RSDC
RUBBER SKILL DEVELOPMENT COUNCIL

SKILL GAP ANALYSIS

GUJARAT

Chapter Scheme

1. Introduction

2. Survey Analysis

3. Product Segment wise Analysis

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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
World	***12041***	***11603***

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
World	***11397***	***11079***

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

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

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.

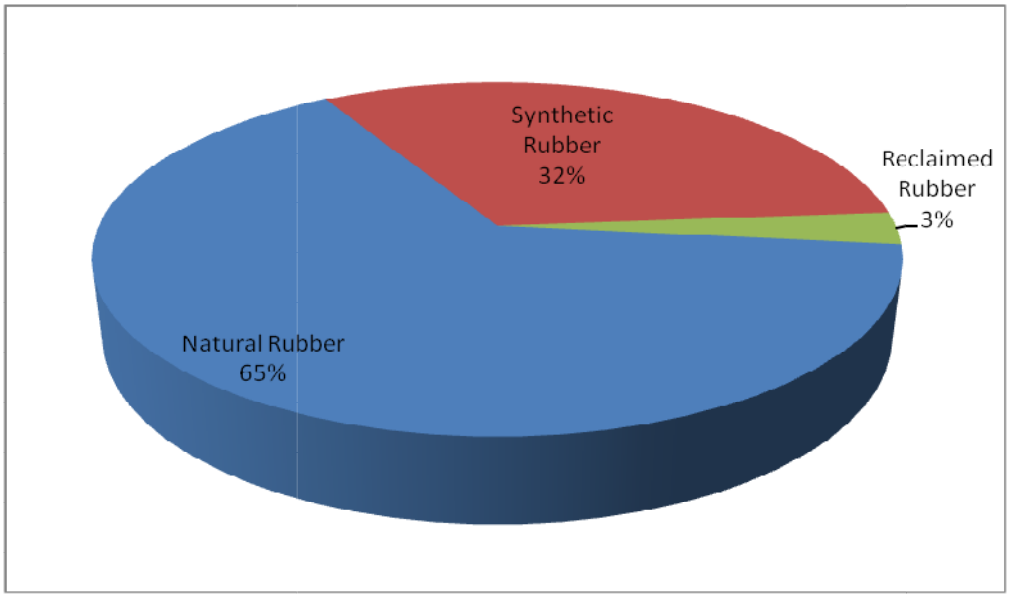
For natural as well as synthetic rubber, consumption is higher than the production in the country indicating towards the existence of external trade for the commodity. The import and export of the raw material as well as manufactured products (tyre as well as non-tyre) takes place between India and other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

Rubber Consumption in Gujarat

Gujarat emerged as the sixth largest rubber consuming state in India. The total consumption of 1,21,080 tonnes of rubber comprised of 78,690 tonnes of natural rubber, 38,890 tonnes of synthetic rubber and 3,500 tonnes of reclaimed rubber. Tamil Nadu, Kerala, Maharashtra, Andhra Pradesh and Rajasthan are the top five rubber consuming states in the country.

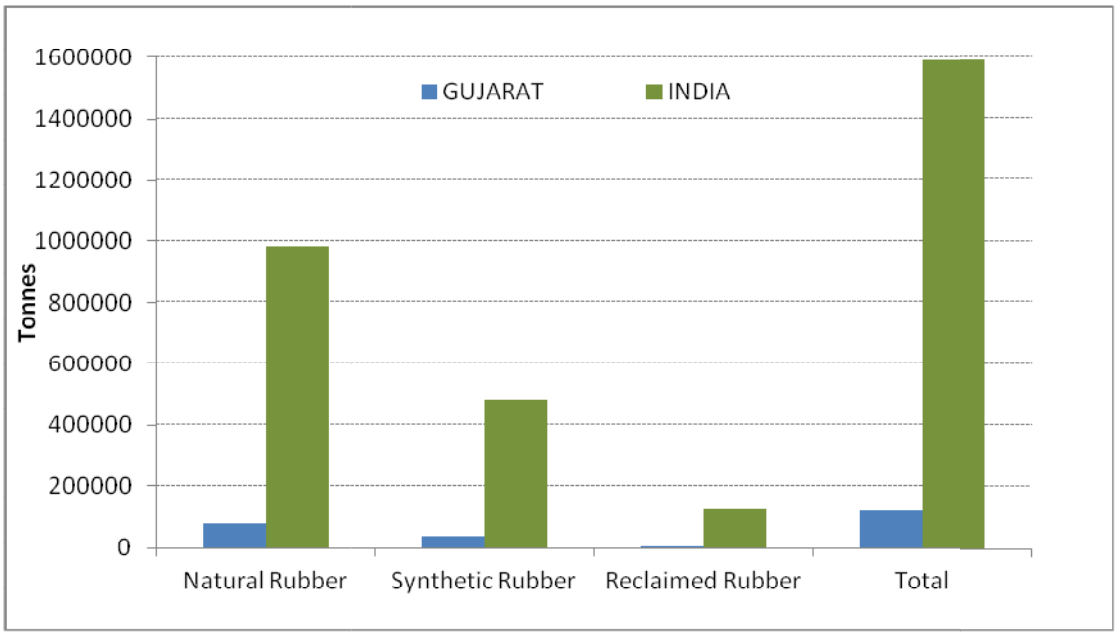
Fig1.1: Total Rubber Consumption: Gujarat



Source: Rubber Board

The total consumption of rubber in the year 2013-14 for the western state stood at 7.6 percent of the total rubber consumption in India. For the Gujarat state, natural and synthetic rubber constituted 8 percent of the total national consumption in the respective segment while share of reclaimed rubber consumption for the state constituted 2.8 percent of the total reclaimed rubber consumption for India.

Fig1.2: Rubber Consumption 2013-14



Source: Rubber Board

Out of the 33 districts, Ahmedabad, Valsad, Vadodara, Rajkot, Mehsana, Gandhinagar and Bhavnagar are among the main centers for the manufacturing of rubber products in the state. The number of licensed manufacturers in the state has witnessed an increase of 8 percent over the last five years.

Table 1.1: Dealing in Rubber: Gujarat

Year	No. of licensed manufacturers	No. of licensed dealers
2009-10	393	35
2010-11	394	37
2011-12	411	39
2012-13	422	38
2013-14	425	38

Source: Rubber Board

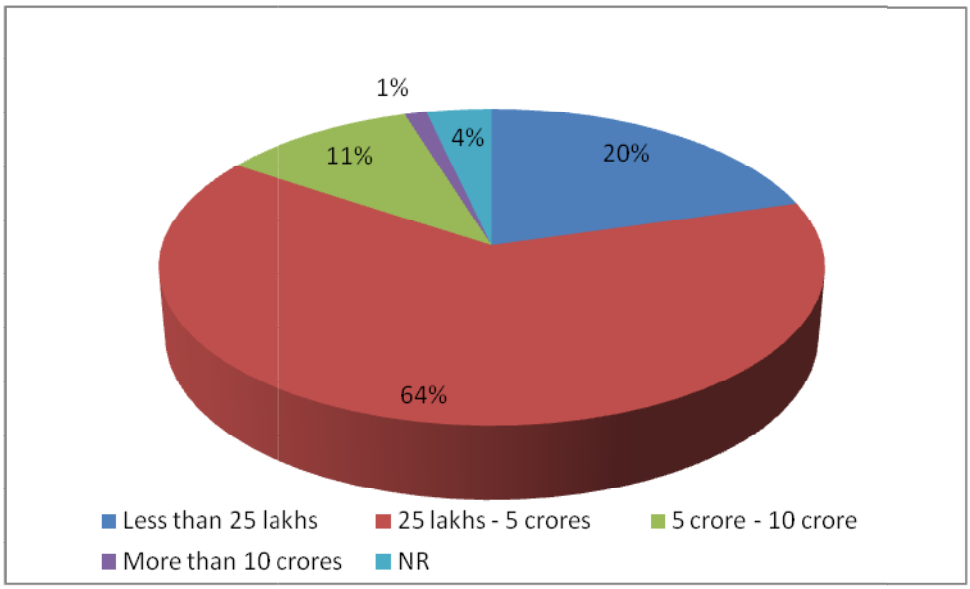
In order to understand the various factors affecting the employment in the rubber industry and skill requirement in the state, a survey of 83 units has been conducted. The next chapter presents the details, analysis and findings of the skill gap study in the state.

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 83 firms were selected for the study of skill gap analysis in the rubber product manufacturing industry from different regions in the state of Gujarat. The firms engaged in the production of different products were considered including adhesive tapes, rubber roller, rubber sheets and linings, belt, footwear, hoses, foam products, sports goods, latex thread, gloves, auto and cycle parts, tyre, tube and flap, moulded and extruded rubber products, tread and reclaim rubber. 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 Gujarat 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 Gujarat. The chapter concludes with summarizing the industry players' expectations from the various stakeholders viz, RSDC, Industry Association, Educational Institutes and other stakeholders.

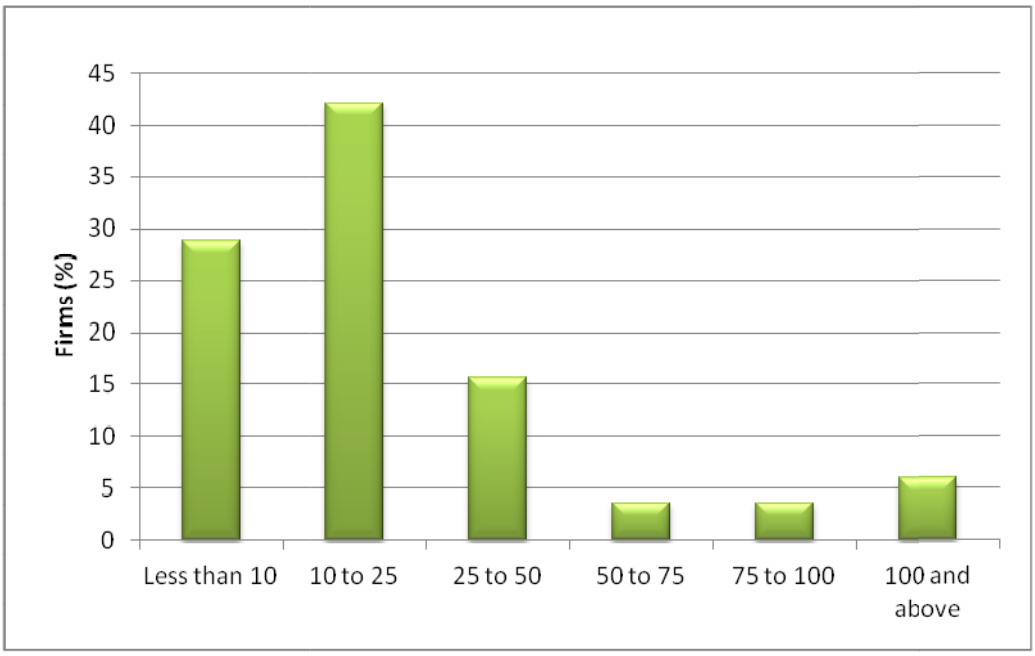
In order to provide a wide coverage across the industry based on investment and number of persons employed -small, medium and large scale firms have been covered in the survey. Majority of the respondent firms have invested upto 5 crores based on their total investment in the business. However, few firms (4%) did not reveal the exact amount invested in their enterprise.

Fig 2.1: Firm's Investment



Another important variable reflecting the size of the firm relates to the total number of employees in the organization. The employment pattern reveals that more than 70 percent of the firms employ less than 25 persons. All these firms having employees' strength below 25 have business investments less than 5 crores except for two firms. It indicates that those firms having bigger future investment plans have more job opportunities to offer. For instance, firms in the footwear sheeting do not have any expansion plans due to strong competition posed by alternate products in the market. Thus, the demand for greater manpower in this segment seems to be less in the coming years. Similarly for latex thread manufacturing units too did not share any future plans mentioning competition faced from the China thread.

Fig2.2: Employment Pattern



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. Small scale firms have dominated the scene in each of the three different periods listed below. The main characteristic feature of the rubber industry related to the size of the firm has remained the same over the years.

Table 2.1: Commencement of Business

Year of Establishment	Number of Firms
1950-1975	13
1975-2000	55
2000-2015	15

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 Gujarat depicts that 82 percent of the surveyed firms have hired all the employees on their roll and only 18 percent have off roll employees. Those firms which have off roll employees also do not indicate any correlation with the size of the production and investment by them.

Table 2.2: Basis of Recruitment

Percentage of on roll employees	Surveyed Firms (%)

Less than 5	1
5-25	12
25-50	2
50-75	1
75-100	1
100	82

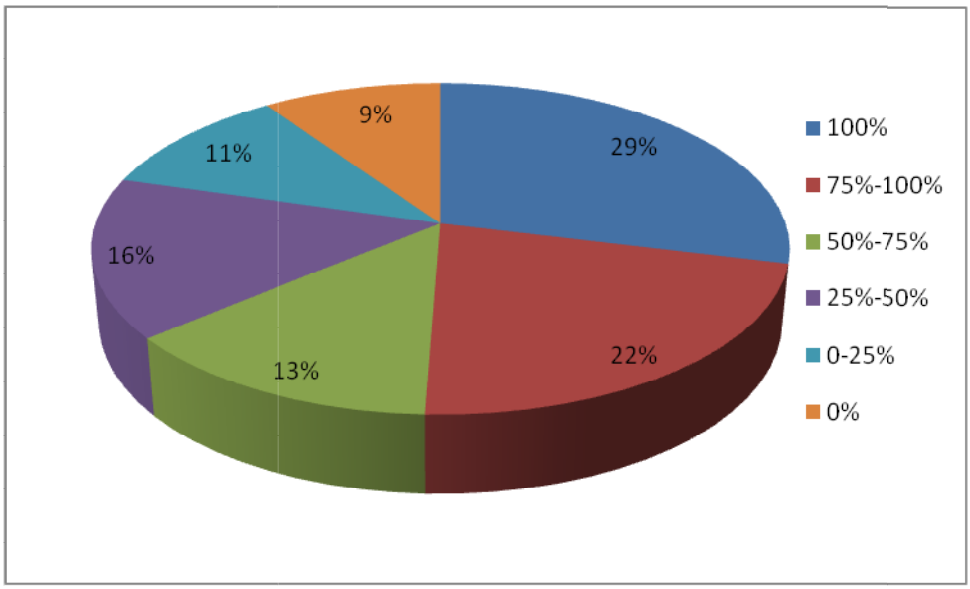
The most effective method of employing workers is through internal references and placing notice on the gates for vacant positions for almost all the surveyed firms. However, there are only few firms which are using the newspaper advertisement to get the relevant people for the vacant positions in their production unit.

Employees Recruitment

Among the total firms surveyed in the state, it has been noticed that nearly 30 percent of them have recruited all the employees from Gujarat only. Only 9 percent of the organizations have all the workers coming from other states. The employment trend depicts that half of the total firms surveyed preferred recruiting the employees from state only. Regularity, no family issues and easy availability are the main reasons listed by the firms hiring the people from Gujarat only.

In all, 52 firms 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 Uttar Pradesh and Bihar. Around 45 firms have engaged people from these two states. However, the states of Maharashtra, Madhya Pradesh, Rajasthan, Odisha, Kerala, Bengal and southern region do contribute to the workforce engaged in the surveyed rubber industries in Gujarat though in a smaller proportion.

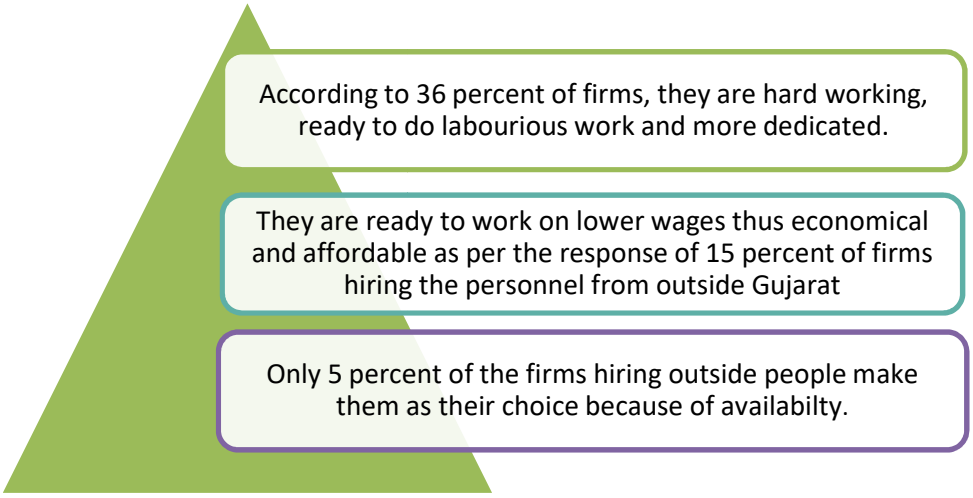
Fig 2.3: Firms Recruitment Pattern: Employees from Gujarat



The most sort after position for these people are for operator's role. Firms have clearly mentioned that outside people are good at performing laborious task, operating machines, ready to work in hot and dusty environment.

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

Fig2.4: 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 as a low level of attrition has been reported by 78 percent of the firms.

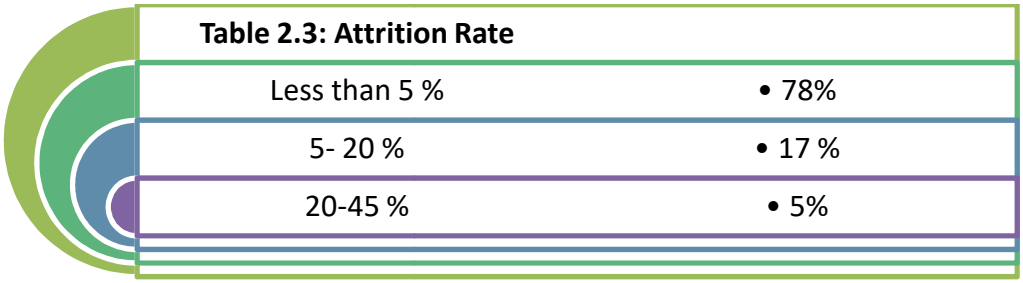


Table 2.3: Attrition Rate	
Less than 5 %	• 78%
5- 20 %	• 17 %
20-45 %	• 5%

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 half of the firms do not have any retention strategy. For one third 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 2.4: Retention Strategy

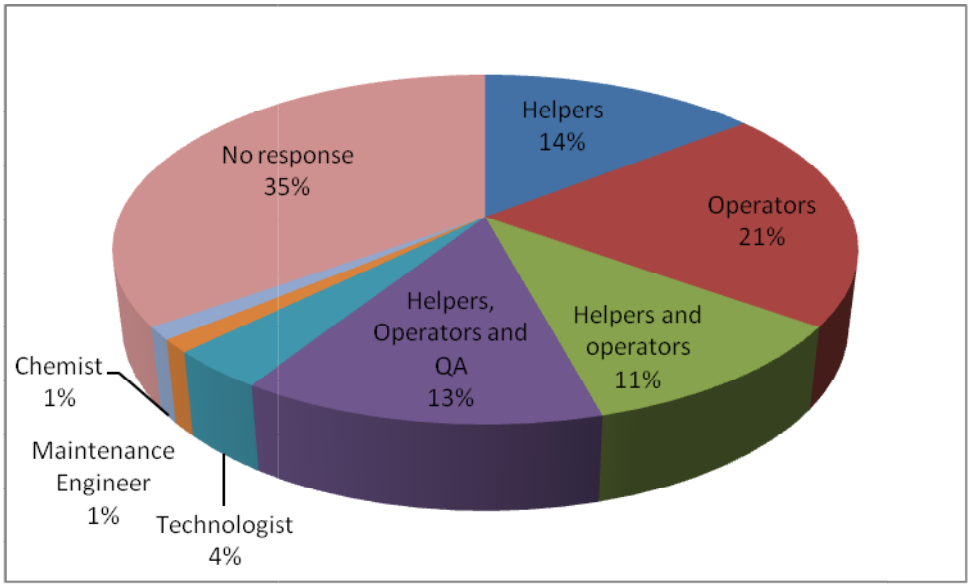
Retention Strategy	Firms Response (%)
Good pay, increment, bonus and good working conditions	33
Good working environment	11
Bonus and insurance	1
Food, accommodation and good pay	1
No retention strategy	54

One of the firms that has all the employees belonging to the states other than Gujarat highlighted the fact that in addition to the monetary variant, food as well as accommodation facilities provides a significant reason for labour continuing their employment with them.

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 helper and operator level. ***Among the operator level role, the main role for recruitment is for mixing operator.***

Fig2.5: Key Job Role Requirement



In Gujarat, finding requisite number of people for carry out the rubber products manufacturing by the firms is not a major concern for 63 percent of the respondent firms. However, the shortage of manpower for the roles of helpers and operators has been identified as a common problem by 25 percent of the firms. Among operators, some of the firms have specifically highlighted the issues with respect to the availability of mixing operator. Only few of them find it difficult to hire employees for the roles of chemist, quality control and maintenance.

It is interesting to note that neither a single firm has mentioned about the supervisor's role for recruitment nor they face any 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.

Actual Employment

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

- Supervisor
- Operator
- Helper

- Senior Management

An analysis of the employment pattern reflect that for 80 percent of the surveyed firms operators and helpers constitute 70 or more percent of their total employees. However, for supervisory role 85 percent of the firms have recruited less than 15 percent of their total work force. Interestingly close to two fifth of the total respondents have no one recruited at the designation of a supervisor. The share of senior management for majority of the firms remains less than 20 percent. It should be noted that only two large organizations (employees' strength 470 and 550 respectively) have personnel separately recruited for utility and maintenance.

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 90 percent of the firms surveyed are hiring 80 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: Workforce in Core Production Activity

Recruitment in Core Functions of Production	Surveyed Firms (%)
90% and above	53
80 to 90 %	39
70 to 80 %	6
60 to 70 %	1
50 to 60 %	1

Educational Profile

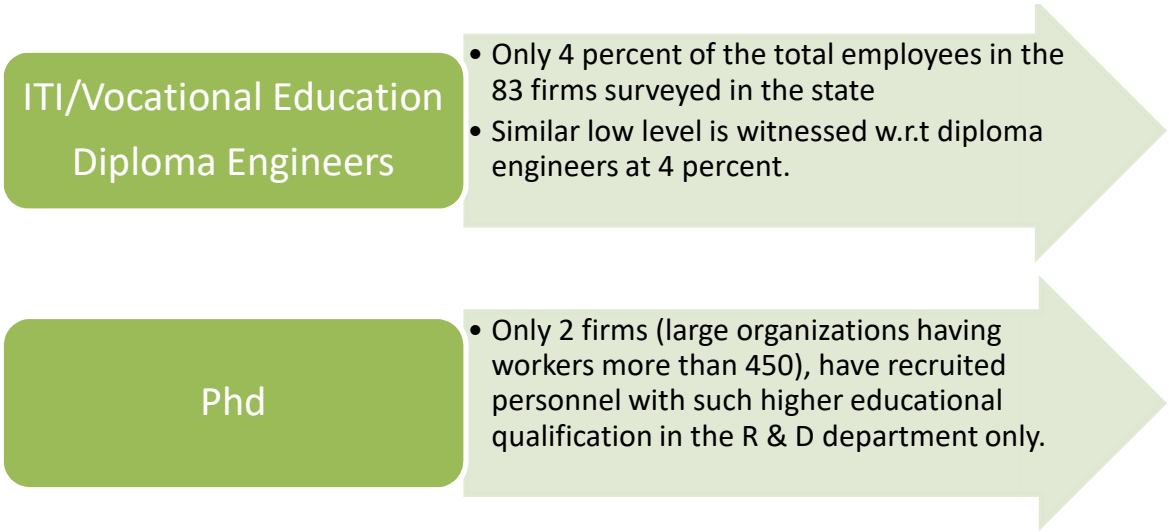
It is assumed that the skills do have a strong correlation with the educational background of the workers and considering that this section highlights in detail the present scenario of the educational status of the workers employed in the rubber industry in the state of Gujarat. Only 12 percent of the total surveyed firms have all the employees who are metric pass and hold higher educational qualification. It is interesting to note that almost three fourth of the total respondent firms have 70 percent or more employees who are not even metric pass.

Table 2.6: Educational Concern

Percentage of employees below 10th standard	Surveyed Firms %

Less than 40 percent	7
40-70 percent	7
70-100 percent	73
None	12

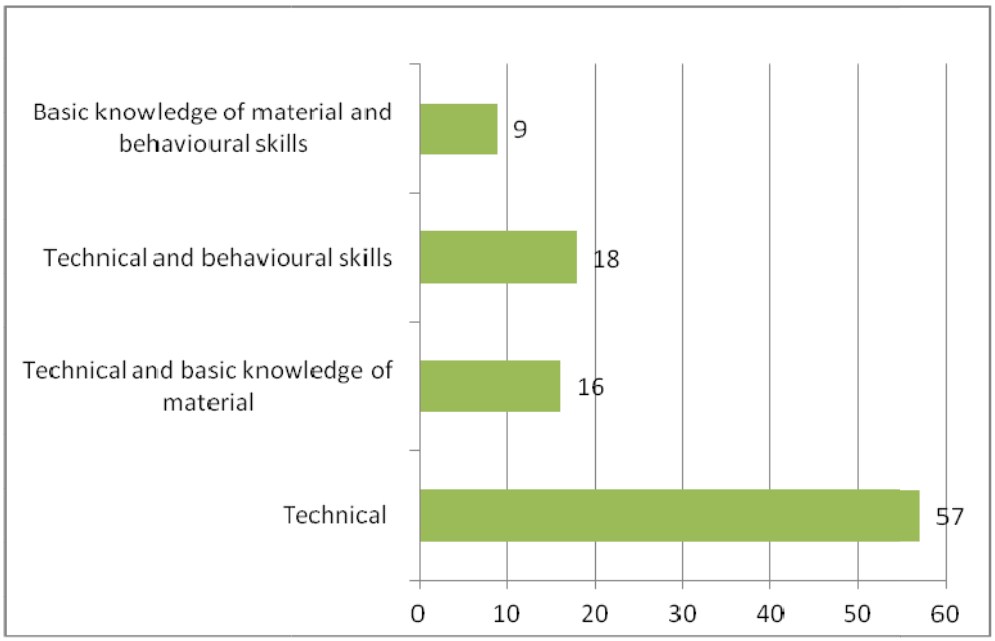
It is important to note that the industry employment which should focus on vocational and specialized education however the ground reality shows that merely 4 percent of the total number of employees working in the rubber products manufacturing units surveyed are ITI/vocational. Similar is the case with the diploma holders. Also, the firms which hire highly qualified personnel in the research department is only restricted to two firms. The presence of Engineers in the rubber manufacturing units is negligible, not even accounting for 1 percent of the 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 lack technical skills in this industry badly whether it is a small, medium or a large organization. An important area of concern that they reported relates to the behavioural skills which is more related to the personality trait than being specific to a particular industry. As the employees mainly gain knowledge on the job which has been highlighted throughout in the survey responses, the weakness on the part of theoretical knowledge regarding the properties of the material and their usage seems to be another area of concern.

Fig 2.6: 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 in the maintenance work of the machine therefore unable to fully contribute to the machine maintenance
• All the technical expertise gained is through shop floor work.
• Lack of formal training on the machine
• Does not know the reason why chemicals/materials 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**

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**

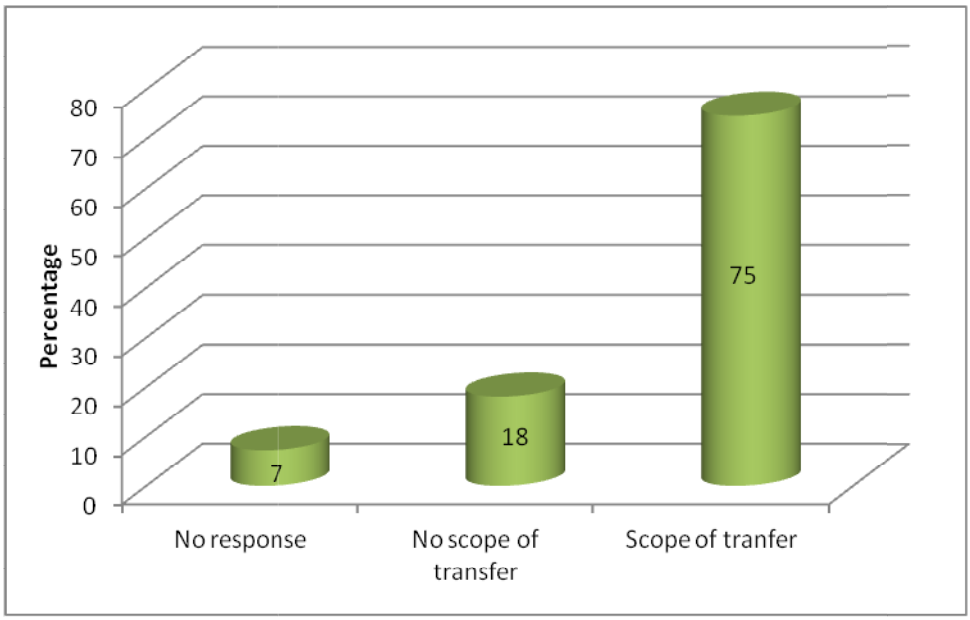
Regional/State level Variation in Skill Gap

Around 97 percent of the surveyed firms have not responded to provide any indication regarding the regional/state level variations in the skill gap that they witness. However, rest of the firms hold the view that skill gap may emerge on the part of the labour force of Gujarat as they are not willing to work in dusty and laborious environment. Thus, skills of the local work force may not get developed in the processes of rubber products production on the part of their unwillingness to perform laborious task in factory premises.

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 the three fourth 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 state. In other words, the person specific role is not related to the size of the organization as reflected by the 18 percent respondents.

Fig2.7: 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 31 percent of such multiple role performance happens among helpers only. 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. However, the rest 69 percent of respondent described such role transfers in the following ways:

Fig 2.8: FRole Transfer

Among Operators	Operators and Helpers	Supervisor and Operator	Properietor and Worker

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. The following two intercepts are randomly taken for the consideration:

"There are in total 7 employees in the organization with one mixing mill operator, bale cutting/weighing helper is same as mixing mill helper, molding operator (2) flashes are also cut by him and also packing is done by the same person. The mixing mill helper also sometimes does the work of the molding when the operators are on leave".

"The proprietor himself does the floor supervision, procurement, training, quality check, and account management also. When the employees are on leave he himself operates the winding machine."

Training

Out of the 83 firms, only two of them have a separate training department for their employees, one has appointed a trainer and one arranges occasional expert visit to their workplace. In all, only four firms have indicated separate resources especially for training their employees. All these firms are large organizations. 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:

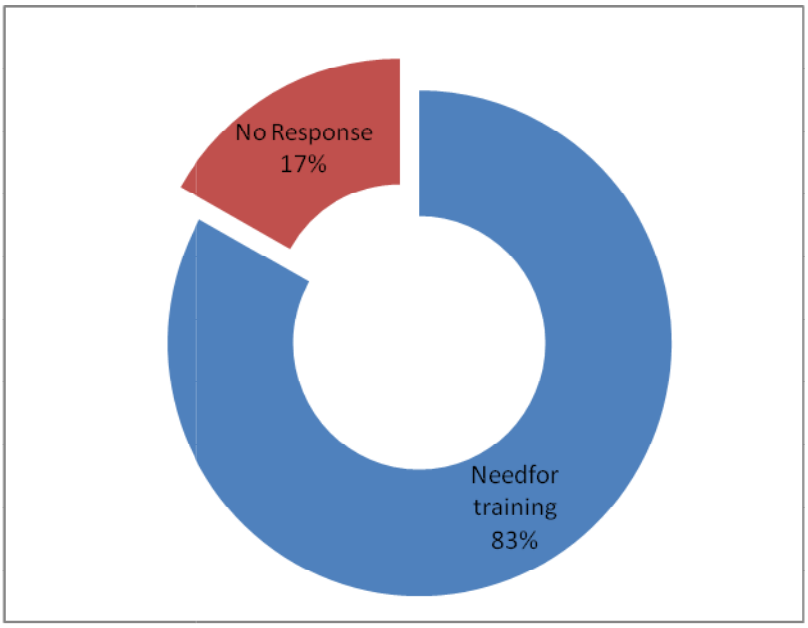
Fig 2.9: IN-HOUSE TRAINERS

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 10 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 medium or large organizations. Here, the attitude on the part of the organizations too does not reflect an encouraging trend towards resolving the issue of technical skills.

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 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 (mixing) emerged as the top priority which was followed by helpers training requirement.

Fig 2.9: Training Requirement



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. It only the two large firms employing 470 and 550 persons respectively have an association with ITI Colleges and engineering colleges for recruiting people for electrical, mechanical & maintenance department.

The important issues highlighted by the firms with respect to the dealing with training institutes are as follows:

Fig 2.10: Training Institutes: Issues at a Glance

- Make skills available only on papers
- Trained persons too lack practical and technical knowledge

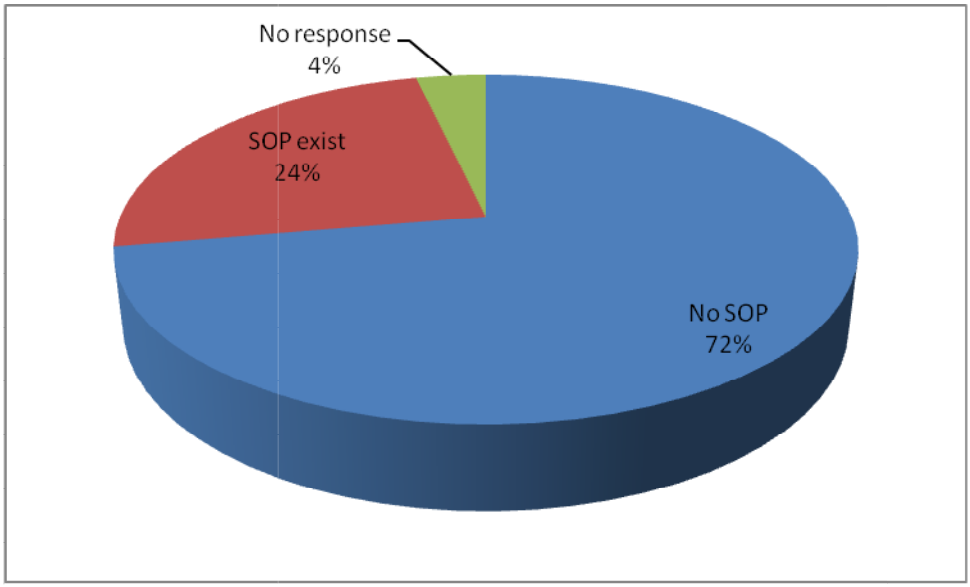
- Trained person ask for higher pay and do not fit in budget
- Availability of people is not in line with the industry requirement

- People are not available for required specific job roles
- Lesser number of training institutes in the region

Standard Operating Procedures (SOP)

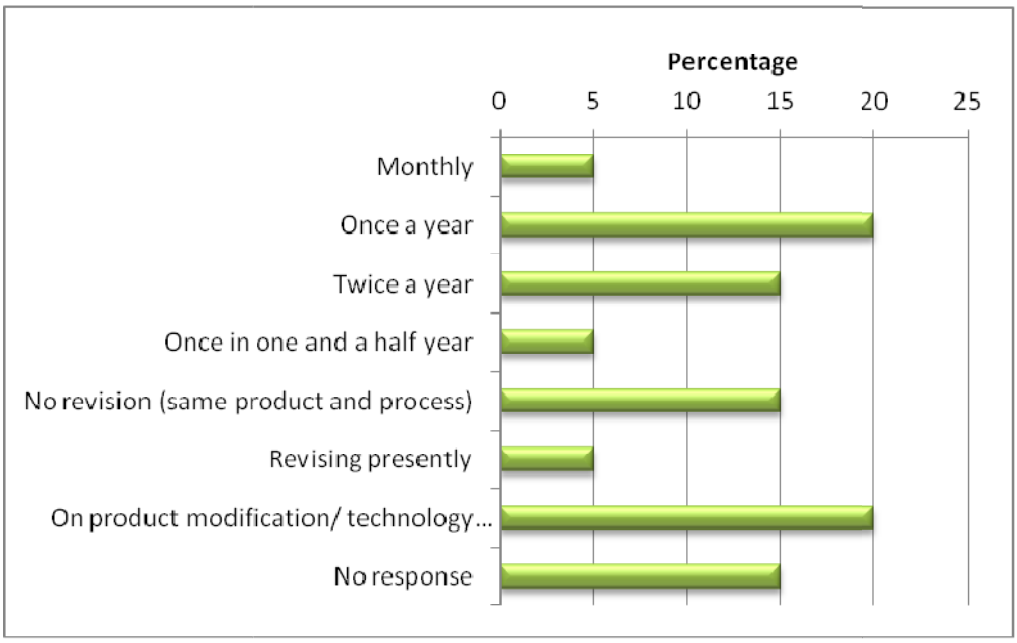
Standard Operating Procedures are laid down by the firms to clearly list out the process to be followed at different levels in product manufacturing.

Fig 2.11: Status of SOPs in Firms



Majority of the organizations surveyed do not have Standard Operating Procedures at their units. Processes are carried out based on verbal instructions. Only one fourth respondent firms have SOP and they revise it at different time intervals. For firms following SOP, 20 percent of them revise it annually and 20 percent on product modification/technology upgradation. However, no revision has taken place for some firms reason being the same product and process followed.

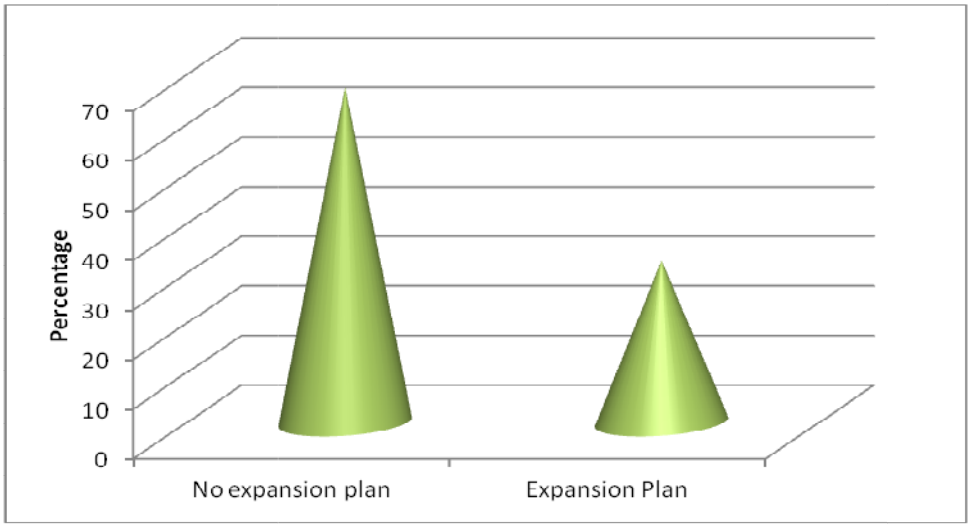
Fig 2.12: Frequency of Performance Review



Expansion Plan and Skill Requirements

Only one 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: Firm's Vision



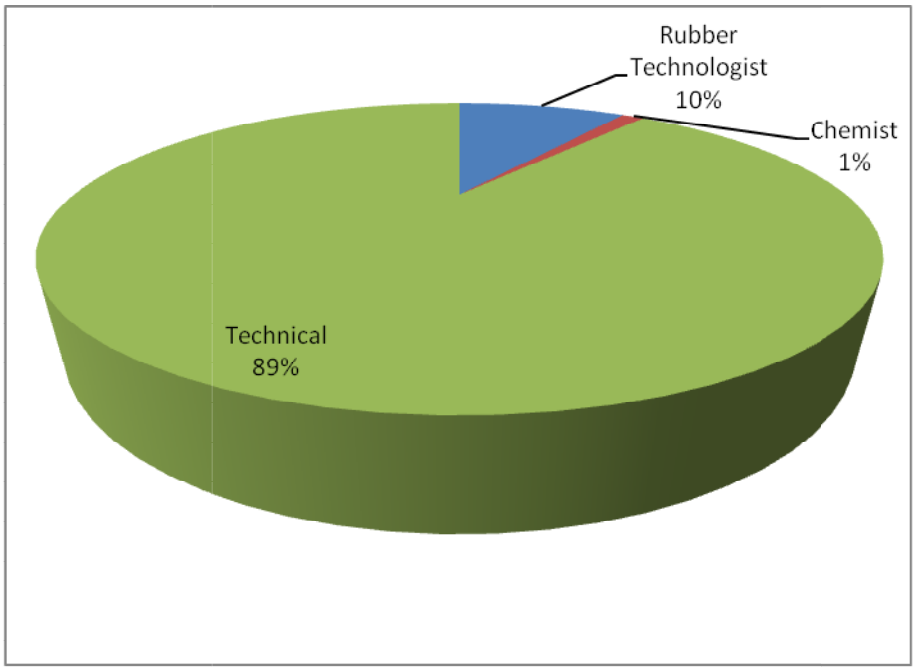
Firms moving towards the technology upgradation will require skilled and trained manpower for handling automated process for moulded rubber products, surgical products and auto and cycle parts. Among the job roles for which the firms have specifically listed their requirement

include operators for working on calendar, kneader, curing press and lathe as well as technology adviser.

Future Trends

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. Within the various job roles associated with the rubber product manufacturing, 10 percent of the respondents clearly stated that Rubber Technologist would be main job work where skill gap would emerge in the coming five years.

Fig 2.14: Emerging Skill Gap: Education Level



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.

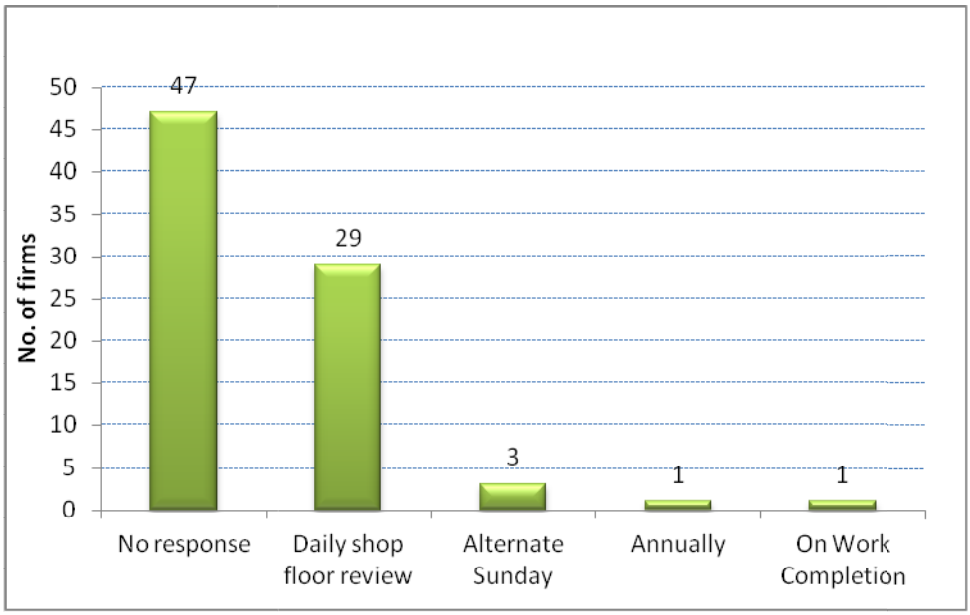
Table 2.7: Workers Task

Workers Output Measurement Parameter	Firms (%)

No response	40
Quantity produced per day	36
Quantity produced as per order	7
Quality considered with quantity produced	12
Time spent on shop floor	5

Two fifth of the firms have not responded to the way they measure the output of their workers whereas 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 12 percent of the firms surveyed mentioned the inclusion of quality aspect whereas for 5 percent of the respondent firms it the time spent by the workers on the shop floor which forms the main component of output measurement by them.

Fig 2.15: Frequency of Performance Review

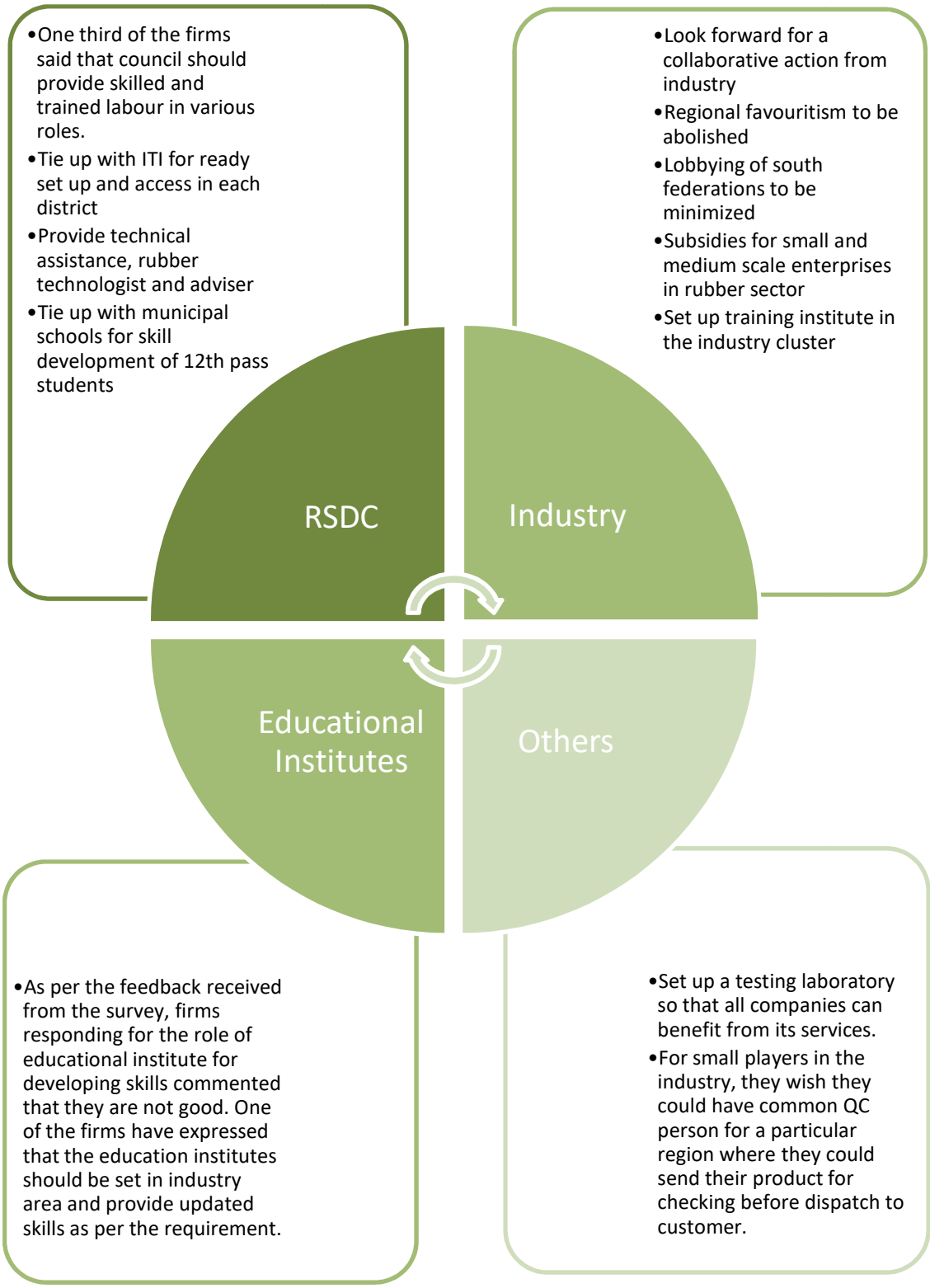


More than half of the surveyed firms have not shared their process or method of reviewing their workers performance. However, those who have discussed it mainly mentioned that they review the workers performance on the shop floor on daily basis. Few firms carry out the performance review on alternate Sunday which are all engaged in the production of tubes whereas one of them on annual basis.

In Focus: Stakeholders Actions

To address the skill gap issue in the rubber industry in the state of Gujarat, 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, the firms did not seem happy with the performance of educational institutes and have not shown any 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

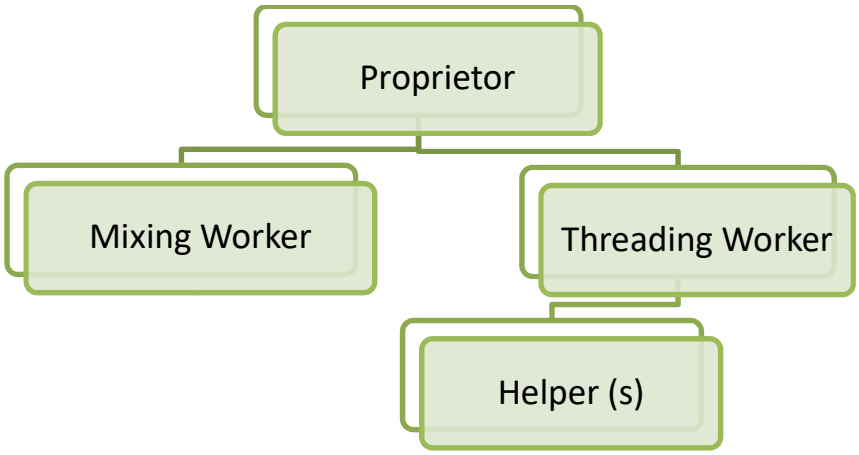

•One third of the firms said that council should provide skilled and trained labour in various roles.
•Tie up with ITI for ready set up and access in each district
•Provide technical assistance, rubber technologist and adviser
•Tie up with municipal schools for skill development of 12th pass students
•Look forward for a collaborative action from industry
•Regional favouritism to be abolished
•Lobbying of south federations to be minimized
•Subsidies for small and medium scale enterprises in rubber sector
•Set up training institute in the industry cluster
RSDC
Industry
Educational Institutes
Others
•As per the feedback received from the survey, firms responding for the role of educational institute for developing skills commented that they are not good. One of the firms have expressed that the education institutes should be set in industry area and provide updated skills as per the requirement.
•Set up a testing laboratory so that all companies can benefit from its services.
•For small players in the industry, they wish they could have common QC person for a particular region where they could send their product for checking before dispatch to customer.

PRODUCT SEGMENT WISE ANALYSIS

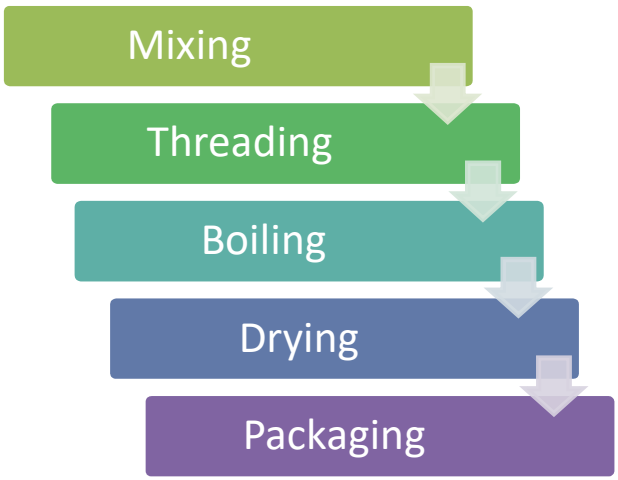
Latex Thread

The survey findings reveal that there is no complicated machine in the process of thread manufacturing for which specific operators are required in the small units therefore the main job requirement is for helpers. In the small firms, the entire process is operated by the helpers. In small scale units, the proprietor himself do the floor supervision, procurement, training, quality check and account management also.

Organization Structure



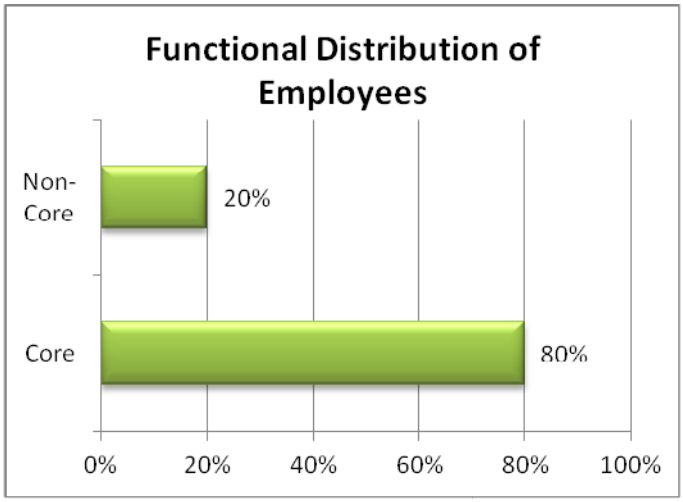
Process Outline:



The mixing and threading machines are automatic. The operators are responsible for proper functioning of these machines. The helpers are responsible for assisting the loading and unloading the liquid latex for the mixing process and the threading process. They undertake winding up the threads coming out of the threading machine to the rollers, dip the wound threads in boiling water, dry the thread and perform final packaging to the threads prepared.

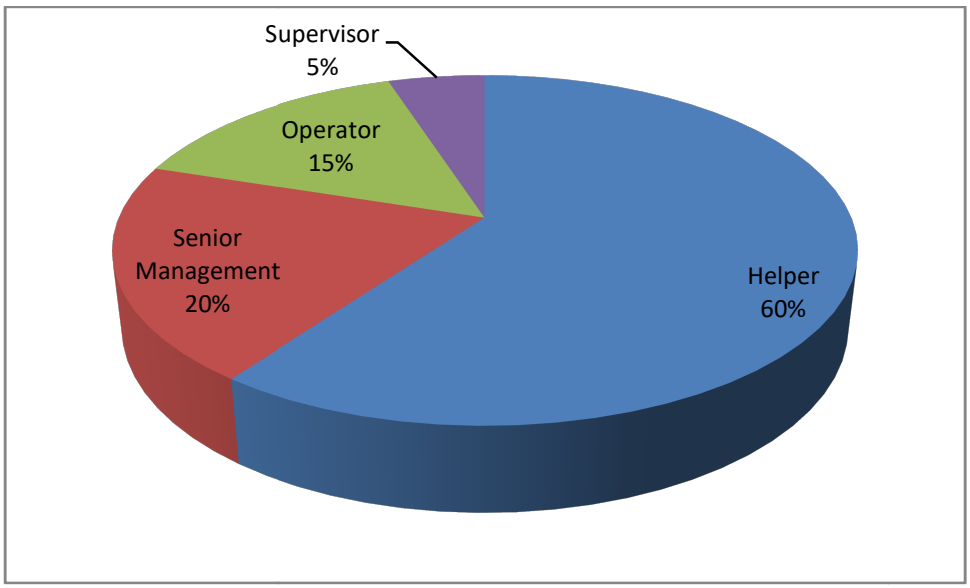
Sample Units	Tiny	Small	Medium	Large	Total
Latex Thread	1	2	-	-	3

Manpower at a glance



All the employees in the latex thread producing firms are on roll employees. Majority of the employees are engaged in the core production activity, only 20 percent of the total employees are taking up the administrative and managerial tasks. In the small units covered in the sample, the helpers' role constitutes 80 percent of the total employees in the firms. This indicates greater requirement for helpers in the latex thread producing units. Moreover, the firms feel that there is no scope for transfer of roles in the activities carried out by the workers in their units.

Job Role Distribution in Sample Units



Educational Qualifications (% of total employees)

Educational Qualification	Tiny	Small
Ph.D/Research	-	-
Engineers	-	-
Graduate	5	20
Diploma Engineers	-	-
ITI/Vocational Education	-	-
XII/X/School Education	15	-
Below Xth standard	70	80
Others (CA, CS, ICWA, MBA etc.)	10	-

Training

Training is mainly provided by the proprietor for different functions in small units while Supervisor and senior operators associated with the firm provide the training to the helpers. 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 Gujarat is delivering training in an unstructured manner.

Main Roles and Skill Gap

1. **Mixing Worker/Operator**

Mixing Worker/Operator	Skill Gap			
	Tiny	Small	Medium	Large
• Load and unload the liquid latex into large barrels for mixing, along with the helpers • Add the chemicals as guided by the proprietor • Switch on and off the machine as guided by the proprietor • Maintain the temperature of the latex to keep it in required liquid form	• Just do work as directed by the proprietor • Lack technical skills	Just do work as directed by the proprietor		

• Clean the vessel after each batch • Meet the daily required production or quantity of products • Guide the helpers				

2. Threading Worker/Operator

Threading Worker/Operator	Skill Gap			
	Tiny	Small	Medium	Large
• Unload the mixed material for processing in the threading machine • Switch on and off the machine according to the guidance of the proprietor • See that the winding happens properly and the nozzle gives out threads properly • Guide the helpers	• Just do work as directed by the proprietor • Lack technical skills	Just do work as directed by the proprietor		

3. Helper

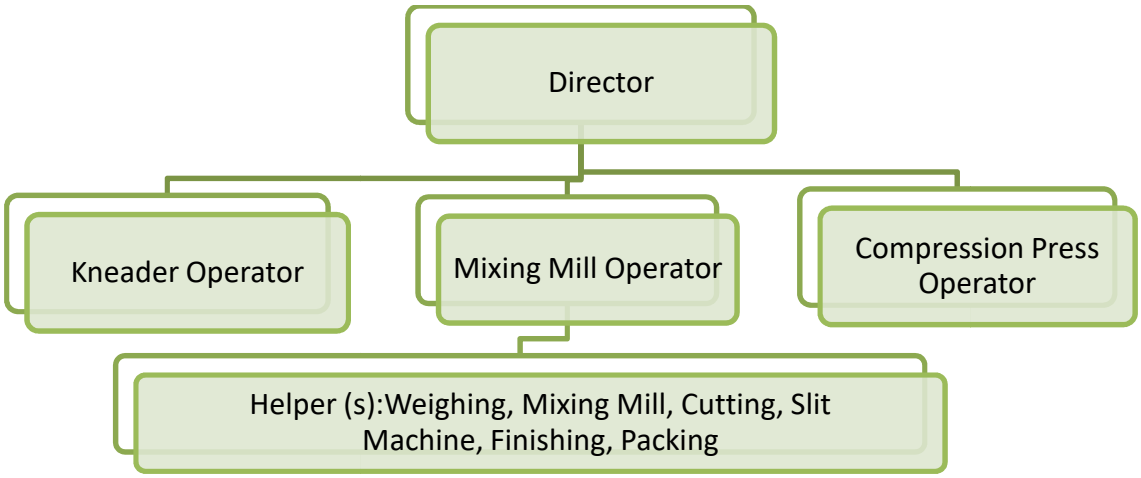
Helper	Skill Gap			
	Tiny	Small	Medium	Large
• Help in loading and unloading				

the liquid latex for the mixing process and the threading process • Wind the threads coming out of the threading machine to the rollers • Dip the wound threads in boiling water • Dry the threads in the sun • Carry out final packaging of the threads prepared	• Just do work as directed by the proprietor • Lack technical skills	Just do work as directed by the proprietor		

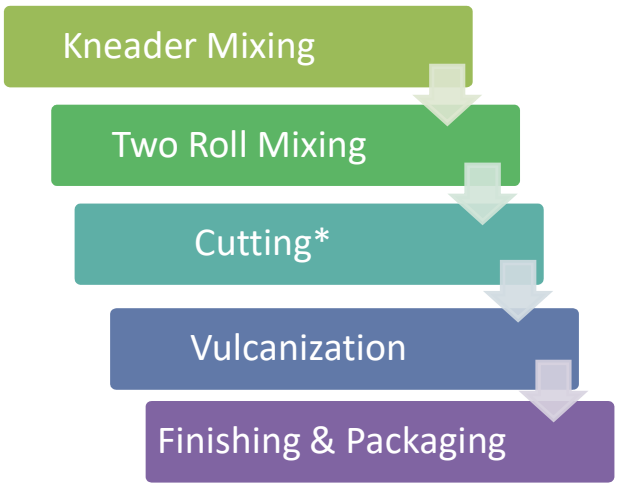
Footwear

The survey findings reveal that there is a requirement of operators and helpers only in smaller units preparing footwear sheeting. However, the firm involved in the production of footwear (chappals) has requirement for supervisory role as well for guiding operators whereas the role of supervisor is performed by the director himself in smaller units. When required the director himself works on the shop floor at various positions in smaller units.

Organization Structure



Process Outline:

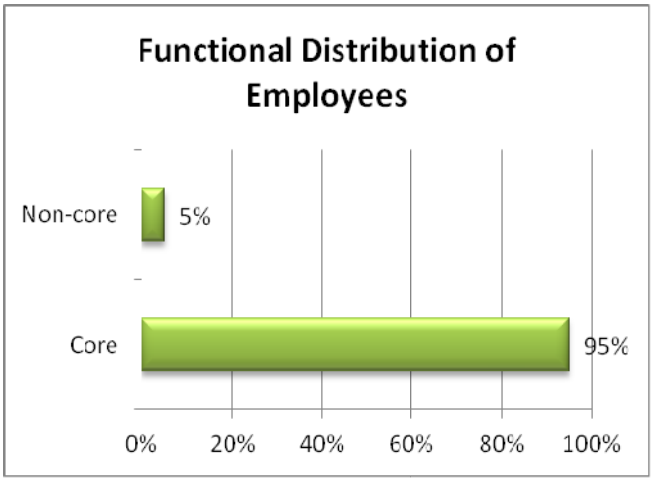


*The mixing takes place in kneader first and then in two roll mixing mill. The operators are responsible for proper functioning of these machines. The helpers are responsible for assisting the loading and unloading of the material for the mixing process and the movement of sheets. They undertake cutting the flashes at the edges of the newly made sheet with cutting tool and perform final packaging of the sheet and footwear prepared.

* This step should be ignored for footwear sheeting, only to be considered for footwear (chappal) manufacturing.

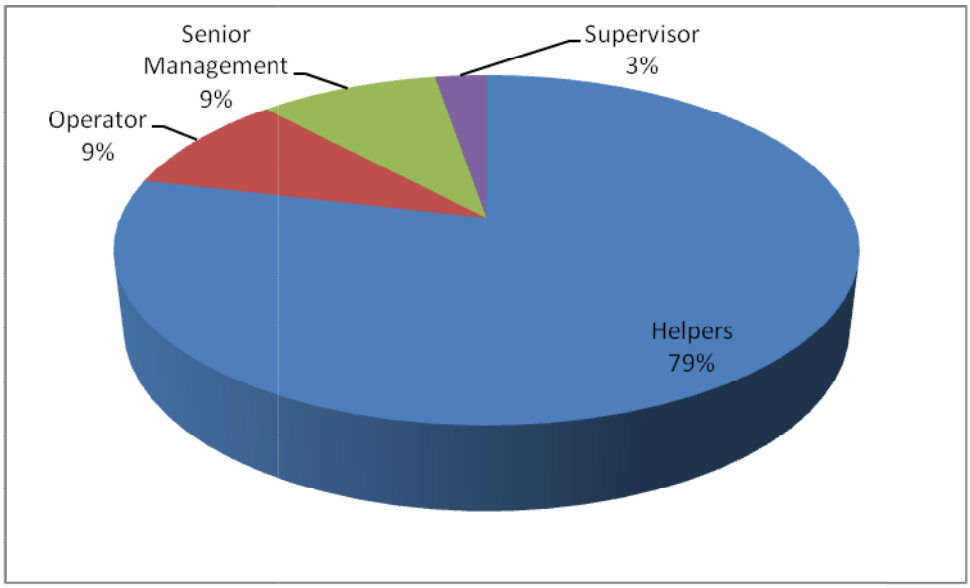
Sample Units	Tiny	Small	Medium	Large	Total
Footwear	-	3	-	-	3

Manpower at a glance



All the employees in the footwear/footwear sheeting producing firms are on roll employees. Majority of the employees are engaged in the core production activity, only 5 percent of the total employees are taking up the administrative and managerial tasks. In the small units covered in the sample, the helpers' role constitutes 79 percent of the total employees in the firms. This indicates greater requirement for helpers in the footwear producing units. However, 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, mainly helpers assisting in mixing mill and packaging of the product.

Job Role Distribution in Sample Units



Educational Qualifications (% of total employees)

Educational Qualification	Small
Ph.D/Research	-
Engineers	-
Graduate	-
Diploma Engineers	-
ITI/Vocational Education	-
XII/X/School Education	20
Below Xth standard	80
Others (CA, CS, ICWA, MBA etc.)	-

Training

Training department is not in existence for any of the firms surveyed in the footwear segment. The responding firms highlighted that it is not required because employees are working with them for more than 10 years in the industry.

Main Roles and Skill Gap

1. **Kneader Operator**

Kneader Operator	Skill Gap			
	Tiny	Small	Medium	Large
• Receiving the raw material and the chemicals from the helpers. • Check that the machine is on and working (as the supervisor/director starts the machine) • Check that the pressure and the temperature do not fluctuate and are between the parameters set by the supervisor. • In case of any issues call on the supervisor/director.		• No formal education on machine operation and on the chemicals used. • Unable to work on other		

• Clean and maintain the machine under the guidance of the supervisor/director. • Visually check the lumps. • Guide the helpers in shifting the lumps to the next process (mixing mill)		processes like mixing mill. • All the knowledge is gained through work experience.		

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.
- Basic maintenance of the machine (cleaning after each process)
- Clocking the kneader machine as per the rotation time given by supervisor

Managerial skills:

- Good guiding skills for helpers so that wastage is minimal.

Soft Skills:

- Knowledge of metric system like pressure temperature, time, to clock cycle
- Basic reading skills

2. Mixing Mill Operator

Mixing Mill Operator	Skill Gap			
• Receive the lumps of material	Tiny	Small	Medium	Large

from the kneader operator. • Work on the mixing mill which has been made ready by the supervisor/director. • Make sheets which was suitable for the next process (i.e. compression press) • Tighten the screws after suitable time so that the sheets coming out are made in the thickness as per the requirement. • Guide the helpers in unloading the material • Cleaning the mill after each process. • Checking the safety while working on the machine.		• No particular knowledge of the machine and in its internal working. Hence unable to work with the supervisor during maintenance. • All the knowledge is gained through the shop floor experience		

Skills Required

Technical Skills:

- Operating the machine skillfully and taking due care while working.
- Knowing when the screws need to be tightened for sheet formation.
- Attain proper dimensions of the sheets w.r.t thickness which is suitable for the next process.
- Adding additional chemical (powder form) for further processing of the sheets.
- Maintain the machine so that it is suitable to work on for the next shift

Managerial skill:

- Good communication skills for guiding helpers.

Soft Skills:

- Basic metric system to identify the numbers on the screws needed to be tightened.

3. Compression Press Operator

Compression Press Operator	Skill Gap			
	Tiny	Small	Medium	Large
• Receive the fine sheets from the mixing process. • Place the sheets in the compression press. • Place one sheet above another in case colored/layered sole is required. • Place the sheets in appointed trays so that pressing can occur simultaneously. • Maintain the temperature and the pressure which has been set by the supervisor for the press. • Remove the sheets and allow it cool in the mould and make them ready for the next process (cutting) after the designated clock time. • Guide the helpers in lifting the sheets from the molds and transferring it to the sole cutting machine. • Take due care and maintain safety parameters as the temperature is high. • In case of fluctuation immediately raise alarm to the supervisor. And then adjust it to temperature and pressure		• Unable to perform multiple tasks (i.e. work on other machines like mixing mill, kneader) • All the knowledge is gained through the shop floor experience		

prescribed				

Skills Required

Technical Skills:

- Good knowledge of machine and its operation.
- Putting the sheets in the right mould and in proper manner as per guidance of supervisor.
- Maintain the appropriate temperature and pressure at all times.
- Clocking the cycle for the compression press.

Managerial skill:

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

Soft Skills:

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

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

Helper	Skill Gap			
	Tiny	Small	Medium	Large
• Shift the material from the different process (i.e. kneading to mixing to press to cutting to slitting to packing to storing) • Clean the shop floor as when guided by the supervisor. • Receive the sole sheets from the compression press. • Cut the flashes at the edges of the newly made sheet. With cutting tool.		• Lacks technical skills		

• Store the sheets in the store room. • Receive the footwear/chappals from the slitting machine. • Identify with the cartons and put the footwear/chappal inside the packaging material given.				
Skills Required **Technical Skills:** • Proper finishing and packaging • Do all the work as directed **Soft Skills:** • Number identification skills on the carton (footwear/chappal size) • Good reading skills				

5. **Helper (Sole Cutting)**

Helper	**Skill Gap**			
• Receive the sheets of soles from the compression press. • Use the cutting press and adjust the cutting machine for the size required. • Do as directed by the supervisor	**Tiny**	**Small**	**Medium**	**Large**
		• Lacks technical skills		
Skills Required **Technical Skills:** • Maintain the machine and see that the soles are cut properly **Soft Skills:** • Basic number identification for setting the cutting machine				

- Good reading skills

6. **Helper (Slit Machine)**

Helper	Skill Gap			
• Receive soles from the sole cutting process. • Work on the slit machine which is adjusted by the supervisor. • Operate the machine as per the guidance of the supervisor. • Put the straps on the soles of the chappals. • Send it to packaging team.	Tiny	Small	Medium	Large
		• Lacks technical skills		

Skills Required

Technical Skills:

- Maintain the machine and see that the slits are made properly so that straps can be inserted

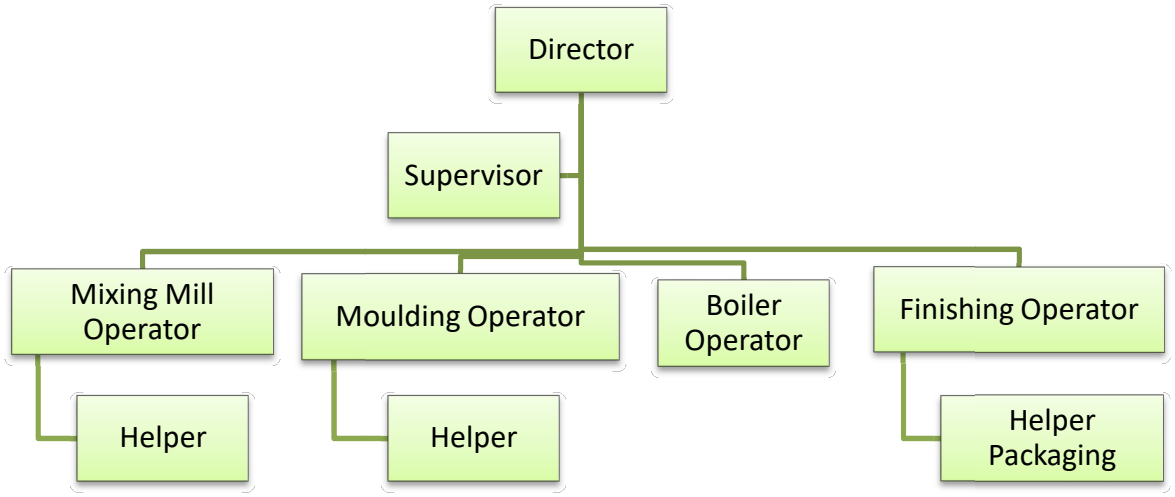
Soft Skills:

- Quick learning skills to work on the slit machine

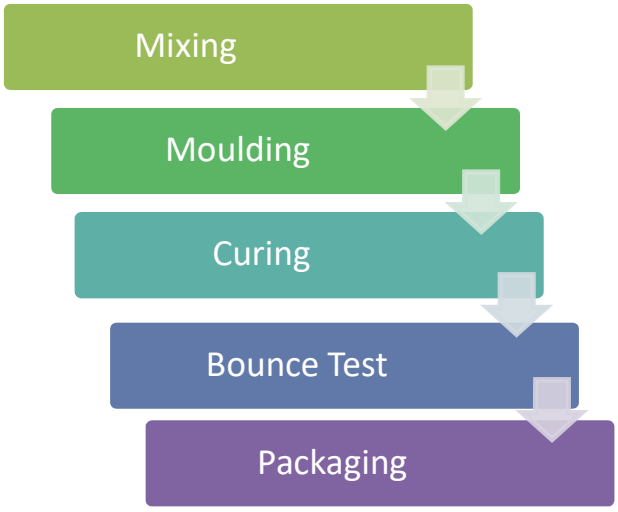
Sports Goods

All the respondent firms producing rubber balls mentioned that they easily find requisite number of people required for their manufacturing process. The survey findings reveal that there is requirement of supervisor, operators and helpers in the production of rubber balls even in the tiny units. The employees for tiny units are mainly from Gujarat whereas small firm has major chunk of employees (90 percent) belonging to the northern state of Uttar Pradesh. The outsiders are ready to work at lower wages.

Organization Structure



Process Outline:

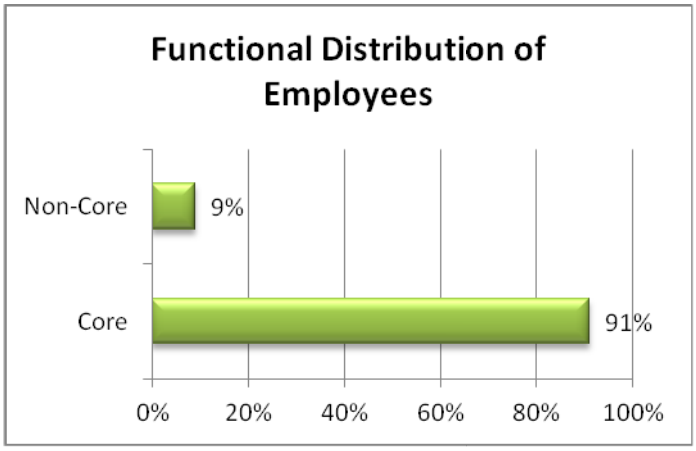


The mixing takes place as per the required specification and then the sheet is prepared. The thin sheet cut down in square form according the diameter of the ball. Two small cut square sheet and samosa is prepared in that feeding of blowing agent takes place, some powder is spread over it, and then these are fixed in pack moulds at high pressure and cured properly. After coming out of the mould, it goes through cooling and cleaning by water, and after that final

testing is carried out by checking bouncing property of rubber ball and finally packaging is done.

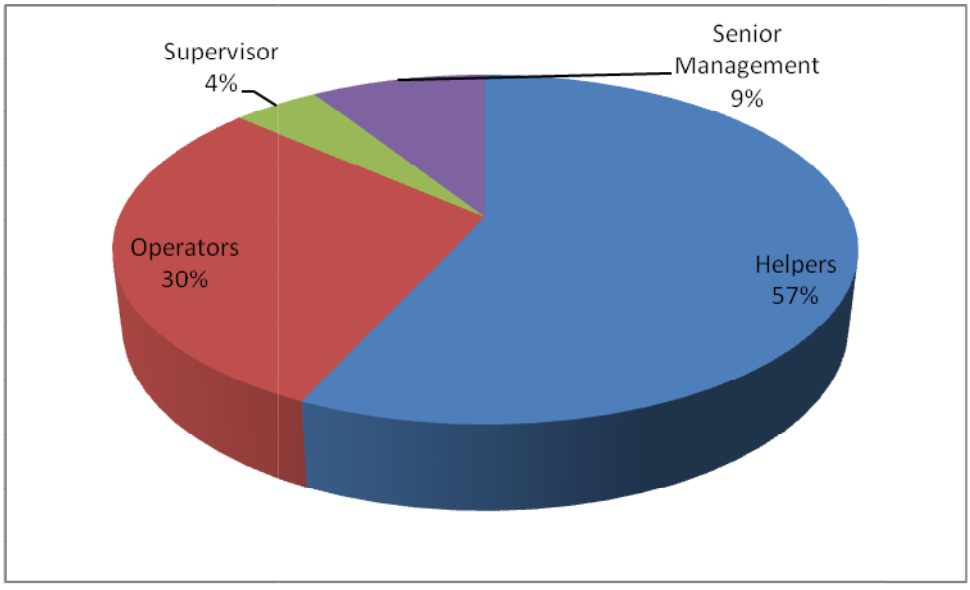
Sample Units	Tiny	Small	Medium	Large	Total
Sports Goods	2	1	-	-	3

Manpower at a glance



The employees are recruited on roll as well as off roll in the rubber ball producing firms in the state. The major strategy for recruitment is referential hiring and newspaper advertisement. Majority of the employees are engaged in the core production activity, only 9 percent of the total employees are taking up the administrative and managerial tasks. In the units covered in the sample, the helpers' and operators' role together constitute 87 percent of the total employees in the firms. Unlike latex thread segment, this indicates requirement for operators as well as helpers in the sports goods producing units. However, the tiny units feel that there is a scope for transfer of roles in the activities carried out by the workers in their units, mainly among helpers and sometimes between operator and helper as well.

Job Role Distribution in Sample Units



Educational Qualifications (% of total employees)

Educational Qualification	Tiny	Small
Ph.D/Research	-	-
Engineers	-	-
Graduate	-	-
Diploma Engineers	-	10
ITI/Vocational Education	-	-
XII/X/School Education	10	-
Below Xth standard	90	90
Others (CA, CS, ICWA, MBA etc.)	-	-

Training

Training department is not in existence for any of the firms surveyed in the sports goods segment. The responding firms highlighted that it is the supervisor/director who trains operators. The training period is normally 3 months.

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. • Mixing the raw material and the Chemical in proper proportion as set aside by the management. • Clock the cycle time for the machine. • Maintain the pressure and the temperature of the machine so that mixing occurs properly • Maintain the machine as per the	• Lack of technical knowledge	• No technical knowledge of the machine at hand. • Has to be guided all the times		

guidelines of the management. • Check that the lumps produced are without any deformities and proper blending has occurred properly; as is suitable for the next process.		for the work		

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.

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			
	Tiny	Small	Medium	Large
• Receive the based semi finished sheets from the mixing mill operator. • Make fine sheets in the machine in the measurement which have been set by the management • Cut down the sheets in square form according to ball diameter. • Then make a samosa with the feeding of blowing agent.	• All the knowledge is gained through experience	• Limited knowledge of the machine functioning • All the knowledge is gained		

• Help in maintenance of the machine with the management.		through the shop floor experience		

Skills Required

Technical Skills:

- Operating the machine skillfully and taking due care while working.
- Handling the moulds as prescribed
- Finely work on the sheets 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 sheets on to the rolls

Soft Skills:

- Effective communication skill

3. Boiler Operator

Boiler Operator	Skill Gap			
• Set the heating zone temperature • Set the proper pressure as per the guidelines given by the supervisor	Tiny	Small	Medium	Large
	• All the knowledge gained through experience			

Skills Required

Technical Skills:

- Thorough knowledge of boiler 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. Finishing Operator

Finishing Operator	Skill Gap			
• Receive the semi solid balls from the transfer molding. • Dip all the ball into the solution provided the solidifying and giving it coloration and make ready for the packing. • See that the balls are dipped in the liquid as per time and duration set by the director. • Remove the ball from the liquid solution and place them for drying.	Tiny	Small	Medium	Large
		•NA		

Skills Required

Technical Skills:

- Dip the balls in the liquid in the time which has been set by the director
- Perform all the work as directed

Soft Skills:

- Good communication skills

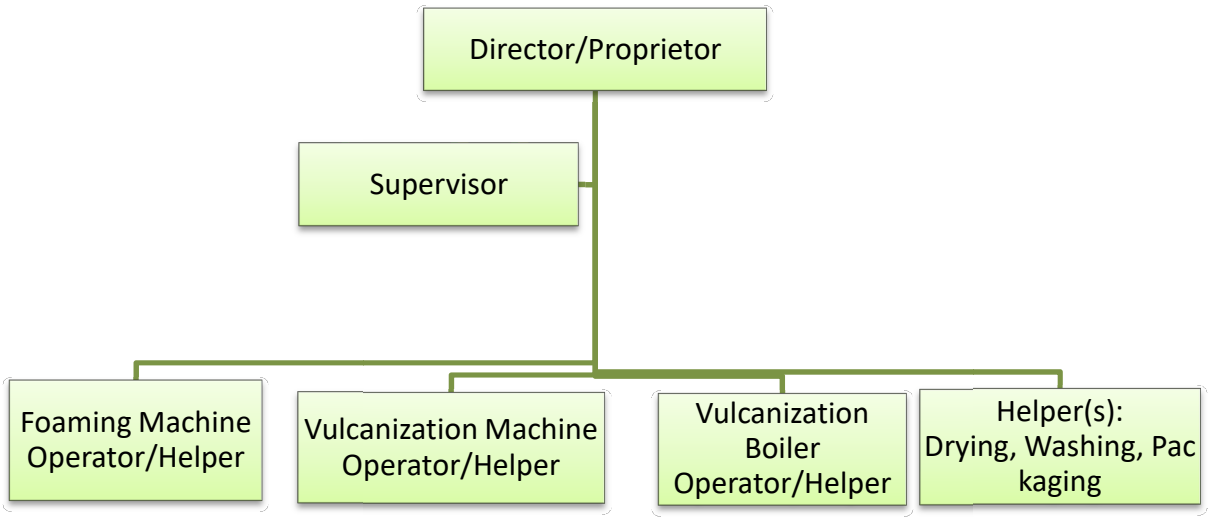
5. Supervisor

<table>
<tr><td rowspan="2"><u>Supervisor</u>
• Give guidelines to operator regarding Raw material mixing & moulding
• Help in Setting the parameters in mixing & Moulding machine
• Give instructions regarding loading & unloading of material the mixing helpers as per formulation.
• Follow up of daily production.</td><td colspan="4">Skill Gap</td></tr>
<tr><td>Tiny</td><td>Small</td><td>Medium</td><td>Large</td></tr>
<tr><td colspan="5">Skills Required
Technical Skills:
• Overall knowledge of the shop floor activities.
• Clear understanding of mixing mill and molding press functions
• Evaluate daily production performance
Managerial Skills:
• Effective communication skills
• Guiding the helpers and the shop floor workers in their work.
Soft Skills:
• Good writing skills</td></tr>
</table>

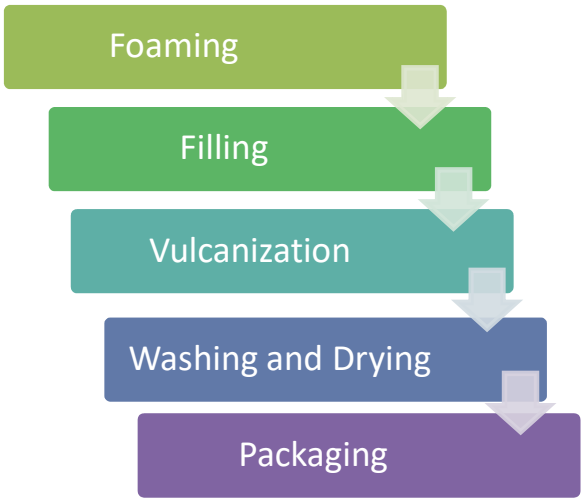
Foam Products

All the respondent firms producing foam mattress mentioned that they do not follow any retention strategy as the attrition is very low because they easily find requisite number of people required for their manufacturing process. The survey findings reveal that these are all small scale firms established before 1990 and follow internal references as the main strategy for recruitment. The employees for these small scale units are mainly from Gujarat while one of the firms has hired half of its total employees (50 percent) belonging to the states of Uttar Pradesh and Bihar.

Organization Structure



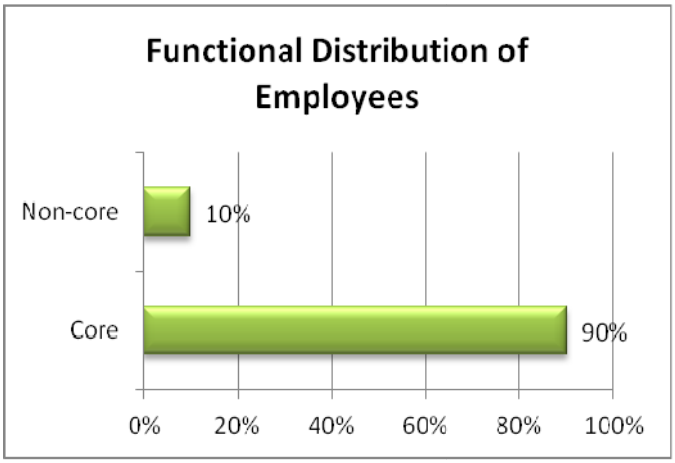
Process Outline:



The raw material used is the latex rubber in the liquid form which contains ammonia. This ammonia is removed through De-ammoniate process. After this is ready they are sent for foaming. The mixing takes place as per the required specification and then the foamed rubber is filled in the dyes of different moulds. The rubber in the dye is passed through steam process. The vulcanized rubber is now washed to remove impurities and then dried. Post drying, the helpers pack the finished product.

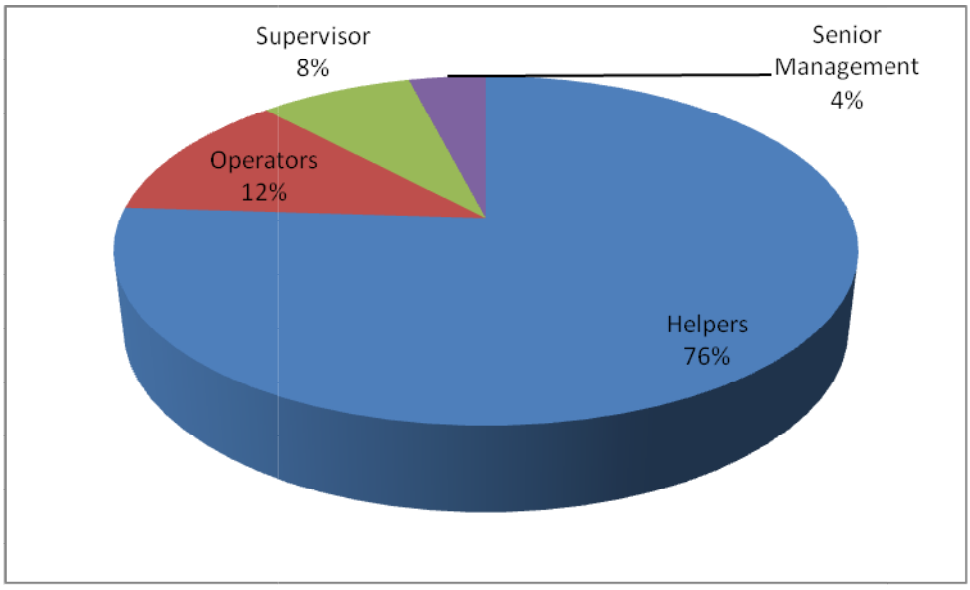
Sample Units	Tiny	Small	Medium	Large	Total
Foam Products	-	3	-	-	3

Manpower at a glance



All the employees are recruited on roll in the select foam products producing firms in the state. Majority of the employees are engaged in the core production activity, only 10 percent of the total employees are taking up the administrative and managerial tasks. In the units covered in the sample, the helpers' role constitutes 76 percent of the total employees in the firms. Like latex thread segment, this indicates main requirement for helpers in the foam products producing units. The transfer of roles is frequently noticed in these firms as the workers handle multiple tasks. No standard operating procedures are followed by any of the firms in this segment of the industry.

Job Role Distribution in Sample Units



Educational Qualifications (% of total employees)

Educational Qualification	Small
Ph.D/Research	-
Engineers	-
Graduate	12
Diploma Engineers	-
ITI/Vocational Education	-
XII/X/School Education	40
Below Xth standard	48
Others (CA, CS, ICWA, MBA etc.)	-

Training

Training department is not in existence for any of the firms surveyed in the foam products segment. The responding firms highlighted that it is the supervisor/director who trains operators. Moreover, there is no relation with any training institute of these firms.

Main Roles and Skill Gap

1. **Foaming Machine Operator**

Foaming Machine Operator	Skill Gap			
	Tiny	Small	Medium	Large
• Monitoring the foaming machine. • Receiving the raw material after subject the same to proper foaming. • Regular maintenance of the machine (cleaning after each batch) • Working along with Technical Supervisor/Proprietor so that the batch quality is maintained.		• Does not have proper technical knowledge on the machine that he operates		

• Working with the supervisor/proprietor for proper upkeep of the machine. • Helping and guiding the Helper for the next process		•All the knowledge is gained through experience		

Skills Required

Technical Skills:

- Good understanding of the machine at work.
- Proper adherence to guidelines provided by the proprietor particularly the formulation.

Managerial skills:

- Guiding the helpers for routine work

Soft Skills:

- Good communication skills
- Good listening skills.
- A quick learner and clearly understand and implement what the Supervisor /Proprietor say

2. Vulcanization Machine Operator

Vulcanization Machine Operator	Skill Gap			
	Tiny	Small	Medium	Large
• Receiving the material after the filling process. • Putting the liquid/semisolid rubber into each mould for vulcanization and preparation of foam mattress. • Properly maintain the machine, and report any issues to the Supervisor/Proprietor • Work with the Supervisor/Proprietor so that the batch quality is maintained		•No proper training on the machine		

• Work for the proper upkeep of the machine				

Skills Required

Technical Skills:

- Operating the machine skillfully and taking due care while working.
- Should be able to follow the guidelines

Managerial skill:

- Good communication skills for guiding helpers.
- Guide the helpers in proper loading and unloading of material

Soft Skills:

- Effective communication skill
- Quick learner
- Basic arithmatic

3. Vulcanization Boiler Operator

Boiler Operator	Skill Gap			
	Tiny	Small	Medium	Large
• Proper Maintenance of the Boiler plant. • In case of any problems should immediately report to the proprietor/supervisor • Maintain the temperature as guided by the proprietor. • Add fuel as and when required to the boiler sop that the temperature is maintained for the vulcanization machine.		No proper training on boiler functioning		

• Remove the material from the vulcanization machine and give it through washing. • Pass it on to the drying and packing helper.				

Skills Required

Technical Skills:

- Knowledge of adding fuel so that the boiler works at required temperature and vulcanization process is not hampered.
- Quick to identify the problems of the boiler

Soft Skills:

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

4. Drying and Packing Helper

Drying and Packing Helper	Skill Gap			
	Tiny	Small	Medium	Large
• Receive the washed foams and keep it for drying. • Do the finishing and packing as per directions of the proprietor.		•NA		

Skills Required

Technical Skills:

- Perform all the work as directed

Soft Skills:

- Basic communication skills

5. Technical Supervisor

Technical Supervisor	Skill Gap			
• Should be able maintain the quality of the batch throughout the production line and as per the requirement of customer specification	Tiny	Small	Medium	Large
		N/A		

Skills Required

Technical Skills:

- Has to be BSc Chemistry.
- Should be able to do quality checks at various stages of the process.
- Should be able to able to understand formulations.

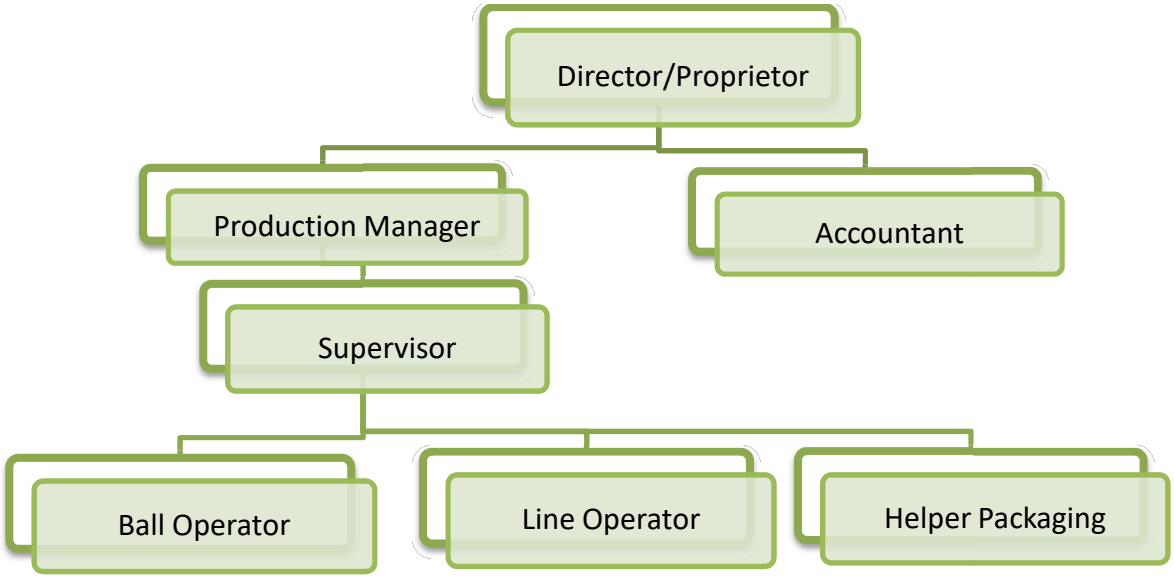
Managerial Skills:

- Effective communication skill
- Should be able to supervise the team and guide them so that quality is maintained

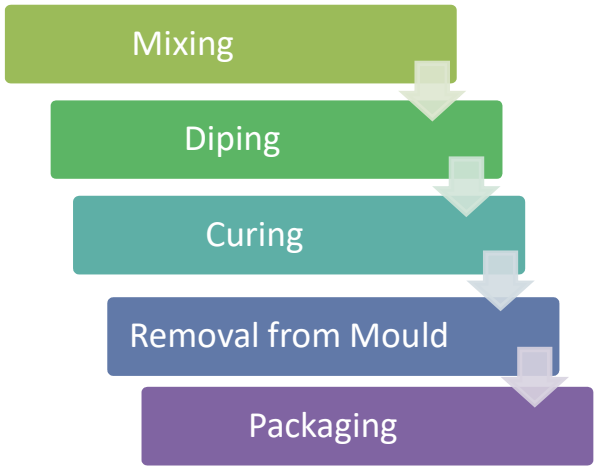
Gloves

Moving on to the automation of the product manufacturing process is the future expansion plan of the four firms out of the total of five firms surveyed involved in the rubber gloves production. This particular fact points towards the requirement of skilled labour well versed with the automated processes as well as for the rubber technical adviser as shared by the respondent firms. It has been highlighted by the firms that they are not able to find requisite number of people required by them in various roles such as packaging, maintenance, machine operators and technical adviser.

Organization Structure



Process Outline:

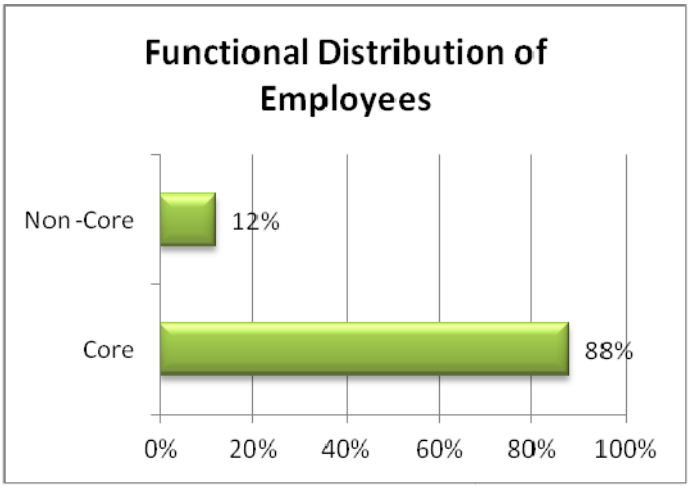


The raw material is mixed to particular compound and then converted to liquid form. This is done with help of a ball machine and a simple mechanical mixer. Then the ceramic mould is dipped in viscous latex and additives mixture, after getting desired thickness, it goes for cooling. Curing s takes place and finally finishing & packaging of product is takes place according to size of the pairs.

Sample Units	Tiny	Small	Medium	Large	Total
Gloves	1	2	-	1	5*

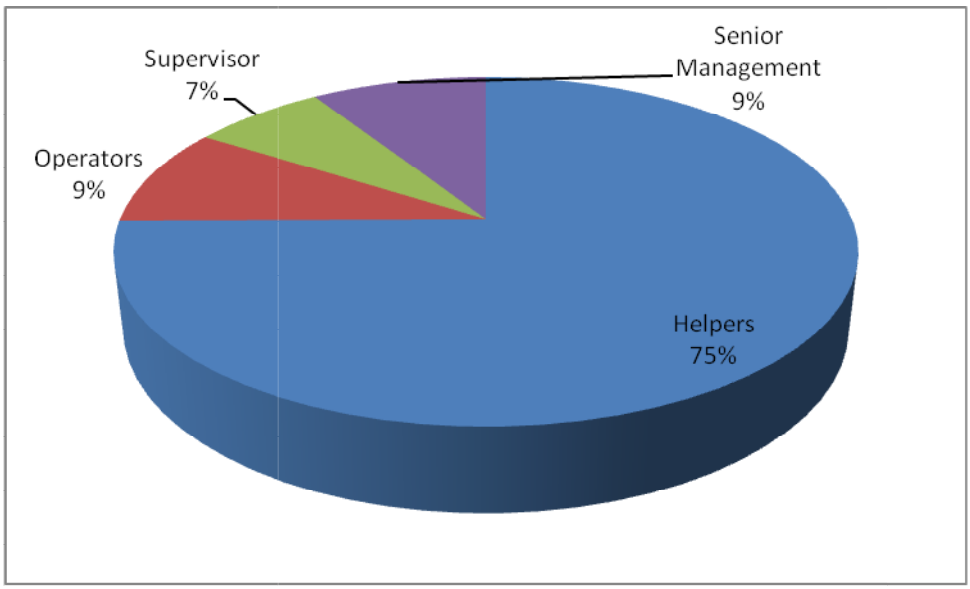
*One firm did not share the investment detail.

Manpower at a glance



Some of the employees recruited in the gloves manufacturing firms are on roll and others employed on off roll basis. Majority of the employees are engaged in the core production activity, only 12 percent of the total employees are taking up the administrative and managerial tasks. In the units covered in the sample, the helpers' role constitutes 75 percent of the total employees in the firms. Such a high proportion of helpers in such units clearly indicates main requirement for helpers in the gloves producing units. The transfer of roles is frequently noticed in these firms as the workers handle multiple tasks. No standard operating procedures are followed by four out of five firms surveyed in this segment of the industry.

Job Role Distribution in Sample Units



Educational Qualifications (% of total employees)

Educational Qualification	Tiny	Small	Large
Ph.D/Research	-	-	-
Engineers	-	-	5
Graduate	10	7	10
Diploma Engineers	-	3	-
ITI/Vocational Education		3	5
XII/X/School Education	10	47	10
Below Xth standard	80	40	70
Others (CA, CS, ICWA, MBA etc.)	-	-	-

Training

Training department is not in existence for any of the firms surveyed in the gloves producing units. The responding firms highlighted that experienced workers are employed. Moreover, there is no relation with any training institute of these firms.

Main Roles and Skill Gap

1. **Ball Operator**

Ball Operator	Skill Gap			
	Tiny	Small	Medium	Large
• Properly operate the mixing machine. • Load and unload the liquid rubber into the mixing barrels. • Add the additives and chemicals as guided by the quality analyst /supervisor in to the mixing barrels. • Provide sample from the batch to the quality assistant • Switch on and off the mixing	• No knowledge of the chemicals being used and reason for using. • Constant monitoring	• Does not have proper technical knowledge on the machine that he operates		• No formal education on the machine. • Simply switches on/off the machine as per

machine as guided by the Supervisor • Maintain the machine and in case of issues raise it to the supervisor • See that the safety measurements are taken as guided by the supervisor	required by the supervisor.	•All the knowledge is gained through experience		guidance. • Technical expertise gained on the basis of work experience.

Skills Required

Technical Skills:

- Good understanding of the machine at work.
- Ability to operate the machine

Managerial skills:

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

Soft Skills:

- Good communication skills

2. Line Operator

Line Operator	Skill Gap			
	Tiny	Small	Medium	Large
• Switch on the Agitator machine for the chemicals and dyes to be blended. • Clock the cycle as per the supervisor. • Open the nozzle so that latex gets accumulated in tank and ready for dipping. • Guide the helpers in lifting the moulds and dipping them in the latex.	•No technical knowledge of the process. •Has to be constantly guided by	•No technical knowledge of the process. •Has to be constantly guided by the		• Limited knowledge on the machine at hand. • Knowledge gained based on experience

• Clock the cycle for the dip as per the guidance of the supervisor. • Remove the dips along with the helpers. • Transfer in to the curing oven along with the helpers. • Clock the timing of the pre-set oven. • Maintain the temperature of the oven (curing). • Take due care as the oven is very hot. • In case of any discrepancy immediately inform the supervisor. • Pull out the gloves from the mould along with the helpers with minimal damage. • Transfer the same to the packing team.	the supervisor.	supervisor.		at shop floor

Skills Required

Technical Skills:

- Good knowledge of operating agitator machine
- Remove the gloves from the moulds in proper manner so that minimal damage occurs

Managerial skill:

- Guiding the helpers in the respective works (dipping, curing)

Soft Skills:

- Effective communication skill
- Good grasping skills to understand the working of the agitator machine.
- Knowledge of metric sytem (Time and temperature) to monitor the dip duration and the curing time.

4. Packing Helper

Packing Helper	Skill Gap			
• Check the gloves for tear which are been sent by the collection helper. • Powdering the gloves after curing. • Pack the gloves in the packing material provided as per sizes.	Tiny	Small	Medium	Large
	• NA	•NA		• NA
Skills Required Technical Skills: • Perform all the work as directed Soft Skills: • Basic communication skills				

5. Supervisor

Supervisor	Skill Gap			
• Manage the shop floor activities. • Receive the formulation and guide the ball mixing operator and the line operator/helper in their work. • Set the machine for the ball mixing operator and the line operator to work smoothly. • Raise issues and co-work with the maintenance team during	Tiny	Small	Medium	Large
	• No technical knowledge and chemical knowledge • All the expertise	• Lack of Technical knowledge of the machine. • Not an expert on the		• Not a rubber Technologist

down time • Maintain the safety aspects as per the company standards	gained is through work shop experience	machine. • Requires constant guidance on machine maintenance and up keep		

Skills Required

Technical Skills:

- Knowledge of the machines at hand
- Understand the functioning of the machine.

Managerial Skills:

- Should be able to supervise the team and guide them so that quality is maintained

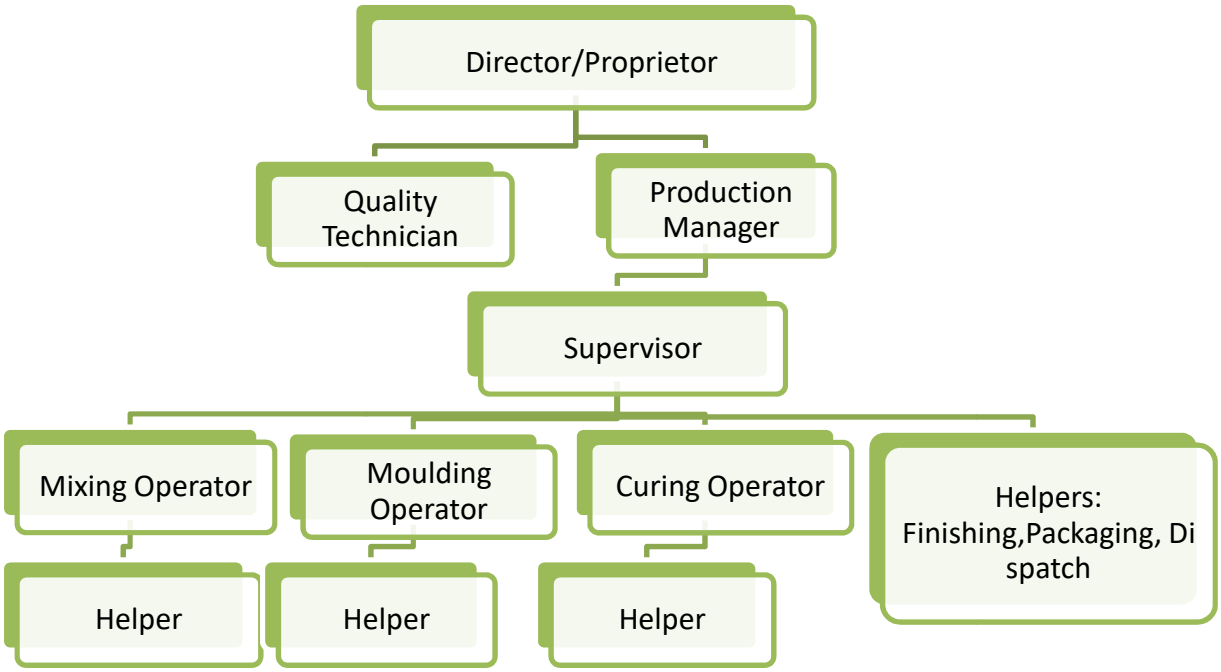
Soft Skills

- Effective communication skill

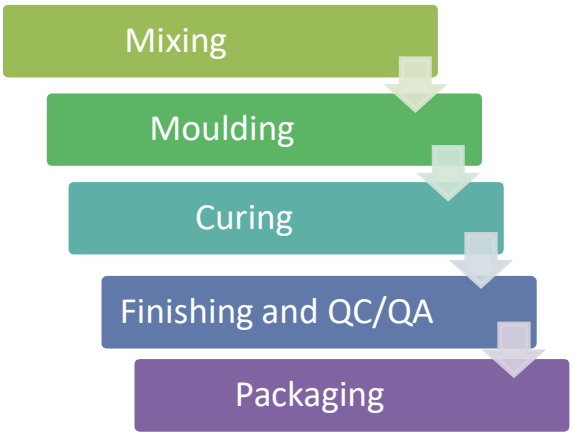
Moulded Products

Only one fourth of the total respondent firms producing moulding products mentioned that they recruit only local people for their manufacturing process. Firms are not majorly employing local people in this segment, those hiring from outside have employees coming mainly from the states of Bihar and UP. Some of the firms have engaged people from Rajasthan, Maharashtra and Madhya Pradesh. The survey findings reveal that only fewer firms are looking forward for expansion and to automated processes.

Organization Structure



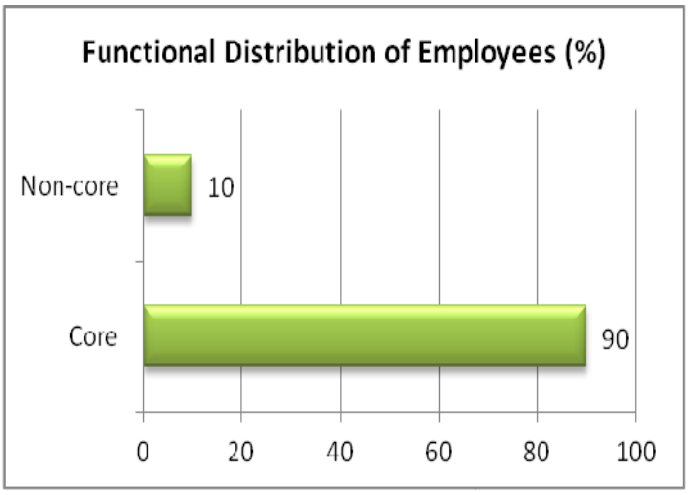
Process Outline:



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
Moulded Products	4	14	4	-	22

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. Majority of the employees are engaged in the core production activity, only 10 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 80 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, most 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.

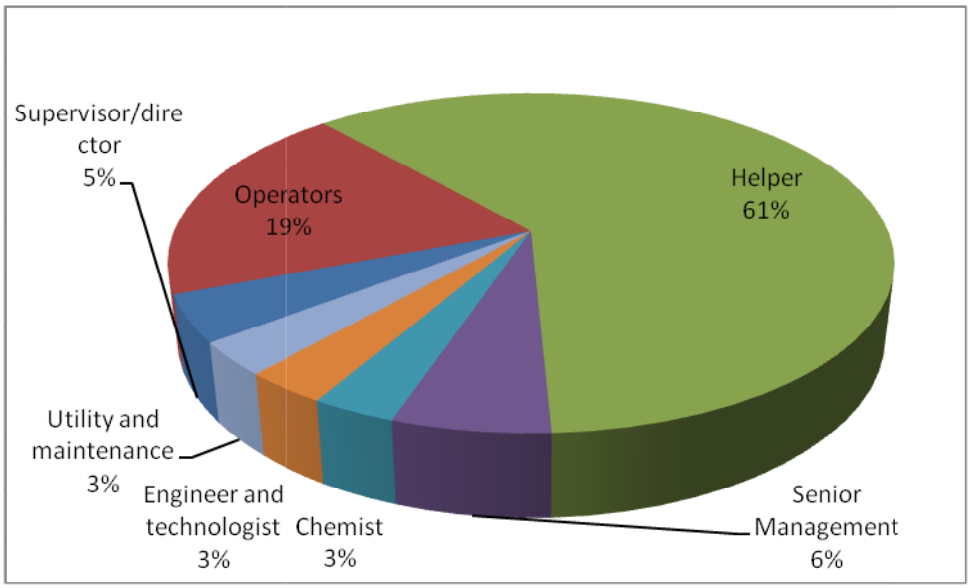
Half of the respondent firms indicate that they find the requisite number of employees required to carry out the production. There is a shortage of skilled manpower especially mixing operators and helpers. Also, the employees lack technical and behavioural skills and basic knowledge of material used as per the respondent firms in moulded goods producing units.

For the moulded products segment, the main job role requirement is for helpers followed by operators in the rubber industry in the state as per the responses of the surveyed firms.

Training

Two medium scale firms have training department while other 20 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. They are associated with Valsad ITI for electrical, mechanical and maintenance department people.

Job Role Distribution in Sample Units



Educational Qualifications (% of total employees)

Educational Qualification	Tiny	Small	Medium
Ph.D/Research	-	-	7
Engineers	-	1	5
Graduate	-	10	6
Diploma Engineers	-	1	5
ITI/Vocational Education	-	1	5
XII/X/School Education	42.5	14	57
Below Xth standard	57.5	73	15
Others (CA, CS, ICWA, MBA etc.)	-	-	-

Main Roles and Skill Gap

1. **Mixing Mill Operator**

Mixing Mill Operator	Skill Gap			
• Receive the raw rubber and the	Tiny	Small	Medium	Large

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 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.	• No formal technical knowledge • Work is based on experience • Don't take any precaution for their safety • Lack of operating experience and specializati on • Awareness towards working.	•No technical knowledge of the machine at hand. •Mixing proportion and sequence knowledge	• Lack of basic technical knowledge of properties of various inputs. • Works based on experience. • No formal technical training. • Lacks capability to find faults in the product • Lack of rubber specialization Unawareness towards operation & proportion of raw material used.	
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			
	Tiny	Small	Medium	Large
• 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	• No formal technical training •All the knowledge is gained through the shop floor experience	• Limited knowledge of the machine functioning •All the knowledge is gained through the shop floor experience •Lack of rubber specialization & experience	• No use of any safety equipments. • Wastage is very much. • One worker is doing many works. • Equipment maintenance is done after long time. Communication gap between	

		to perform operation	workers.	

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

Curing Operator	Skill Gap			
	Tiny	Small	Medium	Large
• Maintenance of the machine. • Control of temperature when the product is inside it. • Keeping track of curing time for each product.	• All the knowledge gained through experience • Efficiency is less	• All the knowledge gained through experience • Efficiency is less		

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**

Quality Technician	Skill Gap			
• To check finish product by visual inspection and quality tests and procedures as per the standards • To perform the various documentation functions. • Identify the process where defects are originating.	Tiny	Small	Medium	Large
			No skill gap manifested	

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			
• 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	Tiny	Small	Medium	Large
	• No formal training	• No formal technical training	• Lack of long experience • Lack of specialization experience • Unaware of new technology behavior with production workers	

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

6. Production Manager

Production Manger	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 processes to incorporate the customer needs in the final product. • Get involved in quality control	Tiny	Small	Medium	Large
	• No formal training	• No formal technical training	• Awareness towards technology • Manpower handling ability	

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

7. Helper

Helper	Skill Gap			
• Shift the material from the	Tiny	Small	Medium	Large

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 • Cleaning mold • Finishing and packing the product in respective packing material. • Do all work as directed by the supervisor	• Lack of specialize sector experience • General awareness while working	• Lacks technical knowledge	• Lack of education & specialize experience • General awarenes s while working. • Training & certificati on	

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 lack technical skills in this industry badly whether it is a small, medium or a large organization. An important area of concern that they reported relates to the behavioural skills which is more related to the personality trait than being specific to a particular industry. As the employees mainly gain knowledge on the job which has been highlighted throughout in the survey responses, the weakness on the part of theoretical knowledge regarding the properties of the material and their usage seems to be another area of concern.

Table 4.1: Technical Skill Gap: Product Category Wise

Category	Firm's response (%)
Tyre and tubes	3.1
Tread Rubber	3.1
Footwear	6.3
Latex foam	3.1
Dipped goods	9.4
Others	78.0

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						
Calendaring 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:

Employee profile	Industry feedback on expected qualification and profile	Analysis
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	The requirement for

	certification and remain updated about latest technology. Able to manage the shop floor	supervisory role has not been reported by the firms 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 western state.

Table 4.2: Current Status and Projections

Product Category	2013-14	2018-19	Change	Change%
Tyres and tubes	936	1216	280	29.9
Camel back	438	524	86	19.6
Footwear	456	465	9	2.0
Belts and hoses	372	385	13	3.5
Latex foam	870	870	0	0.0
Dipped goods	2118	2121	3	0.1
Others	12288	16847	4559	37.1
Total	**17478**	**22428**	**4950**	**28.3**

It is estimated that in the coming five years, we may witness an overall 28 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

Job Role	% of human resource requirement	Human Resource Requirement (No.)
Supervisor	6	297
Operator	48	2376
• *Mixing/Kneader*	17	842
• *Curing*	7	347
• *Calendaring*	10	495
• *Cutting*	4	198
• *Extruder*	8	396
• *Lathe*	2	99
Helper	25	1238
Packaging/Dispatch	6	297
QC	6	297
Office/Marketing	7	347
Technologist	2	99

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.