by mixing the raw materials in a mixing machine. The mixing takes place as per the required specification and then the sheet/strip is prepared. Then the desired shape product is put in the moulding machine and then curing takes place. Finishing of the product is carried out. The 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
<b>Moulded Products</b>	2	6	-	3	14*
<b>Bareilly</b>	1	-	-	-	1
<b>Ghaziabad</b>	-	1	-	1	2
<b>Kanpur</b>	-	2	-	-	4*
<b>Lucknow</b>	-	-	-	1	2*
<b>Meerut</b>	1	2	-	-	3
<b>Unnao</b>	-	1	-	-	1
<b>Sahibabad</b>	-	-	-	1	1

\* Rest of the firms have not mentioned the investment level

### **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. The major strategy for recruitment is referential hiring, direct interview, newspaper advertisement and consultancy. Majority of the employees are engaged in the core production activity, only 16 percent of the total employees are taking up the

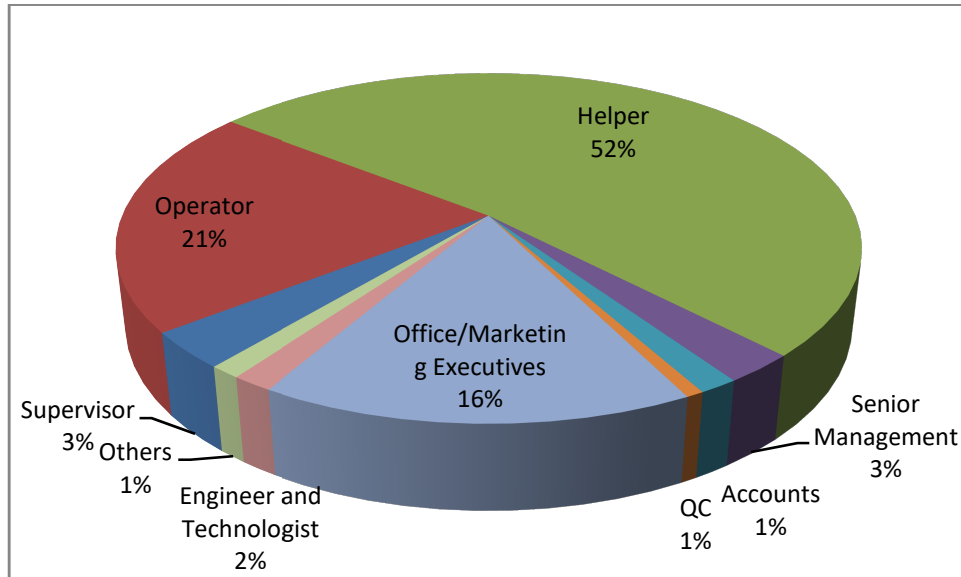


administrative, managerial and accounting tasks. In the units covered in the sample, the helpers' and operators' role together constitute 73 percent of the total employees in the firms. This trend indicates requirement for operators as well as helpers in the moulded rubber goods producing units. However, some of the units 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.

The firms have clearly mentioned that they do not find the requisite number of employees required to carry out the production. There is a shortage of skilled manpower especially mixing and molding operators. Also, the employees lack technical, disciplinary, communication and quality awareness as per the respondent firms in moulded goods producing units.

The distribution of job role in the respondent firms indicate that there is a good number of marketing executive recruited by the moulded goods manufacturing units in UP.

### Job Role Distribution in Sample Units



### Educational Qualifications (% of total employees)

Educational Qualification	Tiny#	Small*	Large^
Ph.D/Research	-	-	5
Engineers	-	-	15
Graduate	-	10	12.5
Diploma Engineers	-	-	20
ITI/Vocational Education	-	-	12.5
XII/X/School Education	-	24	10
Below Xth standard	100	57	25
Others (CA, CS, ICWA, MBA etc.)	-	9	-

\*relates to 5 firms, other firms did not share educational qualifications

#relates to one firm, other firm did not respond to the educational detail

^relates to one firm, 2 firms did not share complete info on educational qualification

### Training

Only one large scale firm has training department while other 13 firms surveyed in the moulded goods segment in the state do not have any separate department. The responding firms highlighted that they mainly provide on the job training. Except for two firms, no other firm has any relation with the training institutes.



## Main Roles and Skill Gap

### 1. Mixing Mill Operator

<u>Mixing Mill Operator</u>	Skill Gap			
	Tiny	Small	Medium	Large
<ul style="list-style-type: none"> <li>• Receive the raw rubber and the mixing agents from the helper.</li> <li>• Check the chemicals</li> <li>• Mixing the raw material and the Chemical in proper proportion as set aside by the management.</li> <li>• Clock the cycle time for the machine.</li> <li>• Prepare batches as per Compound card</li> <li>• Maintain the pressure and the temperature of the machine so that mixing occurs properly</li> <li>• Maintain the machine as per the guidelines of the management.</li> <li>• Check that the preparations are without any deformities and blending has occurred properly; as is suitable for the next process.</li> </ul>	<ul style="list-style-type: none"> <li>• No formal technical knowledge</li> <li>• Work is based on experience</li> <li>• Don't take any precaution for their safety</li> <li>• Lack of operating experience and specialization</li> <li>• Awareness towards working.</li> </ul>	<ul style="list-style-type: none"> <li>• No technical knowledge of the machine at hand.</li> <li>• Mixing proportion and sequence knowledge</li> </ul>		<ul style="list-style-type: none"> <li>• Lack of basic technical knowledge of properties of various inputs.</li> <li>• Works based on experience.</li> <li>• No formal technical training.</li> <li>• Lacks capability to find faults in the product</li> <li>• Lack of rubber specialization</li> <li>• Unawareness towards operation &amp; proportion of raw material</li> </ul>

				used.

#### 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

<u>Moulding Operator</u>	Skill Gap			
<ul style="list-style-type: none"> <li>• Operate the machine</li> </ul>				
	Tiny	Small	Medium	Large

properly. <ul style="list-style-type: none"> <li>• Checking that the moulds are properly fixed</li> <li>• Maintaining the temperature of the machine which has been set by the supervisor.</li> <li>• Maintain the machine.</li> <li>• Take care of safety while working on the process as per org. guidelines.(as the temperature is very high)</li> <li>• Help in maintenance of the machine with the management.</li> <li>• Report to the in-charge/supervisor in case of trouble</li> </ul>	<ul style="list-style-type: none"> <li>• No formal technical training</li> <li>•All the knowledge is gained through the shop floor experience</li> </ul>	<ul style="list-style-type: none"> <li>• Limited knowledge of the machine functioning</li> <li>•All the knowledge is gained through the shop floor experience</li> <li>•Lack of rubber specialization &amp; experience to perform operation</li> </ul>	<ul style="list-style-type: none"> <li>• No use of any safety equipments.</li> <li>• Wastage is very much.</li> <li>• One worker is doing many works.</li> <li>• Equipment maintenance is done after long time.</li> <li>• Communication gap between workers.</li> </ul>
---	--	--	--

#### Skill Gap Intensity: Medium to Low

##### 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**

<u>Curing Operator</u> <ul style="list-style-type: none"><li>• Maintenance of the machine.</li><li>• Control of temperature when the product is inside it.</li><li>• Keeping track of curing time for each product.</li></ul>	Skill Gap			
	Tiny	Small	Medium	Large
	<ul style="list-style-type: none"><li>• All the knowledge gained through experience</li><li>• Efficiency is less</li></ul>	<ul style="list-style-type: none"><li>• All the knowledge gained through experience</li><li>• Efficiency is less</li></ul>		

**Skill Gap Intensity: Low to Medium**

**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 Technician**

<u>Quality Technician</u> <ul style="list-style-type: none"><li>• To check finish product by visual inspection and quality</li></ul>	Skill Gap			
	Tiny	Small	Medium	Large

tests and procedures as per the standards <ul style="list-style-type: none"> <li>To perform the various documentation functions.</li> <li>Identify the process where defects are originating.</li> </ul>	<ul style="list-style-type: none"> <li>Lack of experience and technical knowledge</li> </ul>	<ul style="list-style-type: none"> <li>Lack of experience and technical knowledge</li> </ul>		<ul style="list-style-type: none"> <li>Connectivity with technical procedure</li> </ul>
<u>Skill gap Intensity: Medium</u> <b>Skills Required</b> <b>Technical Skills:</b> <ul style="list-style-type: none"> <li>Knowledge of testing procedures</li> <li>Knowledge of lab equipment and its handling</li> <li>Knowledge lab chemicals and preparations</li> </ul> <b>Soft Skills:</b> <ul style="list-style-type: none"> <li>Good communication skills</li> </ul>				

## 5. Supervisor

<u>Supervisor</u> <ul style="list-style-type: none"> <li>Manage the shop floor activities.</li> <li>Responsible for running of unit and production</li> <li>Planning for production schedule</li> <li>Understand the end user requirement and design processes to incorporate the customer needs in the final product.</li> <li>Get involved in quality control</li> </ul>	Skill Gap			
	Tiny	Small	Medium	Large
	<ul style="list-style-type: none"> <li>No formal training</li> </ul>	<ul style="list-style-type: none"> <li>No formal technical training</li> </ul>		<ul style="list-style-type: none"> <li>Lack of long experience</li> <li>Lack of specialization experience</li> <li>unaware of new technology</li> </ul>

				<ul style="list-style-type: none"> <li>• behavior with production workers</li> </ul>
<u>Intensity of Skill Gap: Medium</u> <b>Skills Required</b> <b>Technical Skills:</b> <ul style="list-style-type: none"> <li>• Knowledge of the rubber industry</li> <li>• Knowledge of the current trends in rubber technology</li> </ul> <b>Managerial Skills:</b> <ul style="list-style-type: none"> <li>• Should be able to supervise the team and guide them so that quality is maintained</li> <li>• Ability to schedule work and manage time</li> <li>• Ability to motivate workers.</li> </ul> <b>Soft Skills</b> <ul style="list-style-type: none"> <li>• Effective communication skill</li> </ul>				

## **6. Accountant**

<u>Accountant</u> <ul style="list-style-type: none"> <li>• To perform the various documentation functions.</li> <li>• To assist the marketing, purchase, HR and accounts function as and when required.</li> <li>• To communicate with the external parties.</li> </ul>	Skill Gap			
	Tiny	Small	Medium	Large
	• No skill gap manifested	• No skill gap manifested		
<b>Skills Required</b> <b>Technical Skills:</b>				

- 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**

<u>Production Manger</u>	Skill Gap			
	Tiny	Small	Medium	Large
<ul style="list-style-type: none"> <li>• Manage the shop floor activities.</li> <li>• Responsible for running of unit and production</li> <li>• Planning for production schedule</li> <li>• Understand the end user requirement and design processes to incorporate the customer needs in the final product.</li> <li>• Get involved in quality control</li> </ul>	<ul style="list-style-type: none"> <li>• No formal training</li> </ul>	<ul style="list-style-type: none"> <li>• No formal technical training</li> </ul>		<ul style="list-style-type: none"> <li>• Awareness towards technology</li> <li>• Manpower handling ability</li> </ul>

#### 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

<u>Helper</u>	Skill Gap			
	Tiny	Small	Medium	Large
<ul style="list-style-type: none"> <li>• Shift the material from the different process (i.e. mixing to press to cutting to packing to storing)</li> <li>• Clean the shop floor as when guided by the supervisor.</li> <li>• Loading and unloading the rubber into the mixing mill</li> <li>• Powdering the sheet after the curing.</li> <li>• Finishing and packing the product in respective packing material.</li> <li>• Do all work as directed by the supervisor</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of specialize sector experience</li> <li>• General awareness while working</li> </ul>	<ul style="list-style-type: none"> <li>• Lacks technical knowledge</li> </ul>		<ul style="list-style-type: none"> <li>• Lack of education &amp; specialize experience</li> <li>• General awareness while working.</li> <li>• Training &amp; certification</li> </ul>

#### Skill Gap Intensity: Medium

#### 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



## SKILL GAP AND HUMAN RESOURCE REQUIREMENT

Firms responding to the query related to the skills that the industry find missing in their employees believed that the workers need to have technical knowledge whether it is a tiny, small, medium or large scale organization. An important area of concern emerges on the part of discipline which is an important behavioural trait. Nearly twelve percent of firms did not report skill issue in the industry which either means there are no skill issues or they find it difficult to identify. As the employees mainly gain knowledge on the job which has been highlighted throughout in the survey responses, the awareness about material, technology and quality seems to be another area of concern. Lack of training is also considered as a missing skill by some of the respondent firms.

**Table 4.1: Technical Skill Gap: Product Category Wise**

Category	Firm's response (%)
Camel back	2.6
Footwear	7.9
Belts and hoses	13.2
Latex foam	2.6
Dipped goods	5.3
Others	68.4

### **Skill Gap Intensity**

The intensity of skill gap is listed in four categories by the firms covered in the sample of the study i.e. Low, Medium, High and No skill Gap manifested. However, the analysis of the responses is listed under following categories based on the given 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

No skill gap manifested

80 percent or more

The skill gap intensity for operator's role for various activities has been rated medium by a large number of firms. However, there is only one supervisory role mentioned by the organization at the senior level but not specific to different job roles.

#### SKILL GAP INTENSITY

Job Role	Low	Low to Medium	Medium	Medium to High	High	No skill gap manifested
Production Supervisor						
Mixing Operator						
Kneader Operator						
Curing Operator						
Calendering Operator						
Boiler Operator						
Moulding Operator						
Extruder Operator						
Latex Compounder						
Hydraulic Press Operator						
Dipping Operator						
Ball Mill Operator						
Grinding Operator						
Winding Operator						
Mandrelling Operator						
Trimming/Cutting						
Finishing operator						
Helper						
Quality Control						
Accountant						

An analysis of skill gap intensity indicates that the firms have not rated high skill gap intensity for any role. Most of the operators are facing medium level of skill gap which can be corrected by technical training. Interestingly, firms reported that helpers which form an important part of the industry mainly lack skills on technical and training aspect, not on their routine jobs of housekeeping, loading/unloading, movement of material etc.

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

<b>Employee profile</b>	<b>Industry feedback on expected qualification and profile</b>	<b>Analysis</b>
Helper	Needs to know the basic operation of machines in use and trained on behavioral and disciplinary skills.	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. supervisors and operators. Though the point could be the helpers can move to the operator role, sufficient re-skilling and upskilling needs to be done to improve the performance quality.
Supervisor	Needs to hold technical certification and remain updated about latest	The requirement for supervisory role has not been reported by the firms

	technology. Able to manage the shop floor	implying that director himself performs this role or the operators are trained to perform supervisory role.
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.

### **Human Resource Requirement in Rubber Industry**

An estimation based on the sample survey has been attempted to highlight the human resource requirement in the rubber industry in the state in the current scenario. Moreover, a five year forecast for the human resource requirement in next five years is also presented below to indicate the future trend in the rubber industry in the northern state.

**Table 4.2: Current Status and Projections**

<b>Product Category</b>	<b>2013-14</b>	<b>2018-19</b>	<b>Change</b>	<b>Change%</b>
Tyres and tubes	23460	30478	7018	29.9
Camel back	342	409	67	19.6
Footwear	10338	10340	2	0.02
Belts and hoses	1356	1356	0	0.0
Latex foam	2658	2660	2	0.1
Dipped goods	2868	2873	5	0.2
Others	17070	23403	6333	37.1
<b>Total</b>	<b>58092</b>	<b>71520</b>	<b>13428</b>	<b>23.1</b>

It is estimated that in the coming five years, we may witness an overall 23 percent increase in the employment in the rubber industry 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. The next level for which the organizations would look for the employees is for helpers. The requirement for supervisor is not seen as significant as other roles in production activity for the industry as a whole across the different segments.

**Table 4.3: Requirement for Key Job Roles**

<b>Job Role</b>	<b>% of Human Resource Requirement</b>	<b>Human Resource Requirement (No.)</b>
Supervisor	5	671
Operator	47	6311
• <i>Mixing/Kneader</i>	20	2686
• <i>Curing</i>	12	1611
• <i>Calendaring</i>	5	671
• <i>Cutting</i>	3	403
• <i>Extruder</i>	7	940
Helper	26	3491
Packaging/Dispatch	7	940
QC	6	806
Office/Marketing	6	806
Technologist	3	403

The projections are 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.

