

2013



## Rubber Skill Development Council

**Skill Gap Analysis across Sub-Segments  
(Tyre and Non-tyre) for Rubber Industry in  
Punjab State**



**ICRA Management Consulting Services Limited**

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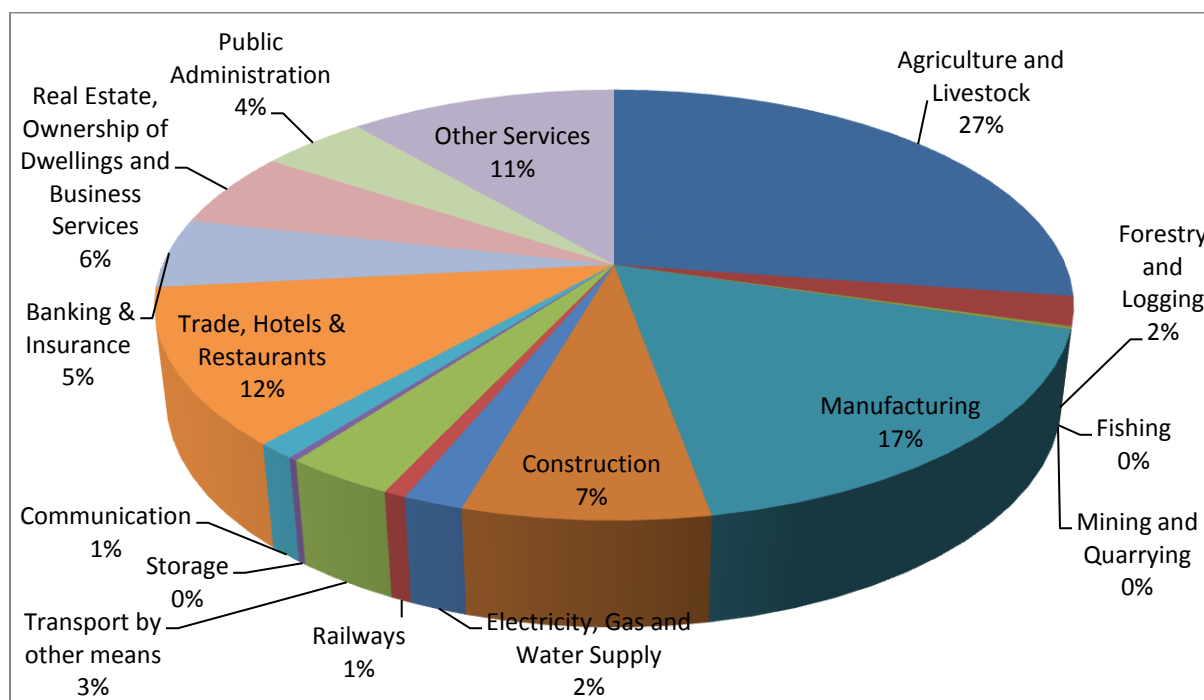
## 1. Skill Gap analysis of Rubber Industry – Punjab State

### 1.1 Punjab economy

The total population of Punjab is 2.77 crore. It has a literacy rate of 76.70% in 2013 which has improved compared to the literacy rate of 69.65% in 2001. The per capita income of Punjab is Rs.89, 345 which is more than the national average of Rs.68, 747. The life expectancy rate of the state for female and male is 68 years and 71 years respectively.

Punjab has recorded a GSDP of Rs.164, 575 crore in 2012-13. Though Punjab is an agrarian economy, the share of primary sector is constantly decreasing. Contribution of agriculture and allied activities to GSDP has decreased from 32.6% in 2004-05 to 21.8% in 2012-13. At the same time, secondary sectors contribution has increased from 24.7% in 2004-05 to 29.4% in 2012-13. The share of tertiary sector has also increased from 42.5% in 2004-05 to 48.6% in 2012-13.

Figure 1: Punjab economy – sectoral split-up (2011-12)



Source: Economic survey of Punjab

### 1.2 Rubber Units Distribution in Punjab

Punjab houses over 380 rubber manufacturing units which are distributed across the tyre and non-tyre segments. The dominant segments in the state are footwear, tyre, tubes and flaps, sports goods, auto and cycle parts and belting.

*Table 1: Product segment-wise distribution of units in Punjab*

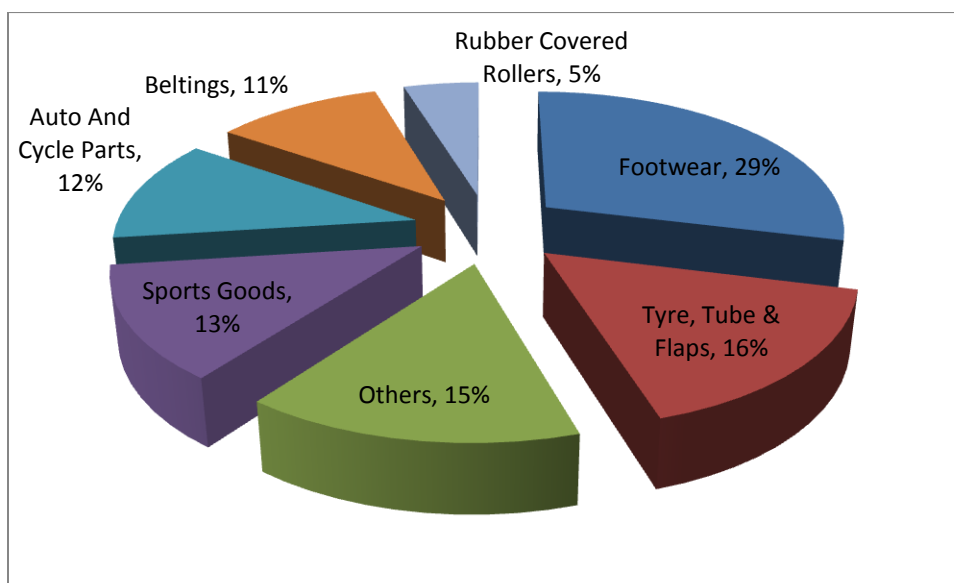
Product Category	Micro	Small	Medium	Large	Total
Adhesives	4				4
Auto And Cycle Parts	37	6	2		45
Beltings	27	6	5	2	40
Dipped Goods	4				4
Foam Products		2	1		3
Footwear	51	45	13		109
Hoses	4	5	1		10
Latex Thread		1			1
Leather Board		2	2	1	5
Moulded Rubber Products	12	4	1		17
Rubber Covered Rollers	14	2	1	1	18
Rubber Matting	1	1			2
Rubber Sheetings		2			2
Rubber Tubings	2				2
Rubberised Coir, Jute & Woolen Products	1				1
Rubberised Fabric Products		1			1
Sports Goods	31	14	6		51
Tread Rubber Products	7				7
Tyre, Tube & Flaps	23	7	19	13	62
<b>Grand Total</b>	<b>218</b>	<b>98</b>	<b>51</b>	<b>17</b>	<b>384</b>

*Source: The Rubber Board; Note: Some companies will also manufacture across multiple segments*

*Tiny: Units below 50 MT usage, Small: Units from 50-149 MT usage; Medium: 150-499 MT usage and Large: Units over 500 MT usage*

Major product segments are highlighted in the figure given below:

*Figure 2: Major product segments in Punjab*



*Source: The Rubber Board; Note: Some companies will also manufacture across multiple segments*

Geographically, the main clusters where the units are concentrated are in Jalandhar, Ludhiana and Amritsar.

*Figure 3: Geographical clusters in Punjab*



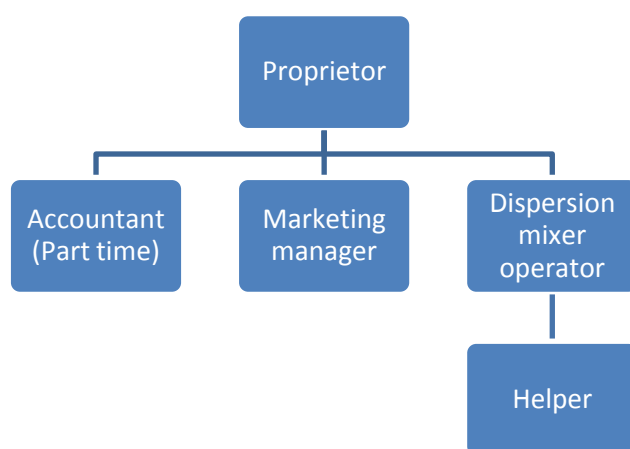
### 1.3 Skill gap analysis – Product segments in Punjab

#### 1.3.1. Adhesives

An adhesive is any substance that, when applied to the surfaces of materials, binds the surfaces together and resists separation. There are only few adhesive manufacturing units in Punjab so adhesive is one of the minor product categories of the state.

##### 1.3.1.1. Organization structure

Figure 4: Organisation structure



The activities of the human resource function and other support function is executed by the Proprietor. The occupation for a helper is not defined as the job which is to be executed by a helper is unskilled in nature. So, the helper would be working across different occupations depending upon the requirement of human resources in the production process

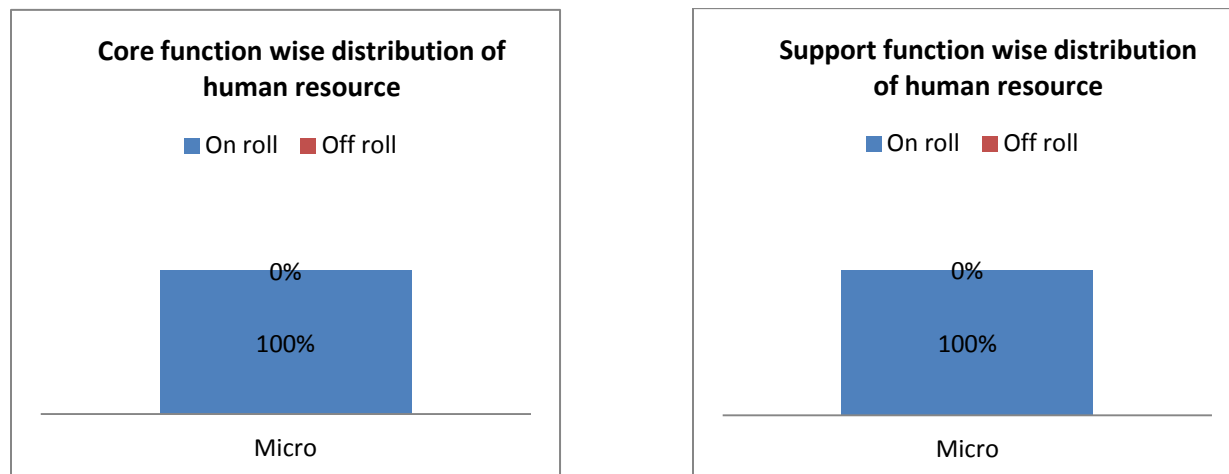
#### Sample covered

	Micro	Small	Medium	Large	Total
No. of units	2	0	0	0	2



### 1.3.1.2. Function wise distribution of human resource

Figure 5: Function wise distribution of human resource



### 1.3.1.3. Job role wise distribution of human resource

The manufacturing of adhesive is a simple process and not many job role is involved. The two major job roles in the adhesive segment are dispersion mill operator and helper.

Table 2: Job role wise distribution in the sample units for the product segment of Adhesive

Occupation	Job role	Number of people	Occupation	Job role	Number of people
Mixing	Dispersion Mixer Operator	2	General	Proprietor/ MD	2
Finishing/ Packing	Helper	1		General Manager	1
			Production	Production Manager	0
				Shift In-charge	0
Accounts	Manager Accounts	0			
	Accountant	0			
Purchase	Manager Purchase	0			
	Stores Assistant	0			
Marketing	Manager	0			

Occupation	Job role	Number of people	Occupation	Job role	Number of people
	Marketing				
HR	HR Manager	0			
Production function					
Support function					
Management					

#### 1.3.1.4. Qualification wise distribution of human resource

Table 3: Qualification wise distribution of human resource

Qualification	Micro
Ph.D / Research	0%
Engineers	0%
BA / BSc/B Com	58%
Diploma Engineers	0%
ITI / Vocational Education	0%
12th std / 10th std pass	0%
Below 10th standard	42%
Others (specify - Such as MBAs, CA, ICWA, CS, etc.)	0%
<b>TOTAL</b>	<b>100%</b>

#### 1.3.1.5. Skill gap analysis

Table 4: Occupation wise distribution of job roles

Occupation	Mixing	Packing and Dispatch
Job Roles	Dispersion mill operator	Helper
	Helper	

Occupation: Mixing

Following job roles are involved in mixing occupation:

- Dispersion mill operator
- Helper

---

**Occupation:** Mixing

**Job Role:** Dispersion mill operator

**Qualification and Experience:** Minimally educated with over 10 years of experience

**Roles and Responsibilities:**

- Supervision of the production process.
- Mixing the raw materials as per the required sequence
- Operating the dispersion mill.

**Knowledge and Skill Requirement**

**Skill Gaps and Intensity level of skill gap**

**Technical Skills**

- Ability to mix the raw materials homogeneously.
- Ability to weigh the required raw materials as specified
- Ability to operate the dispersion mill
- Ability to mix the raw materials as per the defined sequence and proportion.
- Ability to understand the safety precautions and should not put his hand inside the drum while the machine is operating.
- Knowledge on storage locations of the raw materials
- Ability to supervise the helpers

**Managerial skills**

- Ability to instruct the helpers for cleaning, loading / unloading, etc.

Particulars	Micro	Small	Medium	Large
-------------	-------	-------	--------	-------

- |   |   |    |    |    |
|---|---|----|----|----|
| <ul style="list-style-type: none"><li>• Inadequate skills to weigh the raw materials.</li></ul> | L | NA | NA | NA |
|---|---|----|----|----|

### Soft Skills

- Ability to coordinate work with his superiors and subordinates

H- High; M-Medium; L-Low

**Occupation:** Mixing

**Job Role:** Helper

**Qualification and Experience:** Minimally educated

### Roles and Responsibilities:

- Assist the dispersion mill operator by following his instructions.
- Loading/ unloading of raw materials.

### Knowledge and Skill Requirement

### Skill Gaps and Intensity level of skill gap

#### Technical skills

- Ability to understand and execute the instructions of the operator.
- Ability to adhere to the safety requirements.

#### Managerial skills

NA

#### Soft skills

NA

H- High; M-Medium; L-Low

Particulars	Micro	Small	Medium	Large
• Inadequate ability to understand the instructions of the operator	L	NA	NA	NA

### Occupation: Packaging

Following job roles are involved in moulding occupation:

- Helper

**Occupation:** Packaging

**Job Role:** Helper

**Qualification and Experience:** Minimally educated

**Roles and Responsibilities:**

- Packing of adhesive solution in the specified bottles.
- Loading/ unloading of the packed product.

Knowledge and Skill Requirement		Skill Gaps and Intensity level of skill gap				
Technical skills		Particulars	Micro	Small	Medium	Large
<ul style="list-style-type: none"> <li>▪ Ability to adequately pack the adhesive solution into the specified bottles so as to minimize wastage which could be caused by spillovers.</li> <li>▪ Ability to understand and execute the instructions of the operator.</li> </ul>		<ul style="list-style-type: none"> <li>• Inadequate packing skills as they are not able to fill the bottles as per the requirement.</li> </ul>	L	NA	NA	NA
<b>Managerial skills</b>						
NA						
<b>Soft skills</b>						
NA						
H- High; M-Medium; L-Low						

Table 5: Job role wise distribution in all the units for the product segment of Adhesive (Estimated)

Occupation	Job role	Number of people	Occupation	Job role	Number of people
Mixing	Dispersion Mixer Operator	2	General	Proprietor/MD	2
Finishing/Packing	Helper	1		General Manager	1
			Production	Production Manager	0
				Shift In-charge	0
Accounts	Manager Accounts	0			
	Accountant	0			
Purchase	Manager Purchase	0			

## Punjab State Report

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Occupation	Job role	Number of people	Occupation	Job role	Number of people
	Stores Assistant	0			
<b>Marketing</b>	Manager Marketing	0			
<b>HR</b>	HR Manager	0			
Production function					
Support function					
Management					

## Summary Sheet: Adhesive

Categories	Total no. of Adhesive product manufacturing units in Punjab					4	Qualification wise distribution of human resource			
<ul style="list-style-type: none"><li>Latex based adhesive</li><li>Dry rubber based adhesive</li></ul>	Distribution of units	Micro	Small	Medium	Large	Total	Ph.D / Research Engineers BA/B.Sc/B Com Diploma Engineers /Rubber technologist ITI/Vocational Education 12th std/10th std pass Below 10th std Others (MBAs, CA, ICWA, CS, etc.) Total	0%		
		100%	0%	0%	0%	100%		0%		
	No. of people employed*	7	0	0	0	7		58%		
								0%		
	Total no. of occupations identified		2		0			0%		
	Total no. of job roles identified		2		0			0%		
User industry	<ul style="list-style-type: none"><li>Footwear industry</li></ul>	Critical job roles (in terms of skill requirement)	Dispersion mill operator and helper				Function wise distribution of human resource			
Industry Suggestions										
During summer season, the latex in their product gets separated from water due to some problem while the latex that they receive from Kerala doesn't show any such problem. So, the proprietor needs training so as to understand the problem and develop the correct chemical formulation. RSDC could ask the Rubber Board to show him the complete process so that he can rectify the chemical formulation.								On roll	Off roll	
Core function								100%	0%	
Support function								100%	0%	

\*Estimation based on sample data

### 1.3.2. Auto and Cycle Parts

Punjab is one of the major cluster manufacturing Auto and cycle parts in India, next to Haryana and Maharashtra. Among the total number of rubber product manufacturing units in Punjab, auto and cycle parts accounts for around 9%. More than 65% of the auto and cycle parts manufacturing units of Punjab are located in Ludhiana and Jalandhar cluster and more than 85% of the units are micro size units.

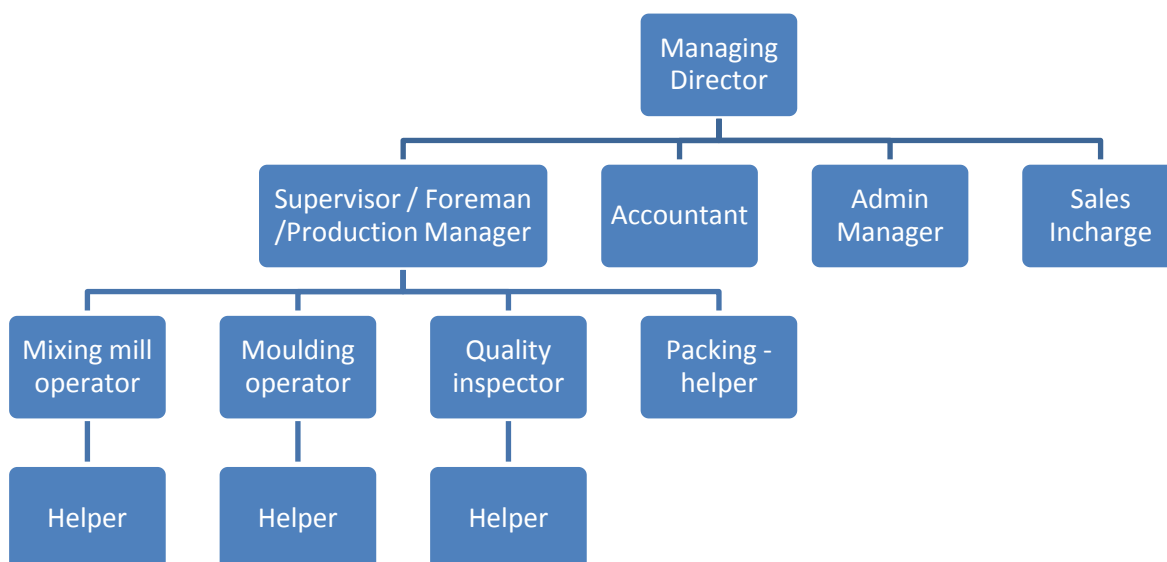
The industry faces a shortage of labour and sourcing of labour is mostly done through employee referrals.

#### Types of sub product categories

- Auto parts
- Cycle parts

#### 1.3.2.1. Organisation structure

Figure 6: Organisation structure



Note: Helpers generally moves across different occupations as per the requirement

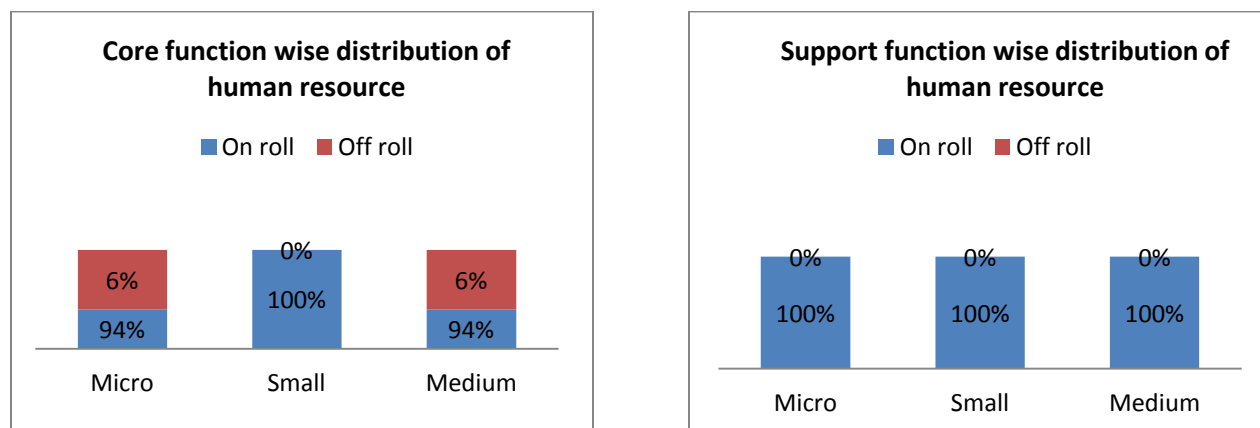
#### Sample covered

	Micro	Small	Medium	Large	Total
No. of units	9	2	1	0	12



### 1.3.2.2. Function wise distribution of human resource

Figure 7: Function wise distribution of human resource



### 1.3.2.3. Job role wise distribution of human resource

The major job roles are of moulding operator and mixing mill operator. The role of the cutting machine operator is also performed by the moulding operator in several micro and small units.

Table 6: Job role wise distribution in the sample units for the product segment of Auto and Cycle parts

Occupation	Job role	No of people	Occupation	Job role	No of people
Mixing	Kneader Operator	4	Accounts	Manager Accounts	1
	Mixing mill Operator	30		Accountant	2
	Supervisor	2	Purchase	Manager Purchase	0
	Helpers	5		Stores Assistant	0
Moulding	Moulding Supervisor	0	Marketing	Manager Marketing	0
	Cutting machine operator	20	HR	HR Manager	1
	Moulding Operator	68	General	Proprietor/MD	9
	Helpers	23		General Manager	3
Finishing	Finishing Supervisor	0	Production	Production Manager/Foreman	4

Occupation	Job role	No of people	Occupation	Job role	No of people
	Quality inspector	20		Shift In-charge	0
	Helper	18		Supervisor-labour/raw material	2
Packaging and Dispatch	Packaging and Dispatch Supervisor	0			
	Helpers	15			
Testing	Chemist	1			
	Quality inspector	7			
Production function					
Support function					
Management					

#### 1.3.2.4. Qualification wise distribution of human resource

Table 7: Qualification wise distribution of human resource

Qualification	Micro	Small	Medium
Ph.D / Research	0%	0%	0%
Engineers	0%	0%	3%
BA / B.Sc/B Com	9%	5%	7%
Diploma Engineers /Rubber technologist	2%	5%	0%
ITI / Vocational Education	0%	0%	0%
12th std / 10th std pass	3%	11%	7%
Below 10th standard	86%	79%	80%
Others (specify - Such as MBAs, CA, ICWA, CS, etc.)	0%	0%	3%
<b>TOTAL</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

### 1.3.2.5. Skill gap analysis

Table 8: Occupation wise distribution of job roles

Occupation	Production	Mixing	Moulding	Quality control/finishing	Packaging and dispatch
Job Roles	Production Manager/Foreman	Kneader operator	Moulding operator	Quality inspector	Helper
		Mixing mill operator	Helper	Helper	
		Helper			

#### Occupation: Production

Following job roles are involved in production occupation:

- Production Manager/Foreman

#### Occupation: Production

##### Job Role: Production Manager/Foreman

**Qualification and Experience:** 12<sup>th</sup> standard with more than 10 years of experience in rubber industry

##### Roles and Responsibilities:

- Manage the production of the company
- Provide training and guidance to other workers
- Monitor absenteeism of workers
- Meet the production targets as required by the management of the company
- Ensure availability of raw materials
- Check the quality of the end product

##### Knowledge and Skill Requirement

##### Skill Gaps and Intensity level of skill gap

##### Technical skills:

- Ability to provide required specifications

Particulars	Micro	Small	Medium	Large
• The production	M	M	L	

to the operators in terms of time and temperature of mixing and curing, proportion of raw materials, etc.

- Ability to identify the raw materials
- Understanding of chemical characteristics of the raw materials.
- Ability to inspect whether the end product from the machines are as per the required specifications.
- Knowledge of production process
- Understanding of the operation of machines viz. kneader, mixing mill, hydraulic press
- If there is an issue in the end product, the production manager must be able to rectify it.
- Ability to maintain inventory of raw materials at the required level
- Knowledge on new industry trends in manufacturing

### Managerial Skills

- Ability to coordinate with different departments so as to ensure adequate availability of raw materials.
- Ability to manage small level of problems like failure of machines, absenteeism of operators independently.
- Ability to meet the production targets as required by the management.

### Soft Skills

- Ability to coordinate work with his superiors and subordinates.

manager lacks knowledge and understanding of the latest technological developments made in the rubber industry in terms of machinery and raw materials

- Ability to resolve conflicts among his subordinates.

H- High; M – Medium; L- Low

### Occupation: Mixing

Following job roles are involved in mixing occupation:

- Kneader operator
- Mixing mill operator
- Helper

### Occupation: Mixing

#### Job Role: Kneader operator

**Qualification and Experience:** Minimally educated with more than 5 years of experience in rubber industry

#### Roles and Responsibilities:

- Mixing of raw materials to make rubber compound
- Instruct the helpers to enable a smooth production process
- Operation of kneader

#### Knowledge and Skill Requirement

#### Skill Gaps and Intensity level of skill gap

#### Technical skills

- Ability to identify the raw materials
- Ability to mix the raw materials as per the specified time and temperature.
- Ability to operate the kneader
- Ability to maintain adequate inflow and outflow of water in the kneader to maintain the temperature of the machine.
- Ability to mix the raw materials in the specified sequence
- Ability to prevent wastage of raw

Particulars	Micro	Small	Medium	Large
<ul style="list-style-type: none"> <li>• The operator is not able to mix the raw materials as per the provided specifications of time, temperature, proportion and sequence.</li> </ul>	M	L	L	

materials for example – place a rug below the machine so as to collect any fallen raw materials and put it back into the kneader.

- Ability to execute basic maintenance activity as required.

### Managerial skills

- Ability to instruct the helpers for cleaning, loading / unloading, etc.

### Soft Skills

- Ability to coordinate work with his superiors and subordinates.

H- High; M-Medium; L-Low

## Occupation: Mixing

**Job Role:** Mixing mill operator

**Qualification and Experience:** Minimally educated with more than 5 years of experience in rubber industry

### Roles and Responsibilities:

- Mixing of raw materials in the mixing mill to produce the output in the form of sheet
- Instruct the helpers to enable a smooth production process
- Operation of mixing mill

### Knowledge and Skill Requirement

### Skill Gaps and Intensity level of skill gap

### Technical skills

- Ability to identify the raw materials and mix the raw materials as per the specified time and temperature
- Ability to operate the mixing mill so as to produce the output in the form of a sheet.
- Ability to maintain adequate inflow and

Particulars	Micro	Small	Medium	Large
<ul style="list-style-type: none"> <li>• Inability to mix the raw materials as per the specified duration of mixing.</li> </ul>	M	L	L	

outflow of water in the mixing mill so as to maintain the temperature of the machine.

- Safety skills-Operator must be alert that his hands do not get inside the mixing mill.
- Ability to homogeneously mix the raw materials in the specified sequence
- Ability to execute basic maintenance activity as required.
- Ability to instruct the helpers for cleaning, loading / unloading, etc.

### Managerial skills

- Ability to instruct the helpers for cleaning, loading / unloading, etc.

### Soft Skills

- Ability to coordinate work with his superiors and subordinates

H- High; M-Medium; L-Low

**Occupation:** Mixing

**Job Role:** Helper

**Qualification and Experience:** Minimally educated

### Roles and Responsibilities:

- Identify raw material used for mixing
- Follow the instructions of the operator in loading / unloading of raw materials and the end product from the machines

### Knowledge and Skill Requirement

### Skill Gaps and Intensity level of skill gap

- Ability to identify the raw materials and the end products

Particulars

Micro

Small

Medium

Large

- Inadequate

L

L

L

- Ability to execute the instructions made by the mixing operators for example bringing the required raw materials to the machine.
- Knowledge of safety procedures. For example, as the helper doesn't have an understanding of the mixing machines, he shouldn't try to operate it.

### Managerial skills

- N/A

### Soft Skills

- Ability to coordinate work with his superiors

communication skills, as the helper is not able to follow the instructions of the mixing operators.

H- High; M-Medium; L-Low

## Occupation: Moulding

Following job roles are involved in moulding occupation:

- Moulding operator
- Helper

## Occupation: Moulding

### Job Role: Moulding operator

**Qualification and Experience:** Minimally educated with more than 5 years of experience in rubber industry

### Roles and Responsibilities:

- Adequate curing and moulding of rubber sheet as per the specified shape
- Operation of hydraulic process
- Meet the production targets

### Knowledge and Skill Requirement

### Skill Gaps and Intensity level of skill gap

### Technical skills:

- Ability to operate the cutting machine so

Particulars	Micro	Small	Medium	Large
	L	L	L	



as to cut the rubber sheet as per the shape of the mould.

- Ability to set the required moulds in the hydraulic press
- Ability to operate the hydraulic press as per the defined time, temperature and pressure so as to provide required curing to the rubber compound.
- Ability to place the die in the hydraulic press.
- Ability to clean the mould using a silicon emulsion or an air gun.
- Ability to visually check the curing quality of the end product.
- Ability to instruct the helpers to bring the uncured rubber sheet to the hydraulic press and carry the moulded product to the finishing section.

### Managerial skills

- Ability to instruct the helpers for cleaning, loading / unloading, etc.

### Soft Skills

- Ability to coordinate work with his superiors and subordinates

- Inability to cure the rubber compound as per the specified duration which leads to over or under curing of the rubber compound.

H- High; M-Medium; L-Low

---

**Occupation:** Moulding

**Job Role:** Helper

**Qualification and Experience:** Minimally educated

### Roles and Responsibilities:

- Follow the instructions of the operator in loading / unloading of raw materials and the end product

from the hydraulic press.

### Knowledge and Skill Requirement

- Ability to execute the instructions made by the moulding operator.
- Ability to carry the rubber sheets to the moulding operator
- Ability to carry the moulded product to the finishing section.
- Knowledge of safety procedures. For example, the helper shouldn't try to operate the hydraulic press without the supervision of moulding operator.

### Managerial skills

- N/A

### Soft Skills

- Ability to coordinate work with his superiors

### Skill Gaps and Intensity level of skill gap

Particulars	Micro	Small	Medium	Large
-------------	-------	-------	--------	-------

- |  |   |   |   |  |
|--|---|---|---|--|
| <ul style="list-style-type: none"> <li>• Inadequate communication skills to understand and execute the instructions of the moulding operator.</li> </ul> | L | L | L |  |
|--|---|---|---|--|

H- High; M-Medium; L-Low

## Occupation: Quality control/finishing

Following job roles are involved in quality control:

- Quality inspector
- Helper

## Occupation: Quality control/finishing

### Job Role: Quality inspector

**Qualification and Experience:** Graduate and minimum 1 year of experience in rubber industry

### Roles and Responsibilities:

- Check the quality of the end product as per the required specifications.

Knowledge and Skill Requirement	Skill Gaps and Intensity level of skill gap				
	Particulars	Micro	Small	Medium	Large
<b>Technical skills</b>					
<ul style="list-style-type: none"> <li>Ability to visually check for the curing quality of the finished product.</li> <li>Ability to instruct the helper so as to facilitate adequate de flashing from the end product.</li> <li>Able to test the end product in terms of tensile strength, modulus, elongation, break, tear strength and flex resistance</li> </ul>	<ul style="list-style-type: none"> <li>Inability to check the curing quality of the finished product as he is not able to distinguish between the finished product which is cured as per the specifications and the one which is not cured as per the specifications.</li> </ul>	L	L	L	
<b>Managerial skills</b>					
<ul style="list-style-type: none"> <li>Ability to instruct the helpers for cleaning, de-flashing, etc.</li> </ul>					
<b>Soft Skills</b>					
<ul style="list-style-type: none"> <li>Ability to coordinate work with his superiors and subordinates</li> </ul>					
H-High; M-Medium; L-Low					

**Occupation:** Quality control/finishing

**Job Role:** Helper

**Qualification and Experience:** Minimally educated

**Roles and Responsibilities:**

- De flashing the end product
- Loading/unloading of the end product

Knowledge and Skill Requirement	Skill Gaps and Intensity level of skill gap				
	Particulars	Micro	Small	Medium	Large
<b>Technical skills</b>					
<ul style="list-style-type: none"> <li>Ability to remove the flashes from the end product without damaging it.</li> </ul>	<ul style="list-style-type: none"> <li>Inability to completely remove flash from</li> </ul>	L	L	L	

- Ability to carry the end product from the moulding section to the quality control

### Managerial skills

- N/A

### Soft Skills

- Ability to coordinate work with his superiors

the end product.

H-High; M-Medium; L-Low

## Occupation: Packing & Dispatch

Following job roles are involved in packing and dispatch occupation:

- Helper

## Occupation: Packing and Dispatch

### Job Role: Helper

**Qualification and Experience:** Minimally educated

### Roles and Responsibilities:

- Pack the finish product
- Loading of finished product

### Knowledge and Skill Requirement

### Skill Gaps and Intensity level of skill gap

### Technical skills

- Ability to pack the finished product as required.
- Ability to load the finished product as per the specified instructions.

### Managerial skills

- N/A

### Soft Skills

- Ability to coordinate work with his superiors

Particulars	Micro	Small	Medium	Large
<ul style="list-style-type: none"> <li>• Inability to pack the end product as specified.</li> </ul>	L	L	L	

H-High; M-Medium; L-Low

Table 9: Job role wise distribution in all the units for the product segment of Auto and Cycle parts  
(Estimated)

Occupation	Job role	No of people	Occupation	Job role	No of people
<b>Mixing</b>	Kneader Operator	16	<b>Accounts</b>	Manager Accounts	4
	Mixing mill Operator	122		Accountant	8
	Supervisor	8	<b>Purchase</b>	Manager Purchase	0
	Helpers	20		Stores Assistant	0
<b>Moulding</b>	Moulding Supervisor	0	<b>Marketing</b>	Manager Marketing	0
	Cutting machine operator	81	<b>HR</b>	HR Manager	4
	Moulding Operator	276	<b>General</b>	Proprietor/MD	37
	Helpers	93		General Manager	12
<b>Finishing</b>	Finishing Supervisor	0	<b>Production</b>	Production Manager/Foreman	16
	Quality inspector	81		Shift In-charge	0
	Helper	73		Supervisor-labour/raw material	8
<b>Packaging and Dispatch</b>	Packaging and Dispatch Supervisor	0			
	Helpers	61			
<b>Testing</b>	Chemist	4			
	Quality inspector	28			
Production function					
Support function					
Management					

### Summary Sheet: Auto and Cycle Parts

Categories	Total no. of Auto and Cycle parts product manufacturing units in Punjab					45	Qualification wise distribution of human resource		
<ul style="list-style-type: none"><li>Auto parts</li><li>Cycle parts</li></ul>	Distribution of units	Micro	Small	Medium	Large	Total	Ph.D / Research Engineers BA/B.Sc/B Com Diploma Engineers /Rubber technologist ITI/Vocational Education 12th std/10th std pass Below 10th std Others (MBAs, CA, ICWA, CS, etc.) <b>Total</b>	0%	
		82%	14%	5%	0%	100%		0%	
	No. of people employed*	907	94	144	0	1145		8%	
	ManufacturingSupport							2%	
	Total no. of occupations identified		5		3			0%	
	Total no. of job roles identified		6		3			5%	
User industry	Critical job roles (in terms of skill requirement)	Mixing and moulding					84%	1%	
<ul style="list-style-type: none"><li>Auto industry</li><li>Cycle industry</li><li>Auto and cycle service industry</li></ul>									
<ul style="list-style-type: none"><li>Auto industry</li><li>Cycle industry</li><li>Auto and cycle service industry</li></ul>	Industry Suggestions <ul style="list-style-type: none"><li>Proprietor for small units require training on industry trends and global cues</li><li>Development of common testing centers for small and tiny units</li><li>Training on latest equipments like:<ul style="list-style-type: none"><li>Operation on mixing machines</li><li>Testing equipments like rheometer, viscometer, etc</li></ul></li></ul>						Function wise distribution of human resource		
								On roll	Off roll
							Core function	98%	2%
							Support function	100%	0%

\*Estimation based on sample data

### 1.3.3. Belting

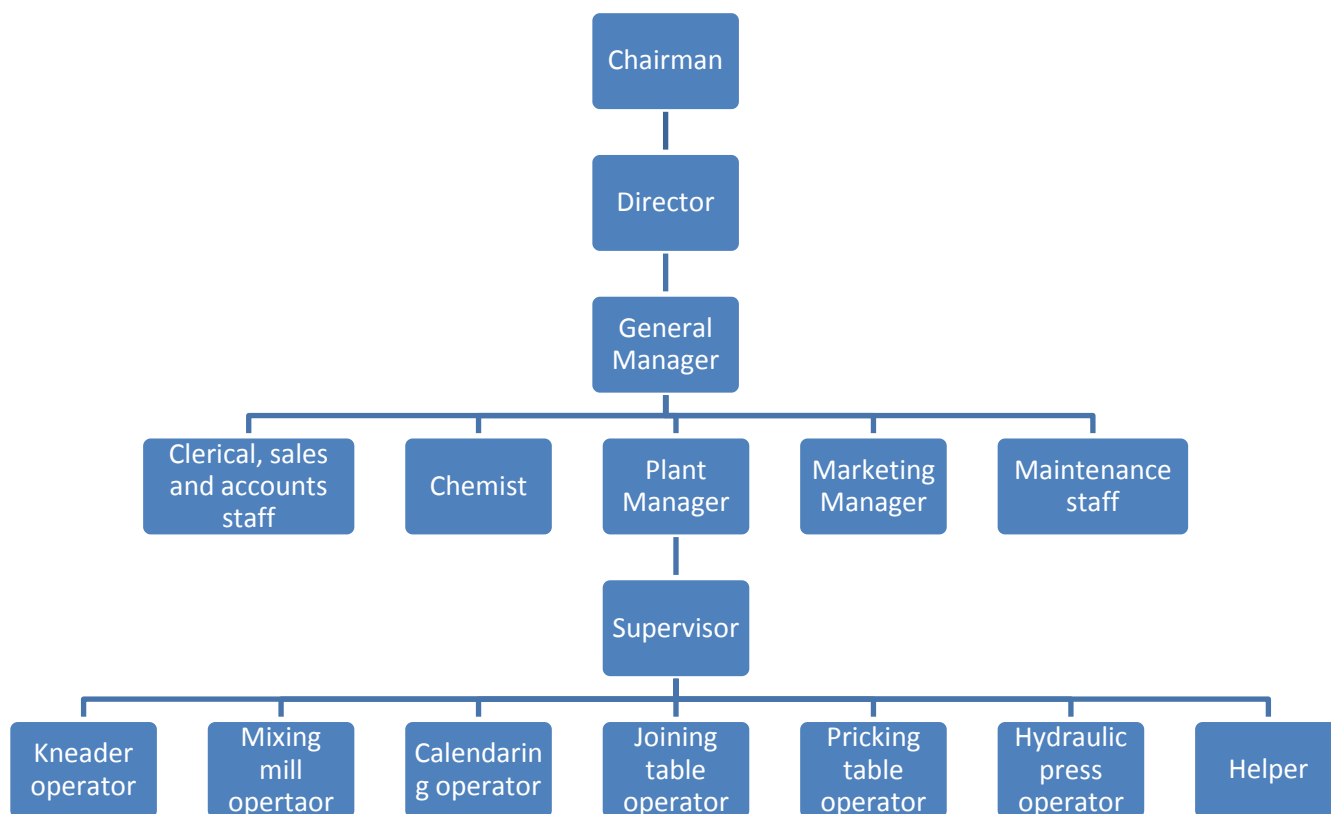
A rubber belt is a loop which is used to link two or more pulleys. The primary objective of a belt is to transmit power or goods from one point to another point. Belt is a major product segment manufactured in Punjab.

#### Types of sub product categories

- Conveyor belt
- Transmission belt
- Flat belt
- Fan Belt and V belt

#### 1.3.3.1. Organisation structure

*Figure 8: Organisation structure*



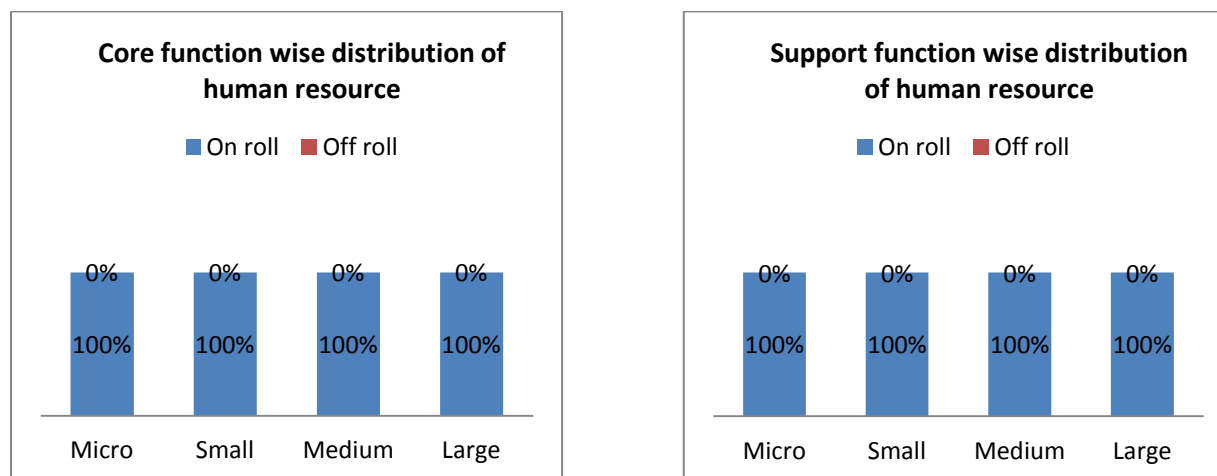
The occupation for a helper is not defined as the job which is to be executed by a helper is unskilled in nature. So, the helper would be working across different occupations depending upon the requirement of human resources in the production process.

#### Sample covered

	Micro	Small	Medium	Large	Total
No. of units	9	2	2	2	15

#### 1.3.3.2. Function wise distribution of human resource

Figure 9: Function wise distribution of human resource



#### 1.3.3.3. Job role wise distribution of human resource

Majority of the human resource deployed in belting units are under mixing mill operator, calendar operator, frame building operator, hydraulic press operator and helper.

Table 10: Job role wise distribution in the sample units for the product segment of Belting

Occupation	Job role	Number of people	Occupation	Job role	Number of people
Mixing	Kneader operator	19	Accounts	Manager Accounts	3
	Mixing mill Operator	49		Accountant	20
	Supervisor	16	Clerical	Clerks	17



Occupation	Job role	Number of people	Occupation	Job role	Number of people
	<i>Helpers</i>	263	<b>Purchase</b>	<i>Manager Purchase</i>	1
<b>Frame building</b>	<i>Operators</i>	40		<i>Stores Assistant</i>	17
	<i>Helpers</i>	0	<b>Marketing</b>	<i>Sales executive</i>	43
<b>Extrusion</b>	<i>Extrusion supervisor</i>	0		<i>Manager Marketing</i>	4
	<i>Extruder operator</i>	17	<b>HR</b>	<i>HR Manager</i>	13
	<i>Helper</i>	20		<i>HR executive</i>	4
<b>Calendering</b>	<i>Calender operator</i>	61	<b>Others</b>	<i>Equipment parts purchaser</i>	1
	<i>Helper</i>	8		<i>Banking supervisor</i>	1
<b>Joining</b>	<i>Joiner</i>	44		<i>Computer operator</i>	1
<b>Curing</b>	<i>Moulding Supervisor</i>	0			
	<i>Hydraulic press Operator</i>	71	<b>General</b>	<i>Proprietor/MD</i>	20
	<i>Helpers</i>	25		<i>General Manager</i>	6
<b>Finishing, Packaging and Dispatch</b>	<i>Supervisor</i>	1	<b>Production</b>	<i>Production Manager/Plant manger</i>	12
	<i>Finishing operator</i>	24		<i>Assistant production manager</i>	12
	<i>Packaging and dispatch operator</i>	6		<i>Supervisor</i>	10
	<i>Helpers</i>	12			
	<i>R &amp;D</i>	3			
<b>Quality check/R &amp;D</b>	<i>Quality inspection</i>	7			

Occupation	Job role	Number of people	Occupation	Job role	Number of people
Production function					
Support function					
Management					

#### 1.3.3.4. Qualification wise distribution of human resource

Table 11: Qualification wise distribution of human resource

Qualification	Micro	Small	Medium	Large
Ph.D / Research	0%	0%	0%	1%
Engineers	0%	5%	0%	1%
BA / BSc/B Com	13%	9%	19%	16%
Diploma Engineers	0%	0%	0%	0%
ITI / Vocational Education	0%	0%	0%	1%
12th std / 10th std pass	2%	4%	3%	1%
Below 10th standard	85%	82%	78%	79%
Others (specify - Such as MBAs, CA, ICWA, CS, etc.)	0%	0%	0%	1%
<b>TOTAL</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

#### 1.3.3.5. Skill gap analysis

Table 12 : Occupation wise distribution of job roles

Occupation	Production	Mixing	Calendaring	Joining and Pricking	Curing	Quality control	Packaging
Job Roles	Plant Manager	Kneader operator	Calendaring operator	Joining table operator	Hydraulic press operator	Chemist	Helper
	Supervisor	Mixing		Pricking			

Occupation	Production	Mixing	Calendaring	Joining and Pricking	Curing	Quality control	Packaging
		mill operator		table operator			
		Helper					

### Occupation: Production

Following job roles are involved in production occupation:

- Plant manager
- Supervisor

### Occupation: Production

#### Job Role: Plant manager

#### Qualification and Experience:

- Large and medium industries: Engineer with more than 20 years of experience
- Small and micro industries: 10<sup>th</sup>/12<sup>th</sup> standard with more than 15 years of experience

#### Roles and Responsibilities:

- Monitor the production process of the required end product
- Ensure that the quality of the end product is as per the requirement
- Provide the required specifications to the supervisors
- Meet the production targets as specified by the management of the company
- Delegate work to the supervisors

#### Knowledge and Skill Requirement

#### Skill Gaps and Intensity level of skill gap

#### Technical skills:

- Technical understanding of manufacturing process of different kinds of belting
- Ability to remain updated over the recent technological developments made in the

Particulars	Micro	Small	Medium	Large
▪ Lack of awareness and understanding of the latest technology used	M	L	L	L

belting market.	in rubber				
<ul style="list-style-type: none"> <li>▪ Ability to troubleshoot issues relevant to production in the plant.</li> <li>▪ Ability to provide required specifications to the machine operators in terms of time and temperature of mixing and curing, proportion of raw materials, etc.</li> </ul>	industry				
	• Inadequate troubleshooting skills	M	M	L	L
<b>Managerial Skills</b>					
<ul style="list-style-type: none"> <li>▪ Ability to supervise the production process.</li> <li>▪ Ability to delegate responsibilities to the supervisors.</li> <li>▪ Ability to maximize returns from the available resources which could be in terms of capital, human and infrastructure.</li> <li>▪ Ability to ensure smooth operations in the production process.</li> <li>▪ Ability to coordinate with different departments so as to ensure adequate availability of raw materials.</li> <li>▪ Ability to meet the production targets as required by the management.</li> </ul>					
<b>Soft Skills</b>					
<ul style="list-style-type: none"> <li>▪ Ability to communicate the requirement of resources to the management.</li> <li>▪ Ability to provide training and guidance to the supervisors.</li> <li>▪ Ability to develop and explain the plan to achieve the productions targets to his subordinates.</li> <li>▪ Ability to resolve conflicts among his</li> </ul>					

subordinates.

H- High; M – Medium; L- Low

---

**Occupation:** Production

**Job Role:** Supervisor

**Qualification and Experience:** Minimally educated/10<sup>th</sup>/12<sup>th</sup> standard with more than 10 years of experience

**Roles and Responsibilities:**

- Meet the production targets for the assigned process.
- Provide required specifications to the machine operators in terms of time and temperature of mixing and curing,
- Manage issues like absenteeism of workers and failure of machines
- Mentor machine operators and helpers

**Knowledge and Skill Requirement**

**Skill Gaps and Intensity level of skill gap**

Particulars	Micro	Small	Medium	Large
-------------	-------	-------	--------	-------

### Technical skills:

- Technical understanding of
  - Manufacturing process of belting
  - Chemical properties of raw materials
  - Operation of different machines viz. mixing mill, kneader, calendar, hydraulic press, etc.
- Ability to troubleshoot issues in the operation of machines as and when required
- Ability to provide required specifications to the machine operators in terms of time and temperature of mixing and curing, proportion of raw materials, etc.
- Ability to inspect whether the end product from the machine is as per the specifications provided.

### Managerial Skills

- Ability to independently solve basic problems like failure of machines, absenteeism of operators
- Ability to supervise the machine operators
- Ability to meet the production targets of the assigned process

### Soft Skills

- Inadequate understanding of the chemical properties of the raw materials. NA L L L

- Ability to provide training and guidance to the machine operators and helpers
- Ability to communicate unresolved issues to the plant manager.
- Ability to resolve conflicts among his subordinates.

H- High; M – Medium; L- Low

### Occupation: Mixing

Following job roles are involved in mixing occupation:

- Kneader operator
- Mixing mill operator
- Helper

### Occupation: Mixing

**Job Role:** Kneader operator

**Qualification and Experience:** Minimally educated with more than 5 years of experience in rubber industry

#### Roles and Responsibilities:

- Mixing of raw materials in the kneader to make rubber compound
- Instruct the helpers to enable a smooth production process
- Operation of machine

#### Knowledge and Skill Requirement

#### Skill Gaps and Intensity level of skill gap

#### Technical skills

- Ability to operate the kneader machine
- Before starting the mixing process the operator must ensure that all the required raw materials for the mixing process are available.

Particulars	Micro	Small	Medium	Large
<ul style="list-style-type: none"> <li>▪ The operator is not able to mix the raw materials as per the defined</li> </ul>	M	L	L	L

- Ability to mix the raw materials as per the specified duration.
- Ensure that the kneader machine is used at the optimum level.
- Ability to weigh the raw materials as per the requirement.
- Ability to maintain adequate inflow and outflow of water in the kneader so as to maintain the temperature of the machine.
- Ability to mix the raw materials as per the required sequence.
- Ability to execute basic maintenance activity as required for example by regular oiling of the machine.
- Ability to instruct the helpers for cleaning, loading / unloading, etc.

### Managerial skills

- Ability to instruct the helpers for cleaning, loading / unloading, etc.

### Soft Skills

- Ability to coordinate work with his superiors and subordinates

sequence,  
temperature and  
duration.

M

L

L

L

- Inadequate communication skills. For example, if the kneader machine is making an unusual noise, there is a possibility of some fault in the machine. In this scenario, the operator may completely ignore this issue and won't report to the supervisor. This could cause severe damage to the kneader machine.

H- High; M-Medium; L-Low

**Occupation:** Mixing

**Job Role:** Mixing mill operator

**Qualification and Experience:** Minimally educated with more than 5 years of experience in rubber industry

**Roles and Responsibilities:**



- Mixing of raw materials in the mixing mill to produce the output in the form of sheet
- Instruct the helpers to enable a smooth production process
- Operation of mixing mill

### Knowledge and Skill Requirement

### Skill Gaps and Intensity level of skill gap

#### Technical skills

- Ability to identify the raw materials and mix them as per the specified sequence, time and temperature
- Ability to operate the weighing machine so as to weigh the raw materials as per the requirement in the mixing process.
- Ability to set the required distance between the rollers of the mixing mill so as to produce the sheet as per the required width.
- Must be able to ensure that there is no oil leakage and the electrical wiring is intact.
- Ability to operate the mixing mill so as to produce the output in the form of a sheet.
- Ability to maintain adequate inflow and outflow of water in the mixing mill so as to maintain the temperature of the machine.
- Safety skills-Operator must be alert that his hands do not get between the rollers of the mixing mill.
- Ability to execute basic maintenance activity as required.
- Ability to instruct the helpers for cleaning, loading / unloading, etc.

#### Particulars

#### Micro

#### Small

#### Medium

#### Large

- Inability to mix the raw materials as per the specified time, temperature and sequence as provided by the supervisor.

### Managerial skills

- Ability to instruct the helpers for cleaning, loading / unloading, etc.

### Soft Skills

- Ability to coordinate work with his superiors and subordinates

H- High; M-Medium; L-Low

### Occupation: Mixing

**Job Role:** Helper

**Qualification and Experience:** Minimally educated

### Roles and Responsibilities:

- Identify raw material used for mixing
- Loading unloading of raw materials and the end product from the machines

### Knowledge and Skill Requirement

### Skill Gaps and Intensity level of skill gap

#### Technical skills

- Ability to identify the raw materials and the end product produced from each of the machines used in the manufacturing process.
- Ability to carry the raw material to the required machine as specified by the operator.
- Comply with the safety procedures.

#### Managerial skills

NA

#### Soft skills

NA

Particulars	Micro	Small	Medium	Large
<ul style="list-style-type: none"> <li>• Inadequate knowledge of safety procedures. For example, the helper may try to operate the mixing machines which could lead to an accident as his hands may get inside the rollers of the mixing mil</li> </ul>	L	L	L	L

H- High; M-Medium; L-Low

### Occupation: Calendaring operator

Following job roles are involved in moulding occupation:

- Calendaring operator

**Occupation:** Calendaring

**Job Role:** Calendaring operator

**Qualification and Experience:** Minimally educated with more than 5 years of experience in rubber industry

**Roles and Responsibilities:**

- Produce homogeneously rubberised ply.
- Operate the calendaring machine

### Knowledge and Skill Requirement

### Skill Gaps and Intensity level of skill gap

**Technical skills:**

- Ability to operate the machine.
- Ability to maintain the distance between the rolls (nip) of calendaring machine as specified so as to produce an evenly rubberized ply.
- Should be able to manufacture the required product as per the following specifications and its different parameters:
  - Belt specifications- Belt width, number of ply, rating, grade, cover (top, bottom), edge and length.
  - Belt constant- Raw width, carcass, fold and carcass build
  - Process details- Mould gap, gauge, steam press, pump, hydraulic press (Kg/cm square and other.
  - Fabric details- fabric code, roll number, length, S/C component code, standard quantity and cured

Particulars	Micro	Small	Medium	Large
.				
• Inability to adequately follow the required specifications.	L	L	L	L

fabric details.

- Cover details- component code, standard quantity, actual quantity, top cover and belt cover
- Ability to maintain the inventory of the required quantity of ply.
- Ability to check whether the ply is properly rubberised or not.
- Safety skills-Operator must be alert that his hands do not get between the rollers of the mixing mill.
- Ability to execute basic maintenance activity as required.

### Managerial skills

- Ability to instruct the helpers for cleaning, loading / unloading, etc.

### Soft Skills

- Ability to coordinate work with his superiors and subordinates

H- High; M-Medium; L-Low

## Occupation: Joining and Pricking

Following job roles are involved in mixing occupation:

- Joining table operator
- Pricking table operator

## Occupation: Joining and Pricking

**Job Role:** Joining table operator

**Qualification and Experience:** Minimally educated/10<sup>th</sup> standard with more than 5 years of experience

### Roles and Responsibilities:

- Join the rubber sheets and rubberized plies as per the specification of the required quality and type

of belt.					
Knowledge and Skill Requirement	Skill Gaps and Intensity level of skill gap				
	Particulars	Micro	Small	Medium	Large
<b>Technical skills</b>					
<ul style="list-style-type: none"><li>▪ Ability to place the rubber plies and rubber sheet evenly over each other.</li><li>▪ Ability to use the thinner solution to remove the plies from each other if they haven't joined evenly.</li><li>▪ Ability to roll the uncured belt over cotton cloth.</li><li>▪ Ability to join the required number of plies and rubber sheet</li></ul>	<ul style="list-style-type: none"><li>• Inability to evenly join the rubber plies</li></ul>	L	L	L	L
<b>Managerial skills</b>					
<ul style="list-style-type: none"><li>▪ Ability to instruct the helpers for cleaning, loading / unloading, etc.</li></ul>					
<b>Soft Skills</b>					
<ul style="list-style-type: none"><li>▪ Ability to coordinate work with his superiors and subordinates</li></ul>					
H- High; M-Medium; L-Low					

**Occupation:** Joining and Pricking

**Job Role:** Pricking table operator

**Qualification and Experience:** Minimally educated/10<sup>th</sup> standard with more than 5 years of experience

**Roles and Responsibilities:**

Operate the pricking table so as to remove entrapped air from within the belt.

Knowledge and Skill Requirement		Skill Gaps and Intensity level of skill gap				
		Particulars	Micro	Small	Medium	Large
Technical skills						
▪ Ability to adequately hold the belt so that it properly passes between the		• Inability to	L	L	L	L

<p>needed roller of the pricking table and the table.</p> <ul style="list-style-type: none"> <li>Ability to check if the needles are adequately pricking the belt so as to remove any entrapped air from within the belt.</li> </ul> <p><b>Managerial skills</b></p> <ul style="list-style-type: none"> <li>Ability to instruct the helpers for cleaning, loading / unloading, etc.</li> </ul> <p><b>Soft Skills</b></p> <ul style="list-style-type: none"> <li>Ability to coordinate work with his superiors and subordinates</li> </ul>	<p>ensure the absence of any entrapped air within the belt.</p>
H- High; M-Medium; L-Low	

### Occupation: Curing

Following job roles are involved in moulding occupation:

- Hydraulic press operator

### Occupation: Curing

**Job Role:** Hydraulic press operator

**Qualification and Experience:** Minimally educated/10<sup>th</sup> standard with more than 5 years of experience

#### Roles and Responsibilities:

- Adequate curing of belt
- Cleaning of mould
- Operation of hydraulic press

#### Knowledge and Skill Requirement

#### Skill Gaps and Intensity level of skill gap

	Particulars	Micro	Small	Medium	Large
<b>Technical skills:</b>					
<ul style="list-style-type: none"> <li>Ability to adequately use the air gun to clean the die.</li> <li>Ability to pass the uncured belt through</li> </ul>	<ul style="list-style-type: none"> <li>Inability to cure the rubberized ply as per the</li> </ul>	L	L	L	L

<p>the hydraulic press.</p> <ul style="list-style-type: none"><li>▪ Ability to cure the rubberized ply in the hydraulic press as per the defined duration, temperature and pressure.</li><li>▪ Ability to operate the hydraulic press.</li><li>▪ Ability to execute basic maintenance activity as required.</li><li>▪ Ability to visually check the curing quality of the end product. If the belt is evenly rubberized than the press operator should be able to add rubber strips, wherever required and pass it again through the hydraulic press.</li><li>▪ Ability to remove flashes from the belt.</li></ul> <p><b>Managerial skills</b></p> <ul style="list-style-type: none"><li>▪ Ability to instruct the helpers for cleaning, loading / unloading, etc.</li></ul> <p><b>Soft Skills</b></p> <ul style="list-style-type: none"><li>▪ Ability to coordinate work with his superiors and subordinates</li></ul>	<p>specified duration which could result to over curing or under curing of rubberized ply.</p>
H- High; M-Medium; L-Low	

### Occupation: Quality control

Following job roles are involved in packing and dispatch occupation:

- Chemist

---

### Occupation: Quality control

**Job Role:** Chemist

**Qualification and Experience:** Rubber technologist

---

**Roles and Responsibilities:**

- Develop the chemical formulation as per the specifications of the end product.
- Test the end product to check if its in line with the required specifications.

**Knowledge and Skill Requirement**

**Skill Gaps and Intensity level of skill gap**

**Technical skills**

- Should be able to develop the end product as per the defined standards (IS, ISO, Australian, etc.)
- Ability to develop chemical formulation for the specifications as required by the customer.
- Should be able to provide specification to the machine operators in terms of different parameters like time, temperature, pressure, weight etc.
- Capable to conduct various tests as per the grade (M-24, FR, SHRT-1, SHRT-2, Hygienic grade ,etc) of the end product:
  - Tear resistance test
  - Flame test
  - Drum friction test
  - Specific gravity test
  - Ozone test
  - Ageing test
  - Full strength test
  - Adhesion test
  - Rubber cover test
  - Abrasion test

Particulars	Micro	Small	Medium	Large
-------------	-------	-------	--------	-------

- |  |   |   |   |   |
|--|---|---|---|---|
| <ul style="list-style-type: none"> <li>• Inability to develop the precise chemical formulation for the end product.</li> </ul> | M | L | L | L |
|--|---|---|---|---|

**Managerial skills**

NA

**Soft skills**



- Ability to communicate any deviation in the result of the tests to the management.

H-High; M-Medium; L-Low

### Occupation: Packing

Following job roles are involved in packing and dispatch occupation:

- Helper

### Occupation: Packing

#### Job Role: Helper

**Qualification and Experience:** Minimally educated

#### Roles and Responsibilities:

- Pack the finish product
- Loading of finished product

#### Knowledge and Skill Requirement

#### Skill Gaps and Intensity level of skill gap

#### Technical skills

- Ability to pack the finished end product in plastic bags or as required.
- Ability to load the finished product as per the specified instructions.

#### Managerial skills

NA

#### Soft skills

NA

H-High; M-Medium; L-Low

Particulars	Micro	Small	Medium	Large
<ul style="list-style-type: none"> <li>• Inadequate communication skills: Inability to understand the instructions of his supervisors.</li> </ul>	L	L	L	L

Table 13: Job role wise distribution in all the units for the product segment of Beltings (Estimated)

Occupation	Job role	Number of people	Occupation	Job role	Number of people
Mixing	Kneader operator	32	Accounts	Manager Accounts	5
	Mixing mill Operator	82		Accountant	34
	Supervisor	27	Clerical	Clerks	28
	Helpers	441	Purchase	Manager Purchase	2
Frame building	Operators	67		Stores Assistant	28
	Helpers	0		Sales executive	72
Extrusion	Extrusion supervisor	0		Marketing	Manager Marketing
	Extruder operator	28	HR	HR Manager	22
	Helper	34		HR executive	7
Calendering	Calender operator	102	Others	Equipment parts purchaser	2
	Helper	13		Banking supervisor	2
Joining	Joiner	74		Computer operator	2
Curing	Moulding Supervisor	0			0
	Hydraulic press Operator	119	General	Proprietor/MD	34
	Helpers	42		General Manager	10
Finishing, Packaging and Dispatch	Supervisor	2	Production	Production Manager/Plant manger	20
	Finishing operator	40		Assistant production manager	20
	Packaging and dispatch operator	10		Supervisor	17
	Helpers	20			
Quality check/R &D	R &D	5			
	Quality inspection	12			
Production function					
Support function					
Management					

### Summary Sheet: Belting

Categories	Total no. of belting product manufacturing units in Punjab					40	Qualification wise distribution of human resource		
<ul style="list-style-type: none"><li>• Conveyor belt</li><li>• Transmission belt</li><li>• Flat belt</li><li>• Fan Belt and V belt</li></ul>	Distribution of units	Micro	Small	Medium	Large	Total	Ph.D / Research Engineers BA/B.Sc/B Com Diploma Engineers /Rubber technologist ITI/Vocational Education 12th std/10th std pass Below 10th std Others (MBAs, CA, ICWA, CS, etc.) Total	0%	
		68%	15%	13%	5%	100%		2%	
	No. of people employed*	486	86	480	698	1751		14%	
	ManufacturingSupport							0%	
	Total no. of occupations identified		8		6	0%			
	Total no. of job roles identified		17		12	2%			
User industry	Critical job roles (in terms of skill requirement)	Mixing operator, calendaring operator and hydraulic press operator					81%		
<ul style="list-style-type: none"><li>▪ Manufacturing industry</li><li>▪ Power sector</li></ul>							0%		
	Industry Suggestions <ul style="list-style-type: none"><li>▪ Proprietor for small units require training on industry trends and global cues</li><li>▪ Development of common testing centers for small and tiny units</li><li>▪ Training on latest equipments like operation on latest mixing machines</li></ul>					Function wise distribution of human resource			
							On roll	Off roll	
						Core function	100%	0%	
						Support function	100%	0%	

\*Estimation based on sample data

### 1.3.4. Dipped Goods

Dipped rubber goods are thin-walled products which are manufactured by dipping a form in a suspension of rubber (latex), followed by drying and vulcanizing the resulting film.

#### Types of sub product categories

1. **Gloves** - A Glove is generally a garment covering the whole hand. Gloves protect and comfort hands against cold or heat, damage by friction, abrasion or chemicals, and disease; or in turn to provide a guard for what a bare hand should not touch. Latex disposable gloves are often worn by health care professionals as hygiene and contamination protection measures.

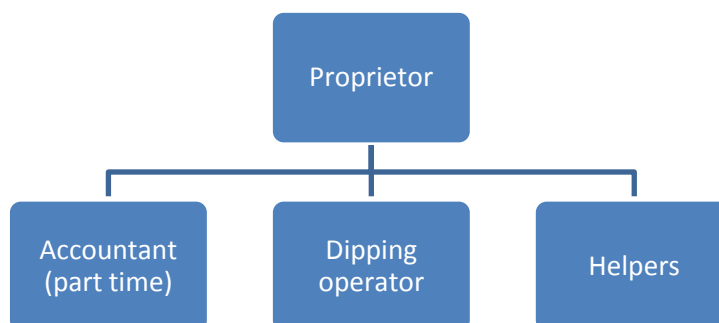
Types of Gloves:

- a. Examination Gloves
  - b. Household Gloves
  - c. Industrial Gloves
  - d. Surgical Gloves
2. **Rubber bands** - A rubber band, is a short length of rubber and latex, elastic in nature and formed in the shape of a circle which is commonly used to hold multiple objects together
  3. **Balloons** - A balloon is an inflatable flexible bag filled with a gas, such as helium, hydrogen, etc. Modern balloons can be made from materials such as rubber, latex or even nylon fabric. Balloons can be used for simple decorative purposes or for conducting experiments, meteorology, etc.
  4. **Condoms** – A condom is a flexible sheath, usually made of thin rubber or latex, designed to cover the penis during sexual intercourse for contraceptive purposes or as a means of preventing sexually transmitted diseases
  5. **Finger Stalls** - is a supply used to cover one or more fingers in situations where a full glove is unnecessary

The dipped goods segment forms a very minor product segment in Punjab.

#### 1.3.4.1. Organization structure

Figure 10: Organisation structure



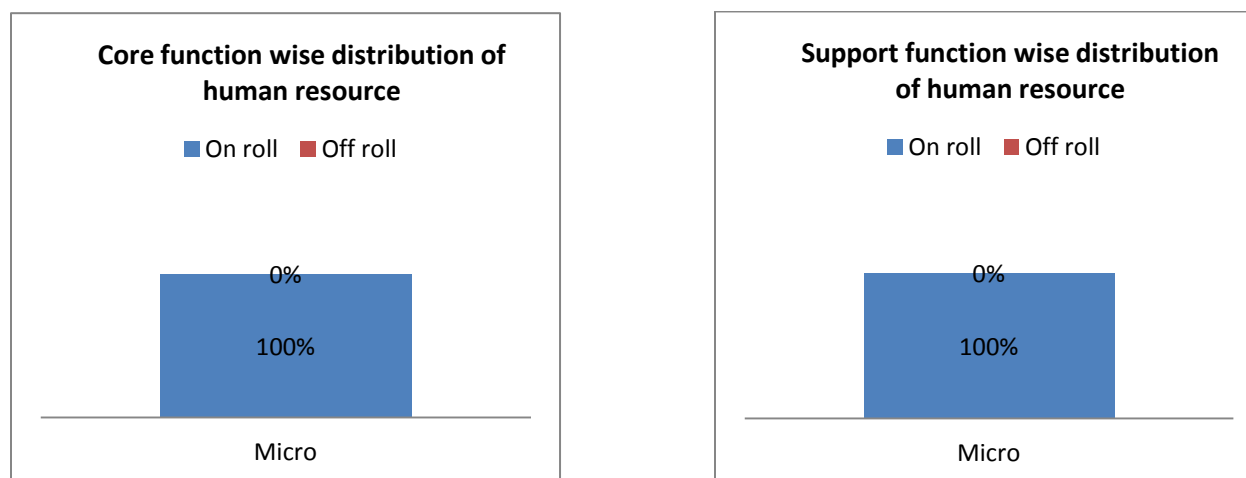
Note: The activities of the human resource function and other support function is executed by the Proprietor. Helpers work across various occupations in the production as per the requirement.

#### Sample covered

	Micro	Small	Medium	Large	Total
No. of units	3	0	0	0	3

#### 1.3.4.2. Function wise distribution of human resource

Figure 11: Function wise distribution of human resource



### 1.3.4.3. Job role wise distribution of human resource

The manufacturing of dipped goods is a simple process and not many job roles are involved. The two major job roles in the adhesive segment are dipping operator and compounding operator.

Table 14: Job role wise distribution in the sample units for the product segment of Dipped Goods

Occupation	Job role	Number of people	Occupation	Job role	Number of people
Compounding	Compounding Supervisor	0	Accounts	Manager Accounts	0
	Compounding Operator	3		Accountant	0
	Helpers	0	Purchase	Manager Purchase	0
Dipping	Dipping Operators	5		Stores Assistant	0
	Helpers	0	Marketing	Manager Marketing	0
Drying, stripping and packing	Helpers	12	HR	HR Manager	0
			General	Proprietor/MD	4
				General Manager	0
			Production	Production Manager	0
				Shift In-charge	0
Production function					
Support function					
Management					

#### 1.3.4.4. Qualification wise distribution of human resource

Table 15: Qualification wise distribution of human resource

Qualification	Micro
Ph.D / Research	0%
Engineers	0%
BA / BSc/B Com	13%
Diploma Engineers	0%
ITI / Vocational Education	0%
12th std / 10th std pass	6%
Below 10th standard	78%
Others (specify - Such as MBAs, CA, ICWA, CS, etc.)	3%
<b>TOTAL</b>	<b>100%</b>

#### 1.3.4.5. Skill gap analysis

Table 16: Occupation wise distribution of job roles

Occupation	Dipping/Compounding	Packaging
Job Roles	Dipping operator	Helper

#### Occupation: Mixing

Following job roles are involved in mixing occupation:

- Dipping/compounding operator

#### Occupation: Dipping

**Job Role:** Dipping/compounding operator

**Qualification and Experience:** Minimally educated with over 5 years of experience

#### Roles and Responsibilities:

- Supervision of the production process.

- Mixing the raw materials in the drum
- Dip the mould in the latex solution as per the required specifications.

Knowledge and Skill Requirement	Skill Gaps and Intensity level of skill gap				
	Particulars	Micro	Small	Medium	Large
<b>Technical Skills</b>					
<ul style="list-style-type: none"> <li>▪ Ability to homogeneously mix latex and other chemicals.</li> <li>▪ Ability to mix the raw materials as per the defined proportion.</li> <li>▪ Ability to add the required amount of fillers as per the customer's requirement.</li> <li>▪ Ability to weigh the required raw materials as specified</li> <li>▪ Ability to dip the frame in the calcium chloride solution and latex solution as per the specified duration.</li> <li>▪ Ability to dip the frame in the latex solution as per the required duration.</li> <li>▪ Ability to instruct the helpers to strip the gloves from the mould after the specified duration.</li> </ul>	<ul style="list-style-type: none"> <li>• Inadequate understanding about the chemical properties of the fillers.</li> </ul>	M	NA	NA	NA
<b>Managerial skills</b>					
NA					
<b>Soft skills</b>					
NA					
H- High; M-Medium; L-Low					

### Occupation: Packaging

Following job roles are involved in moulding occupation:

- Helper

### Occupation: Packaging



**Job Role:** Helper

**Qualification and Experience:** Minimally educated

**Roles and Responsibilities:**

- Strip the finished product from the mould.
- Loading/ unloading of the end product.

Knowledge and Skill Requirement		Skill Gaps and Intensity level of skill gap				
Technical skills		Particulars	Micro	Small	Medium	Large
<ul style="list-style-type: none"> <li>▪ Ability to adequately strip the end product from the mould without causing any damage to the end product.</li> <li>▪ Ability to load/unload the end product as well as raw materials as per the instructions of the operator.</li> </ul>		<ul style="list-style-type: none"> <li>• Inability to follow the instructions of the operator. For example, they may strip the finished product from the frame before the specified duration.</li> </ul>	L	NA	NA	NA
<b>Managerial skills</b>	NA					
<b>Soft skills</b>	NA					
H- High; M-Medium; L-Low						

Table 17: Job role wise distribution in all the units for the product segment of Dipped Goods (Estimated)

Occupation	Job role	Number of people	Occupation	Job role	Number of people
<b>Compoundi ng</b>	Compounding Supervisor	0	<b>Accounts</b>	Manager Accounts	0
	Compounding Operator	3		Accountant	0
	Helpers	0	<b>Purchase</b>	Manager Purchase	0
<b>Dipping</b>	Dipping Operators	5		Stores Assistant	0
	Helpers	0	<b>Marketing</b>	Manager Marketing	0
<b>Drying,</b>	Helpers	12	<b>HR</b>	HR Manager	0

Occupation	Job role	Number of people	Occupation	Job role	Number of people
stripping and packing					
			General	Proprietor/MD	4
				General Manager	0
			Production	Production Manager	0
				Shift In-charge	0
Production function					
Support function					
Management					

## Summary Sheet: Dipped goods

Categories	Total no. of Dipped goods manufacturing units in Punjab					4	Qualification wise distribution of human resource				
<ul style="list-style-type: none"><li>Gloves</li><li>Rubber bands</li><li>Balloons</li><li>Condoms</li><li>Finger stalls</li></ul>	Distribution of units	Micro	Small	Medium	Large	Total	Ph.D / Research  Engineers  BA/B.Sc/B Com Diploma Engineers /Rubber technologist ITI/Vocational Education 12th std/10th std pass Below 10th std Others (MBAs, CA, ICWA, CS, etc.) <b>Total</b>	0%			
		100%	0%	0%	0%	100%		0%			
	No. of people employed*	29	0	0	0	29		13%			
	Manufacturing					Support		0%			
	Total no. of occupations identified		2		0	0%					
	Total no. of job roles identified		2		0	6%					
	User industry	Critical job roles (in terms of skill requirement)	Dipping and compounding operator					79%			
<ul style="list-style-type: none"><li>Manufacturing industry</li></ul>	3%										
	Function wise distribution of human resource										
								On roll	Off roll		
	Core function							100%	0%		
	Support function	100%	0%								
		Industry Suggestions <ul style="list-style-type: none"><li>The owner of small units requires awareness of the latest machinery available in the market and understanding of chemical properties so as to develop the required formulation.</li></ul>									

\*Estimation based on sample data

### 1.3.5. Foam Products

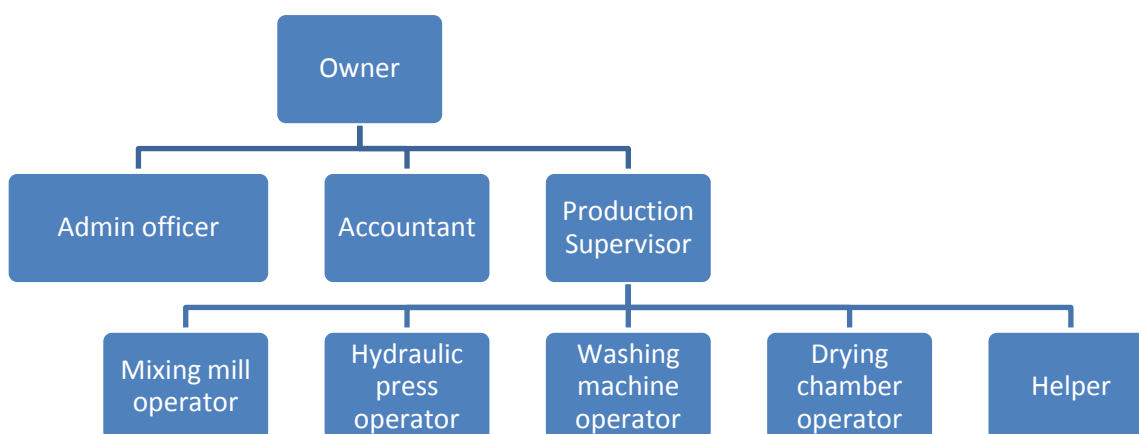
Foam is a lightweight and spongy rubber which provides a cushioning effect. It is used in mattresses, upholstery, insulation, etc. Foam is one of the minor categories of Punjab.

#### Types of sub product categories

- Latex rubber foam
- Rubberized coir foam

#### 1.3.5.1. Organization structure

*Figure 12: Organisation structure*



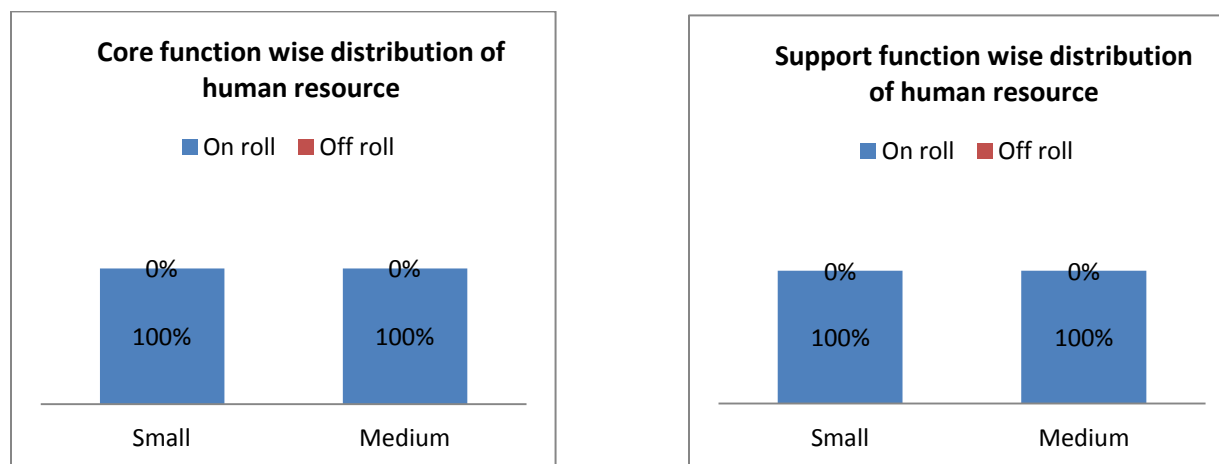
Note: The activities of the human resource function and other support function is executed by the Proprietor. Helpers work across various occupations in the production as per the requirement. In a small sized company, the role of washing machine and drying chamber operation is done by the same employee.

#### Sample covered

	Micro	Small	Medium	Large	Total
No. of units	0	1	1	0	2

### 1.3.5.2. Function wise distribution of human resource

Figure 13: Function wise distribution of human resource



### 1.3.5.3. Job role wise distribution of human resource

The manufacturing of adhesive is a simple process and not many job role is involved. The two major job roles in the foam segment are mixing mill operator and hydraulic press operator.

Table 18 Job role wise distribution in the sample units for the product segment of Foam products

Occupation	Job role	Number of people	Occupation	Job role	Number of people
Mixing	Kneader Operator	0	Accounts	Manager Accounts	0
	Mixing mill Operator	3		Accountant	1
	Helpers	0	Purchase	Manager Purchase	0
Moulding	Moulding Supervisor	0		Stores Assistant	0
	Moulding Operator	2	Marketing	Manager Marketing	1
	Helpers	4	HR	HR Manager	0
Finishing/Cutting	Finishing	0	General	Proprietor/MD	4

Occupation	Job role	Number of people	Occupation	Job role	Number of people
	<i>Supervisor</i>				
	<i>Finishing/ Washing / Drying chamber operator</i>	5		<i>General Manager</i>	0
	<i>Helper</i>	0		<i>Production Manager/Fore man</i>	2
<b>Packaging and Dispatch</b>	<i>Packaging and Dispatch Supervisor</i>	1	<b>Production</b>	<i>Shift In-charge</i>	0
	<i>Helpers</i>	0		<i>Supervisor- labour/raw material</i>	0
<b>Testing</b>	<i>Chemist</i>	0			
	<i>Quality inspector</i>	0			
Production function					
Support function					
Management					

#### 1.3.5.4. Qualification wise distribution of human resource

Table 19: Qualification wise distribution of human resource

Qualification	Small	Medium
<b>Ph.D / Research</b>	0%	0%
<b>Engineers</b>	7%	22%
<b>BA / BSc/B Com</b>	0%	0%
<b>Diploma Engineers</b>	0%	0%

ITI / Vocational Education	14%	11%
12th std / 10th std pass	79%	67%
Below 10th standard	0%	0%
Others (specify - Such as MBAs, CA, ICWA, CS, etc.)	0%	0%
<b>TOTAL</b>	<b>100%</b>	

### 1.3.5.5. Skill gap analysis

Table: Occupation wise distribution of job roles

Occupation	Production	Mixing	Curing/Moulding	Finishing	Packing
Job Roles	Supervisor	Mixing operator	Hydraulic press operator	Washing machine operator Drying chamber operator	Helper

**Occupation:** Production

**Job Role:** Supervisor

**Qualification and Experience:** Below 10<sup>th</sup> standard with more than 10 years of experience.

#### Roles and Responsibilities:

- Monitor and manage the complete production process
- Meet the production targets
- Ensure that the quality of the product is as per the requirement
- Strategize for the requirement of human resources and raw material

#### Knowledge and Skill Requirement

#### Skill Gaps and Intensity level of skill gap

#### Technical skills:

- Ability to understand the complete process of output at each and every stage of the production process.
- Ability to ensure the quality of the end

Particulars	Micro	Small	Medium	Large
• Lack of understanding of the role and	NA	L	L	NA

<p>product</p> <ul style="list-style-type: none"> <li>▪ Ability to manage the issues related to the production process.</li> <li>▪ Ability to develop an efficient production plan so as to meet the required production targets.</li> <li>▪ Understanding of the chemical properties of the raw materials and their role in the chemical formulation.</li> <li>▪ Must possess knowledge of the basic operation of the machines used in the manufacturing process.</li> </ul> <p><b>Managerial skills</b></p> <ul style="list-style-type: none"> <li>▪ Meet the targets and should be able to manage a team of people to get the work done</li> <li>▪ Develop the best talent pool of shop floor workforce</li> <li>▪ Ability to perform crisis management.</li> <li>▪ Ability to maintain discipline among his subordinates</li> <li>▪ Ability to maximize the returns from the available resources i.e. human and infrastructure</li> </ul> <p><b>Soft skills</b></p> <ul style="list-style-type: none"> <li>▪ Ability to resolve conflicts of his subordinates and communicate the unresolved issues to the management.</li> <li>▪ Should possess following skills: teamwork, communication skills, leadership skills</li> </ul>	<p>chemical</p> <p>properties of the raw materials used in the manufacturing process of foam.</p>
<p>H- High; M – Medium; L- Low</p>	



### Occupation: Mixing

Following job roles are involved in mixing occupation:

- Mixing mill operator

### Occupation: Mixing

#### Job Role: Mixing mill operator

**Qualification and Experience:** Below 10<sup>th</sup> standard with more than 5 years of experience

#### Roles and Responsibilities:

- Homogeneous mixing of raw materials in the mixing mill
- Produce the output in the form of sheet
- Operation of mixing mill

#### Knowledge and Skill Requirement

#### Skill Gaps and Intensity level of skill gap

#### Technical skills

- Ability to identify the raw materials
- Ability to mix the raw materials as per the specified time.
- Ability to homogeneously mix the raw materials as per the specified sequence
- Ability to produce the output in the form of a sheet which has the specified width. The specified width can be obtained by keeping an optimum distance between the rollers of the mixing mill.
- Ability to minimize the wastage of raw materials by adequately feeding the raw materials into the mixing mill
- Ability to maintain adequate inflow and outflow of water in the mixing mill so as to maintain the temperature of the machine.

Particulars	Micro	Small	Medium	Large
<ul style="list-style-type: none"> <li>• Inadequate skills in mixing the raw materials as per the required specifications i.e. duration, width and temperature</li> </ul>	NA	L	L	NA

- Safety skills-Operator must be alert that his hands do not get inside the mixing mill.
- Ability to execute basic maintenance activity as required.

### Managerial skills

- NA

### Soft skills

- Communication skills: if there is a requirement of raw materials, the operator should be able to convey it to the supervisor.

H- High; M-Medium; L-Low

## Occupation: Curing/Moulding

Following job roles are involved in moulding occupation:

- Hydraulic press operator

## Occupation: Curing/Moulding

### Job Role: Hydraulic press operator

**Qualification and Experience:** Below 10<sup>th</sup> standard with more than 5 years of experience

### Roles and Responsibilities:

- Adequate operation of hydraulic press so as to ensure optimum curing of rubber compound.

### Knowledge and Skill Requirement

### Skill Gaps and Intensity level of skill gap

### Technical skills:

- Ability to place the required quantity of the uncured rubber compound into the hydraulic press.
- Ability to adequately operate the

Particulars	Micro	Small	Medium	Large
• Inability to mould the rubber compound as per the required	NA	L	L	NA

<p>hydraulic press so as to mould the rubber compound as per the defined duration, temperature and pressure.</p> <ul style="list-style-type: none"> <li>▪ Ability to execute basic maintenance activity as required.</li> <li>▪ Ability to visually check the curing quality of the end product.</li> </ul> <p><b>Managerial skills</b></p> <ul style="list-style-type: none"> <li>▪ NA</li> </ul> <p><b>Soft skills</b></p> <ul style="list-style-type: none"> <li>▪ Ability to communicate any issue/fault in the moulding process to the supervisor.</li> </ul>	<p>specifications, for example the quantity of the rubber compound in the mould may not be as per the specifications.</p>
H- High; M-Medium; L-Low	

### Occupation: Finishing

Following job roles are involved in packing and dispatch occupation:

- Washing machine operator
- Drying chamber operator

### Occupation: Finishing

#### Job Role: Washing machine operator

**Qualification and Experience:** Below 10<sup>th</sup> standard with more than 5 years of experience

#### Roles and Responsibilities:

- Operation of the washing machine
- Ensure that the foam is free from all the unused chemicals.

#### Knowledge and Skill Requirement

#### Skill Gaps and Intensity level of skill gap

Technical skills	Particulars	Skill Gaps and Intensity level of skill gap			
		Micro	Small	Medium	Large
<ul style="list-style-type: none"> <li>▪ Ability to operate the washing machine so as to remove all the unused chemicals from the foam.</li> </ul>	<ul style="list-style-type: none"> <li>• Inability to adequately check the absence of</li> </ul>	NA	L	L	NA

- Ability to ensure that the foam is free from all the unused chemicals by performing a manual check, through hands, for the softness of the end product.
- The operator should wear gloves to perform the test as the foam will come in contact with the dirt on the operator's hands and the presence of dirt in the foam would decrease the quality of the foam.
- Should maintain cleanliness near the washing machine.

unused chemicals in the foam.

### Managerial skills

- NA

### Soft skills

- Ability to communicate any issue/fault in the washing process to the supervisor.

H-High; M-Medium; L-Low

## Occupation: Finishing

### Job Role: Drying chamber operator

**Qualification and Experience:** Below 10<sup>th</sup> standard with more than 5 years of experience

### Roles and Responsibilities:

- Operation of the drying chamber
- Ensure that the foam is completely dry at the end of the process.

### Knowledge and Skill Requirement

### Skill Gaps and Intensity level of skill gap

### Technical skills

- Ability to operate the drying chamber at the required temperature and for the

Particulars	Micro	Small	Medium	Large
• Inability to maintain the	NA	L	L	NA

<p>specified duration.</p> <ul style="list-style-type: none"> <li>▪ The operator should wear gloves while handling the foam so as to prevent the foam to come in contact with dust particles.</li> <li>▪ Ensure that the drying chamber is free from any external entity which is not required.</li> <li>▪ Should maintain cleanliness around the drying chamber.</li> </ul> <p><b>Managerial skills</b></p> <ul style="list-style-type: none"> <li>▪ NA</li> </ul> <p><b>Soft skills</b></p> <ul style="list-style-type: none"> <li>▪ Ability to communicate any issue/fault in the drying chamber to the supervisor.</li> </ul>	<p>required hygiene in and around the drying chamber.</p>
H-High; M-Medium; L-Low	

### Occupation: Packing

Following job roles are involved in packing and dispatch occupation:

- Helper

The helper can be asked to execute the very basic manual work like loading and unloading of raw materials/end product at each stage of the production process.

### Occupation: Packing

#### Job Role: Helper

**Qualification and Experience:** Minimally educated

#### Roles and Responsibilities:

- Pack the finish product
- Loading/unloading of finished product

#### Knowledge and Skill Requirement

#### Skill Gaps and Intensity level of skill gap

	Particulars	Micro	Small	Medium	Large
<b>Technical Skills</b> <ul style="list-style-type: none"><li>▪ Ability to pack the required quantity of foam in plastic sheets.</li><li>▪ Ability to load the finished product as per the specified instructions.</li><li>▪ Should wear gloves while packing the finished product.</li><li>▪ Maintain cleanliness in and around packing room.</li></ul> <b>Managerial skills</b> <ul style="list-style-type: none"><li>▪ NA</li></ul> <b>Soft skills</b> <ul style="list-style-type: none"><li>▪ NA</li></ul>	<ul style="list-style-type: none"><li>• Inability to maintain cleanliness in the packing room. For example, the helpers wear the same slippers inside the packing room which they wear in mixing mill room or outside the factory. Thus, bringing dust in the packing room which may come in contact with foam.</li></ul>	NA	L	L	NA
H-High; M-Medium; L-Low					

Table 20: Job role wise distribution in all the units for the product segment of Foam products (Estimated)

Occupation	Job role	Number of people	Occupation	Job role	Number of people
Mixing	Kneader Operator	0	Accounts	Manager Accounts	0
	Mixing mill Operator	5		Accountant	2
	Helpers	0	Purchase	Manager Purchase	0
Moulding	Moulding Supervisor	0		Stores Assistant	0

Occupation	Job role	Number of people	Occupation	Job role	Number of people
	<i>Moulding Operator</i>	3	<b>Marketing</b>	<i>Manager Marketing</i>	2
	<i>Helpers</i>	6	<b>HR</b>	<i>HR Manager</i>	0
					0
<b>Finishing/Cutting</b>	<i>Finishing Supervisor</i>	0	<b>General</b>	<i>Proprietor/MD</i>	6
	<i>Finishing/ Washing / Drying chamber operator</i>	8		<i>General Manager</i>	0
	<i>Helper</i>	0		<i>Production Manager/Foreman</i>	3
<b>Packaging and Dispatch</b>	<i>Packaging and Dispatch Supervisor</i>	2	<b>Production</b>	<i>Shift In-charge</i>	0
	<i>Helpers</i>	0		<i>Supervisor-labour/raw material</i>	0
<b>Testing</b>	<i>Chemist</i>	0			
	<i>Quality inspector</i>	0			
Production function					
Support function					
Management					

## Summary Sheet: Foam products

Categories	Total no. of foam product manufacturing units in Punjab					3	Qualification wise distribution of human resource		
<ul style="list-style-type: none"><li>Latex rubber foam</li><li>Rubberized coir foam</li></ul>	Distribution of units	Micro	Small	Medium	Large	Total	Ph.D / Research  Engineers  BA/B.Sc/B Com Diploma Engineers /Rubber technologist ITI/Vocational Education 12th std/10th std pass Below 10th std Others (MBAs, CA, ICWA, CS, etc.) <b>Total</b>	0%	
		0%	67%	33%	0%	100%		0%	
	No. of people employed*	0	34	11	0	44		15%	
									0%
	Manufacturing					Support			0%
	Total no. of occupations identified		4		2				0%
Total no. of job roles identified		5		2			13%		
User industry	Critical job roles (in terms of skill requirement)	Mixing operator and moulding operator					Below 10th std	73%	
Used in mattresses, upholstery, insulation, etc.							Others (MBAs, CA, ICWA, CS, etc.)	0%	
	<b>Industry Suggestions</b> <ul style="list-style-type: none"><li>Proprietor of small units requires training on latest trends in the manufacturing process (such as cost cutting, automation, etc.)</li><li>Development of common testing centers for small and tiny units</li></ul>					<b>Function wise distribution of human resource</b>			
							On roll	Off roll	
						Core function	100%	0%	
						Support function	100%	0%	

\*Estimation based on sample data



### 1.3.6. Footwear products

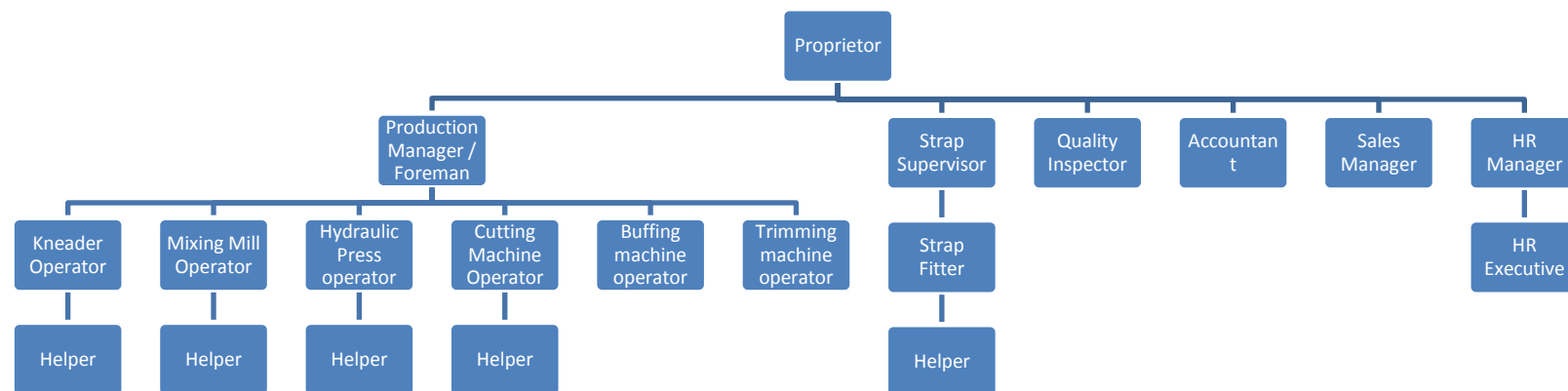
Punjab is one of the major clusters for manufacturing footwear products in India. Among the total number of rubber product manufacturing units in Punjab, footwear products accounts for around 23%. More than 90% of the footwear products manufacturing units of Punjab are located in Jalandhar cluster.

#### Types of sub product categories

- **Bunwar, Kattai and Neolite Sheets:** Bunwar, Kattai and Neolite sheets are used for making the sole of the Footwears.
- **Hawai Chappals, Soles and Straps:** Flip-flops are a type of open-toed sandal worn in casual situations. Flip-flops are known as Hawai chappals (which means “air sandal”) in India. They consist of a flat sole held loosely on the foot by a Y-shaped strap that passes between the first and second toes and around either side of the foot. Soles and Straps are the two parts of the Hawai Chappals.
- **Industrial Footwear:** Industrial Footwears are worn for safety purpose (to prevent damages to nails and toe which are occurring due to heat/ oil/ acids/ alkali and abrasion, chemicals/ dropping of heavy objects, sharp objects, etc). There are different varieties of industrial foot wears namely general purpose safety shoes, heat and oil resistant safety shoes, chemical resistant safety shoes, light weight safety shoes, etc.
- **Microcellular Sheets:** Micro Cellular Rubber Sheets (MCR sheets) are used for making inter soles and soles for footwear. They are made in different designs and colours. MCR slippers are suitable for orthopedic, diabetic and leprosy patients as it gives them adequate comfort.
- **Shoes and Boots:** There are different varieties of shoes such as school shoes, canvas shoes, jungle boots, combat boots, etc manufactured for various purposes.

**1.3.6.1. Organisation structure**

*Figure 14: Organisation structure for Hawaii chappals manufacturing units*

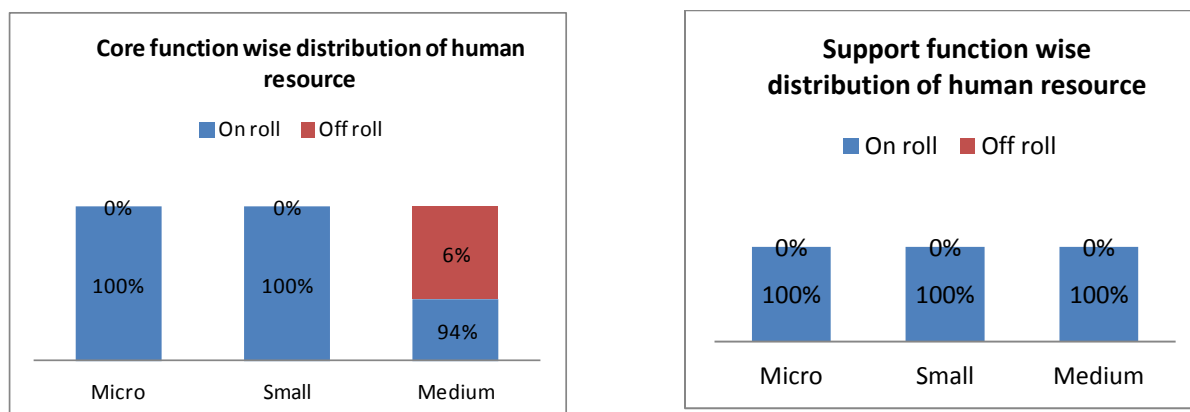


Sample covered for Hawai Chappals

	Micro	Small	Medium	Large	Total
No. of units	13	7	10	0	30

1.3.6.2. Function wise distribution of human resource

Figure 15: Function wise distribution of human resource



## 1.3.6.3. Job role wise distribution of human resource

Table 21: Job role wise distribution in the sample units for the product segment of Footwear products

Occupation	Job role	No of people	Occupation	Job role	No of people
Mixing	Mixing supervisor	13	Accounts	Manager Accounts	0
	Kneader operator	16		Accountant	10
	Mixing mill Operator	64	Purchase	Manager Purchase	0
				Stores Assistant	0
Calendarin g	Calendaring operator	6	Marketing	Manager Marketing	1
Moulding	Moulding Supervisor	26	HR	HR Manager	1
	Hydraulic press Operator	45		HR Executive	7
	Helpers	0	Administratio n	Time office	0
Cutting	Cutting machine operator	2	General	Proprietor/MD/Partner	24
	Trimming machine operator	2		General Manager	2
	Buffing machine operator	2	Production	Production Manager	10
	Cutting machine operator	22		Shift In-charge	0
Strap fitting and finishing	Finishing Supervisor	0		Helpers	186
	Finishing Operator	7			
	Helper-(Strap fitter)	28			
Packaging and Dispatch	Packaging and Dispatch Supervisor	0			
	Helpers	10			
Quality	Quality inspector	2			

Occupation	Job role	No of people	Occupation	Job role	No of people
check					
Store	Store incharge	0			
Production function					
Support function					
Management					

#### 1.3.6.4. Qualification wise distribution of human resource

Table 22: Qualification wise distribution of human resource

Qualification	Micro	Small	Medium
Ph.D / Research	0%	0%	0%
Engineers	0%	0%	0%
BA / B.Sc/B Com	15%	10%	15%
Diploma Engineers /Rubber technologist	0%	0%	0%
ITI / Vocational Education	0%	0%	0%
12th std / 10th std pass	0%	0%	5%
Below 10th standard	85%	90%	80%
Others (specify - Such as MBAs, CA, ICWA, CS, etc.)	0%	0%	0%
<b>TOTAL</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

#### 1.3.6.5. Skill gap analysis

Table 23: Occupation wise distribution of job roles

Occupation	Production	Mixing	Moulding	Finishing	Quality control/finishing	Packaging and dispatch
Job Roles	Production	Kneader	Moulding	Cutting	Quality Inspector	Helper

	Manager/ Foreman	Operator	Operator	Machine Operator
		Mixing Mill Operator		Strap Fitter
		Helper		

### Occupation: Production

Following job roles are involved in production occupation:

- Production Manager/Foreman

### Occupation: Production

#### Job Role: Production Manager/Foreman

**Qualification and Experience:** 12<sup>th</sup> standard with more than 15 years of experience in rubber industry

#### Roles and Responsibilities:

- Monitor the production of the company
- Maintain optimum inventory of raw materials
- Monitor absenteeism of workers
- Execute the production targets as planned by the management
- Quality check the product in different stages of processing
- Train machine operators and helpers

#### Knowledge and Skill Requirement

#### Skill Gaps and Intensity level of skill gap

#### Technical skills:

- Ability to provide required specifications to the machine operators. These specifications would be in terms of
  - Time and temperature required for the mixing of raw materials
  - Proportion of raw materials to be used in the mixing process

Particulars	Micro	Small	Medium	Large
<ul style="list-style-type: none"> <li>▪ Inadequate knowledge and understanding of latest technology in manufacturing process and new raw materials</li> </ul>	M	L	L	

<ul style="list-style-type: none"><li>▪ Time and temperature required for the curing of rubber compound</li><li>▪ Ability to identify the raw materials and understand its properties</li><li>▪ Knowledge of footwear production process</li><li>▪ Knowledge of machine operation used in the production process viz. kneader, mixing mill, hydraulic press</li><li>▪ Inspect the quality of the output at various stages of processing</li><li>▪ Ability to take a corrective action during issues in production</li><li>▪ Ability to maintain inventory of raw materials as per the requirement in the production process</li><li>▪ Knowledge on new industry trends in manufacturing</li></ul>	used in rubber industry
<b>Managerial Skills</b> <ul style="list-style-type: none"><li>▪ Ability to ensure smooth operations in the production process</li><li>▪ Ability to coordinate with different departments for different purpose such as to ensure adequate availability of raw materials</li><li>▪ Ability to independently solve basic problems like failure of machines, absenteeism of operators</li><li>▪ Ability to meet the production targets as required by the management</li></ul>	
<b>Soft Skills</b> <ul style="list-style-type: none"><li>▪ Ability to provide training and guidance</li></ul>	

to the machine operators and helpers

- Ability to coordinate work with his superiors and subordinates
- Ability to resolve conflicts among his subordinates

H- High; M – Medium; L- Low

### Occupation: Mixing

Following job roles are involved in mixing occupation:

- Kneader operator
- Mixing mill operator
- Helper

### Occupation: Mixing

**Job Role:** Kneader operator

**Qualification and Experience:** Minimally educated with more than 5 years of experience in rubber industry

#### Roles and Responsibilities:

- Mixing of raw materials to make rubber compound
- Instruct the helpers to enable a smooth production process
- Operation of kneader

#### Knowledge and Skill Requirement

#### Skill Gaps and Intensity level of skill gap

#### Technical skills

- Ability to switch on/off the machine
- Ability to check whether all the raw materials are present or not.
- Ability to identify the raw materials and mix them per the specified time and temperature
- Ability to operate the kneader and

Particulars	Micro	Small	Medium	Large
<ul style="list-style-type: none"> <li>▪ Inconsistency in accurately mixing as per the specification provided</li> </ul>	L	L	L	



understand the machine controls adequately so as not to cause any damage to the machine

- Ability to check if there is any moisture in the raw material
- Ability to weigh the raw materials as per the requirement
- Ability to maintain adequate inflow and outflow of water in the kneader so as to maintain the temperature of the machine
- Ability to mix the raw materials in the specified sequence
- Ability to execute basic maintenance activity as required example by regular oiling of the machine
- Ability to instruct the helpers for cleaning, loading / unloading, etc.

### Managerial skills

- Ability to instruct the helpers for cleaning, loading / unloading, etc.

### Soft Skills

- Ability to coordinate work with his superiors and subordinates.

H- High; M-Medium; L-Low

---

**Occupation:** Mixing

**Job Role:** Mixing mill operator

**Qualification and Experience:** Minimally educated with more than 5 years of experience in rubber industry

### Roles and Responsibilities:

- Mixing of raw materials in the mixing mill to produce the output in the form of sheet

- Instruct the helpers to enable a smooth production process
- Operation of mixing mill

Knowledge and Skill Requirement	Skill Gaps and Intensity level of skill gap				
	Particulars	Micro	Small	Medium	Large
<b>Technical skills</b>					
<ul style="list-style-type: none"> <li>▪ Ability to identify the raw materials and mix the raw materials as per the specified time and temperature</li> <li>▪ Ability to maintain the required distance between the rollers of the mixing mill so as to produce the sheet as per the required width</li> <li>▪ Ability to operate the mixing mill so as to produce the output in the form of a sheet</li> <li>▪ Ability to maintain adequate inflow and outflow of water in the mixing mill so as to maintain the temperature of the machine</li> <li>▪ Safety skills-Operator must be alert that his hands do not get inside the mixing mill</li> <li>▪ Ability to mix the raw materials in the specified sequence</li> <li>▪ Ability to execute basic maintenance activity as required</li> <li>▪ Ability to instruct the helpers for cleaning, loading / unloading, etc.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Inconsistency in following the specification such as time for milling, sequential order of addition, etc.</li> </ul>	L	L	L	
<b>Managerial skills</b>					
<ul style="list-style-type: none"> <li>▪ Ability to instruct the helpers for cleaning, loading / unloading, etc.</li> </ul>					
<b>Soft Skills</b>					
<ul style="list-style-type: none"> <li>▪ Ability to coordinate work with his</li> </ul>					

superiors and subordinates.

H- High; M-Medium; L-Low

**Occupation:** Mixing

**Job Role:** Helper

**Qualification and Experience:** Minimally educated

**Roles and Responsibilities:**

- Identify raw material used for mixing
- Follow the instructions of the operator in loading / unloading of raw materials and the end product from the machines

**Knowledge and Skill Requirement**

**Skill Gaps and Intensity level of skill gap**

**Technical skills**

- Ability to identify the raw materials and the end products
- Ability to complete the required manual work as required by the machine operators and execute them
- Comply with the safety procedures. For example, as the helper doesn't have an understanding of the mixing machines, he shouldn't try to operate it.

**Managerial skills**

NA

**Soft skills**

NA

H- High; M-Medium; L-Low

Particulars	Micro	Small	Medium	Large
<ul style="list-style-type: none"> <li>▪ Inadequate knowledge of safety procedures.</li> </ul>	L	L	L	



**Occupation: Moulding**

Following job roles are involved in moulding occupation:

- Moulding operator

**Occupation:** Moulding

**Job Role:** Moulding operator

**Qualification and Experience:** Minimally educated with more than 5 years of experience in rubber industry

**Roles and Responsibilities:**

- Operation of hydraulic press
- Moulding process operation
- Cleaning of mould

**Knowledge and Skill Requirement**

**Skill Gaps and Intensity level of skill gap**

**Technical skills:**

- Ability to adequately clean the die by using an air gun
- Ability to place the rubber compound (in sheet form) in the mould
- Ability to use the appropriate mould for the moulding process
- Ability to cut the rubber sheet as per the shape of the mould
- Ability to set the moulds as per the specifications
- Ability to cure the rubber compound in the hydraulic press as per the defined time, temperature and pressure
- Ability to visually check the curing quality of the end product

**Managerial skills**

- Ability to instruct the helpers for cleaning, loading / unloading, etc.

**Soft Skills**

Particulars	Micro	Small	Medium	Large
-------------	-------	-------	--------	-------

- |   |   |   |   |  |
|---|---|---|---|--|
| <ul style="list-style-type: none"> <li>▪ Lack of technical understanding about the curing process.</li> </ul> | L | L | L |  |
|---|---|---|---|--|

- Ability to coordinate work with his superiors and subordinates.

H- High; M-Medium; L-Low

### Occupation: Finishing

Following job roles are involved in cutting occupation:

- Cutting machine operator
- Strap fitter

### Occupation: Finishing

**Job Role:** Cutting machine operator

**Qualification and Experience:** Minimally educated with more than 5 years of experience in rubber industry

#### Roles and Responsibilities:

- Cutting soles from the vulcanized rubber sheets
- Set the required die in the cutting machine
- Operate cutting machine/trimming machine/buffing machine

#### Knowledge and Skill Requirement

#### Skill Gaps and Intensity level of skill gap

#### Technical skills:

- Ability to set the adequate die in the machine as per the required size of the sole
- Ability to operate the cutting machine
- Ability to maintain the minimum distance between two adjacent soles to be taken out from the rubber sheet so as to maximize the number of soles which can be produced from the vulcanized rubber sheet
- Safety skills- Ability to be alert so as to

Particulars	Micro	Small	Medium	Large
-------------	-------	-------	--------	-------

- |  |   |   |   |  |
|--|---|---|---|--|
| ▪ Lack of technical understanding about the manufacturing process. | L | L | L |  |
|--|---|---|---|--|

ensure that their hand doesn't come between the machine and the vulcanized rubber sheet

### Managerial skills

- Ability to instruct the helpers for cleaning, loading / unloading, etc.

### Soft Skills

- Ability to coordinate work with his superiors and subordinates.

H- High; M-Medium; L-Low

**Occupation:** Finishing

**Job Role:** Strap fitter

**Qualification and Experience:** Minimally educated

### Roles and Responsibilities:

- Fit the strap in the sole
- Assemble the strap and the sole to form the complete the chappal making process

### Knowledge and Skill Requirement

### Skill Gaps and Intensity level of skill gap

### Technical skills

- Ability to join the adequate strap to the sole as per the required size, design and colour of the sole
- Ability to operate the strap fitting machine

### Managerial skills

NA

### Soft Skills

NA

Particulars	Micro	Small	Medium	Large
-------------	-------	-------	--------	-------

- |   |   |   |   |  |
|---|---|---|---|--|
| ▪ Inadequate knowledge of the manufacturing process | L | L | L |  |
|---|---|---|---|--|

H-High; M-Medium; L-Low

### Occupation: Quality control

Following job roles are involved in quality control:

- Quality inspector

### Occupation: Quality control/finishing

**Job Role:** Quality inspector

**Qualification and Experience:** 12<sup>th</sup> standard and minimum 1 year of experience in rubber industry

#### Roles and Responsibilities:

- Visually check the quality of the end product as per the required specifications.
- In case of any defect, resend the product to the production team

#### Knowledge and Skill Requirement

#### Skill Gaps and Intensity level of skill gap

#### Technical skills

- Ability to do a manual check (visual) so as to assure that the end product is as per the specifications

#### Managerial skills

NA

#### Soft Skills

- Ability to communicate the issue to the production team in case of any variance

H-High; M-Medium; L-Low

Particulars	Micro	Small	Medium	Large
-------------	-------	-------	--------	-------

- |   |   |   |   |  |
|---|---|---|---|--|
| ▪ Inability to adequately check the end product | L | L | L |  |
|---|---|---|---|--|

### Occupation: Packing & Dispatch

Following job roles are involved in packing and dispatch occupation:

- Helper

**Occupation:** Packing and Dispatch

**Job Role:** Helper

**Qualification and Experience:** Minimally educated

**Roles and Responsibilities:**

- Pack the finish product
- Loading of finished product

**Knowledge and Skill Requirement**

**Skill Gaps and Intensity level of skill gap**

**Technical skills**

- Ability to pack the finished end product into the paperboard box as per the size of the chappal
- Ability to prepare the assortment in corrugated box as per specification
- Ability to load the finished product as per the specified instructions

**Managerial skills**

NA

**Soft Skills**

NA

H-High; M-Medium; L-Low

Particulars                      Micro    Small    Medium    Large

- Inability to pack as per the requirement                      L                      L                      L

Table 24 Job role wise distribution in all the units for the product segment of Footwear products  
(Estimated)

Occupation	Job role	No of people	Occupation	Job role	No of people
Mixing	Mixing supervisor	94	Accounts	Manager Accounts	0
	Kneader operator	115		Accountant	72
	Mixing mill Operator	462	Purchase	Manager Purchase	0
				Stores Assistant	0



Occupation	Job role	No of people	Occupation	Job role	No of people	
Calendarin g	Calendarin g operator	43	Marketing	Manager Marketing	7	
Moulding	Moulding Supervisor	188	HR	HR Manager	7	
	Hydraulic press Operator	325		HR Executive	51	
	Helpers	0	Administration	Time office	0	
Cutting	Cutting machine operator	14	General	Proprietor/MD/Partne r	173	
	Trimming machine operator	14		General Manager	14	
	Buffing machine operator	14	Production	Production Manager	72	
	Cutting machine operator	159		Shift In-charge	0	
Strap fitting and finishing	Finishing Supervisor	0	Production	Helpers	1342	
	Finishing Operator	51				
						Helper-(Strap fitter)
Packaging and Dispatch	Packaging and Dispatch Supervisor	0				
	Helpers	72				
Quality check	Quality inspector	14				
Store	Store incharge	0				
Production function						
Support function						
Management						

## Summary Sheet: Foot Wear

Categories	Total no. of footwear manufacturing units in Punjab					109	Qualification wise distribution		
<ul style="list-style-type: none"><li>▪ Bunwar, Kattai and Neolite Sheets</li><li>▪ Hawai Chappals, Soles and Straps</li><li>▪ Industrial Footwear</li><li>▪ Microcellular sheet</li><li>▪ Shoes and Boots</li></ul>	Distribution of units	Micro	Small	Medium	Large	Total	of human resource		
		47%	41%	12%	0%	100%			
	No. of people employed*	1102	2592	515	0	4208	Ph.D / Research	0%	
							Engineers	0%	
							BA/B.Sc/B Com	13%	
							Diploma Engineers /Rubber technologist	0%	
<b>User industry</b> <ul style="list-style-type: none"><li>▪ General public</li><li>▪ Manufacturing industries</li><li>▪ Footwear industry</li></ul>	Total no. of occupations identified		7		3		ITI/Vocational Education	0%	
	Total no. of job roles identified		10		4		12th std/10th std pass	3%	
	Critical job roles (in terms of skill requirement)		Mixing Operator, Curing Operator and Quality inspector				Below 10th std	84%	
							Others (MBAs, CA, ICWA, CS, etc.)	0%	
							Total	100%	
	Industry Suggestions <ul style="list-style-type: none"><li>▪ Demand for Hawai chappal is decreasing and training may be provided on alternate chappal manufacturing process and machine operation using materials such PU, EVA, etc.</li><li>▪ Seminar / workshop on diversification of product manufacturing due to decreasing demand for Hawai rubber chappals</li></ul>						Function wise distribution of human resource		
							On	Off	
Core function							96%	4%	
Support function							100%	0%	

\*Estimation based on sample data

### 1.3.7. Hoses

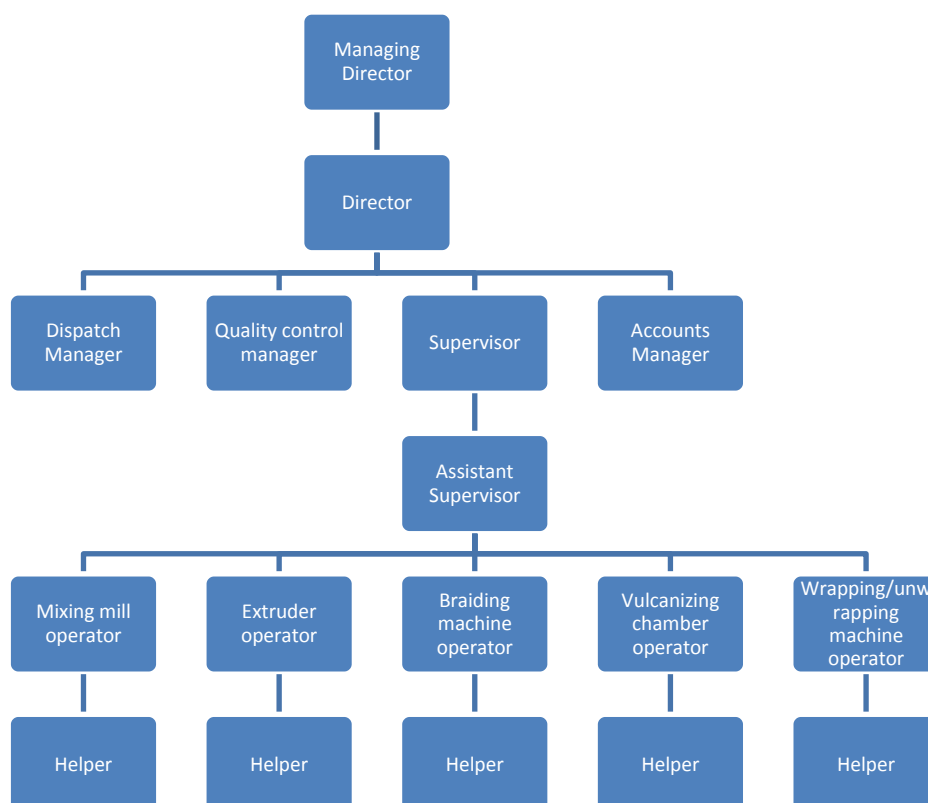
A hose is a hollow and flexible tube which is used to carry fluids from one point to another. The chemical formulation for a hose depends on its application. There are only a few manufacturing units of hoses so it forms a minor product segment of Punjab.

#### Types of sub product categories

- Agricultural and garden hose
- Fire fighting hose
- Hydraulic hose
- Radiator hose
- Steam hose

#### 1.3.7.1. Organization structure

*Figure 16: Organisation structure*

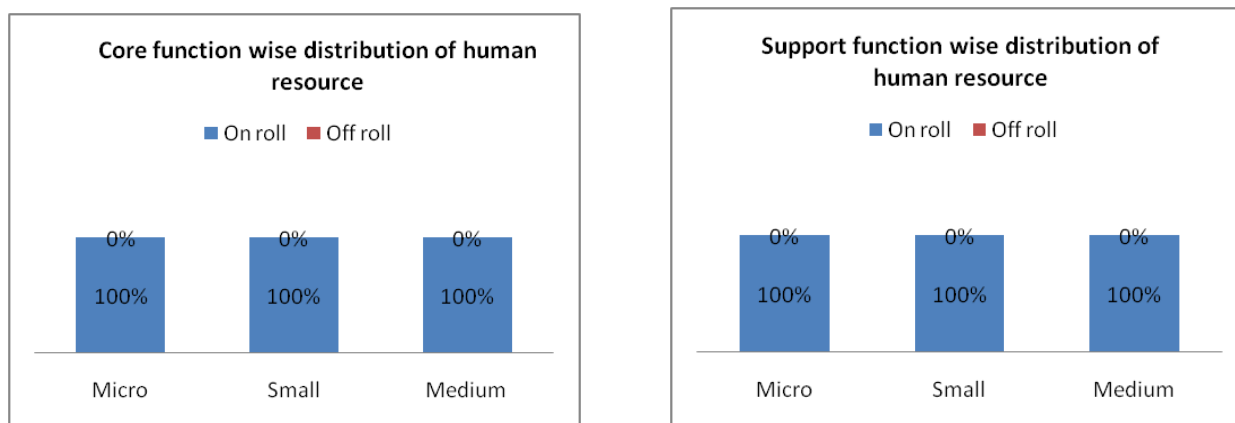


Sample covered

	Micro	Small	Medium	Large	Total
No. of units	1	1	1	0	3

1.3.7.2. Function wise distribution of human resource

Figure 17: Function wise distribution of human resource



1.3.7.3. Job role wise distribution of human resource

Majority of the human resource deployed in hoses units are under mixing mill operator, extruder operator and helper.

Table 25: Job role wise distribution in the sample units for the product segment of Hoses

Occupation	Job role	Number of people	Occupation	Job role	Number of people
Mixing	Kneader Operator	10	Accounts	Manager Accounts	2
	Mixing mill Operator	26		Accountant	4
	Helpers	16	Purchase	Manager Purchase	1
Extrusion	Extruder operator	48		Stores Assistant	2
Braiding	Braiding machine operator	17	Marketing	Manager Marketing/Dispatch	2
Vulcanisation	Vulcanising chamber operator	10	HR	HR Manager	1

Occupation	Job role	Number of people	Occupation	Job role	Number of people
<b>Wrapping/unwrapping</b>	Wrapping/unwrapping machine operator	8			
<b>Inspection</b>	Quality inspector	11	<b>General</b>	Proprietor/MD/Partner	4
<b>Packaging and Dispatch</b>	Packaging and Dispatch Supervisor	5		General Manager	2
	Helpers	36	<b>Production</b>	Production Manager/Foreman	4
				Shift In-charge	1
				Assistant supervisor	7
Production function					
Support function					
Management					

#### 1.3.7.4. Qualification wise distribution of human resource

Table 26: Qualification wise distribution of human resource

Qualification	Micro	Small	Medium
<b>Ph.D / Research</b>	0%	0%	0%
<b>Engineers</b>	10%	0%	7%
<b>BA / BSc/B Com</b>	10%	6%	10%
<b>Diploma Engineers</b>	0%	0%	10%
<b>ITI / Vocational Education</b>	0%	0%	10%
<b>12th std / 10th std pass</b>	0%	6%	13%
<b>Below 10th standard</b>	80%	85%	30%
<b>Others (specify - Such as MBAs, CA, ICWA, CS, etc.)</b>	0%	2%	20%
<b>TOTAL</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

### 1.3.7.5. Skill gap analysis

Table 27: Occupation wise distribution of job roles

Occupation	Production	Mixing	Extrusion	Braiding	Wrapping	Curing	Quality Control	Packaging and dispatch
Job Roles	Supervisor	Mixing mill operator	Extruder operator	Braiding machine operator	Wrapping machine operator	Vulcanising machine operator	Quality control manager	Helper
	Assistant Supervisor	Helper	Helper	Helper	Helper	Helper		

**Occupation:** Production

**Job Role:** Supervisor

**Qualification and Experience:** 10<sup>th</sup> standard with more than 12 years of experience in rubber industry

#### Roles and Responsibilities:

- Maintain optimum inventory of raw materials
- Meet the production targets as required by the management of the company
- Consistently keep a check over the quality of the end product after each process
- Mentor machine operators and helpers

#### Knowledge and Skill Requirement

#### Skill Gaps and Intensity level of skill gap

#### Technical skills:

- Ability to provide required specifications to the machine operators. These specifications would be in terms of time and temperature required for the mixing of raw materials, proportion of raw materials to be used in the mixing process and time and temperature required for the curing of rubber compound.
- Ability to identify the raw materials and

Particulars	Micro	Small	Medium	Large
<ul style="list-style-type: none"> <li>▪ Inadequate knowledge and understanding of latest technology and new raw materials used in rubber industry</li> </ul>	L	L	L	NA

understand its chemical properties.

- Knowledge of the production process and understanding of the operation of machines used in the production process viz. mixing mill, extruder, braiding machine, hydraulic press, etc.
- Inspect the quality of the end product from each of the machines
- Ability to understand the reason behind any issue in the end product and solve it.
- Ability to maintain inventory of raw materials as per the requirement in the production process
- Knowledge on new industry trends in manufacturing

### **Managerial Skills**

- Ability to ensure smooth operations in the production process.
- Ability to coordinate with different departments so as to ensure adequate availability of raw materials.
- Ability to independently solve basic problems like failure of machines, absenteeism of operators
- Ability to meet the production targets as required by the management.

### **Soft Skills**

- Ability to provide training and guidance to the machine operators and helpers
- Ability to coordinate work with his superiors and subordinates.
- Ability to resolve conflicts among his

subordinates.

H- High; M – Medium; L- Low

**Occupation:** Production

**Job Role:** Assistant Supervisor

**Qualification and Experience:** 8<sup>th</sup> standard with more than 8 years of experience in rubber industry

### Roles and Responsibilities:

- Assist the supervisor in managing the production process.
- Keep a check over the quality of the end product after each process
- Mentor machine operators and helpers

### Knowledge and Skill Requirement

### Skill Gaps and Intensity level of skill gap

#### Technical skills:

- Ability to assist the supervisor in the management of the manufacturing process.
- Ability to identify the raw materials and understand its chemical properties.
- Ability to understand the operation of machines used in the production process viz. mixing mill, extruder, braiding machine, hydraulic press, etc.
- Ability to inspect the quality of the end product from each of the machines
- Ability to maintain inventory of raw materials as per the requirement in the production process
- Knowledge on new industry trends in manufacturing

#### Managerial Skills

- Ability to manage the manufacturing

Particulars	Micro	Small	Medium	Large
-------------	-------	-------	--------	-------

<ul style="list-style-type: none"> <li>▪ Inadequate knowledge about the chemical properties of the raw materials</li> </ul>	L	L	L	NA
---	---	---	---	----



process when the supervisor is not available

- Ability to ensure smooth operations in the production process.

### Soft Skills

- Ability to provide training and guidance to the machine operators and helpers
- Ability to coordinate work with his superiors and subordinates.
- Ability to resolve conflicts among his subordinates.

H- High; M – Medium; L- Low

## Occupation: Mixing

Following job roles are involved in mixing occupation:

- Mixing mill operator
- Helper

## Occupation: Mixing

### Job Role: Mixing mill operator

**Qualification and Experience:** Minimally educated with more than 5 years of experience

### Roles and Responsibilities:

- Homogeneous mixing of raw materials in the mixing mill
- Produce the output in the form of sheet
- Operation of mixing mill

### Knowledge and Skill Requirement

### Skill Gaps and Intensity level of skill gap

### Technical skills

- Ability to identify the raw materials
- Ability to mix the raw materials as per the specified time.

Particulars	Micro	Small	Medium	Large
<ul style="list-style-type: none"> <li>▪ Inadequate skills in mixing the raw materials as per</li> </ul>	L	L	L	NA

<ul style="list-style-type: none"> <li>Ability to homogeneously mix the raw materials in the specified sequence</li> <li>Ability to produce the output in the form of a sheet.</li> <li>Ability to maintain adequate inflow and outflow of water in the mixing mill so as to maintain the temperature of the machine.</li> <li>Safety skills-Operator must be alert that his hands do not get inside the mixing mill.</li> <li>Ability to execute basic maintenance activity as required.</li> </ul> <p><b>Managerial skills</b></p> <p>NA</p> <p><b>Soft skills</b></p> <p>NA</p>	the specified duration
H- High; M-Medium; L-Low	

**Occupation:** Mixing

**Job Role:** Helper

**Qualification and Experience:** Minimally educated

**Roles and Responsibilities:**

- Assist the mixing mill operator by following his instructions.

### Knowledge and Skill Requirement

### Skill Gaps and Intensity level of skill gap

	Particulars	Micro	Small	Medium	Large
<b>Technical skills</b>					
<ul style="list-style-type: none"> <li>Ability to follow the instructions of the mixing mill operator and adequately execute it.</li> </ul>	<ul style="list-style-type: none"> <li>Inadequate communication skills to follow the instructions</li> </ul>	NA	L	L	NA

- Ability to carry the raw materials and rubber sheets.

of the mixing mill operator.

### Managerial skills

NA

### Soft skills

NA

H-High; M-Medium; L-Low

## Occupation: Extrusion

Following job roles are involved in mixing occupation:

- Extruder operator
- Helper

## Occupation: Extrusion

### Job Role: Extruder operator

**Qualification and Experience:** Minimally educated with more than 5 years of experience

### Roles and Responsibilities:

- Produce the required output from the extruder
- Operation of extruder

### Knowledge and Skill Requirement

### Skill Gaps and Intensity level of skill gap

### Technical skills

- Ability to set the die of the extruder as specified.
- Ability to ensure that there is no dust or any other impurities which may pass through the extruder.
- Ability to adequately pass the rubber compound into the extruder so as to prevent any overflow at the input end of the machine.

Particulars                      Micro    Small    Medium    Large

- Inability to maintain cleanliness near the extruder

- Ability to pass the inner braided tube through the extruder so as to give it an outer cover.
- Ability to operate the extruder.

### Managerial skills

NA

### Soft skills

NA

H- High; M-Medium; L-Low

## Occupation: Extrusion

### Job Role: Helper

**Qualification and Experience:** Minimally educated

### Roles and Responsibilities:

- Assist the operator in the process of extrusion.

### Knowledge and Skill Requirement

### Skill Gaps and Intensity level of skill gap

### Technical skills

- Ability to hold the rubber sheet at the input end of the extruder as per the instruction of the extruder operator.
- Ability to carry rubber sheets to the extruder machine.

### Managerial skills

NA

### Soft skills

NA

H-High; M-Medium; L-Low

Particulars	Micro	Small	Medium	Large
<ul style="list-style-type: none"> <li>▪ Inability to follow the instructions of the extruder operator.</li> </ul>	NA	L	L	NA

## Occupation: Braiding

Following job roles are involved in mixing occupation:

- Braiding machine operator
- Helper

**Occupation:** Braiding

**Job Role:** Braiding machine operator

**Qualification and Experience:** Minimally educated with more than 5 years of experience

**Roles and Responsibilities:**

- Braid the hose as per the required specifications
- Operation of braiding machine

Knowledge and Skill Requirement	Skill Gaps and Intensity level of skill gap				
	Particulars	Micro	Small	Medium	Large
<b>Technical skills</b> <ul style="list-style-type: none"> <li>▪ Ability to check if the yarn's type is as per the specifications.</li> <li>▪ Ability to maintain inventory of yarn reels</li> <li>▪ Ability to maintain the operating speed of the machine as required.</li> <li>▪ Ability to operate the braiding machine.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Inability to maintain the inventory of yarn reels</li> </ul>	L	L	L	NA
<b>Managerial skills</b>					
NA					
<b>Soft skills</b>					
NA					
H- High; M-Medium; L-Low					

**Occupation:** Braiding

**Job Role:** Helper

**Qualification and Experience:** Minimally educated

**Roles and Responsibilities:**

- Assist the operator in the process of braiding

Knowledge and Skill Requirement	Skill Gaps and Intensity level of skill gap				
---------------------------------	---	--	--	--	--

	Particulars	Micro	Small	Medium	Large
<b>Technical skills</b>					
<ul style="list-style-type: none"> <li>Ability to replace the yarn reel before the reel's yarn is completely used.</li> <li>Ability to carry the required manual work as per the requirement in the process</li> </ul>	<ul style="list-style-type: none"> <li>Inability to understand and follow the instructions of the braiding machine operator.</li> </ul>	NA	L	L	NA
<b>Managerial skills</b>					
NA					
<b>Soft skills</b>					
NA					
H-High; M-Medium; L-Low					

### Occupation: Wrapping

Following job roles are involved in mixing occupation:

- Wrapping machine operator
- Helper

### Occupation: Wrapping

**Job Role:** Wrapping machine operator

**Qualification and Experience:** Minimally educated with more than 5 years of experience

#### Roles and Responsibilities:

- Wrap/ unwrap the fabric over the hose.
- Operation of wrapping machine

#### Knowledge and Skill Requirement

#### Skill Gaps and Intensity level of skill gap

	Particulars	Micro	Small	Medium	Large
<b>Technical skills</b>					
<ul style="list-style-type: none"> <li>Ability to wrap and un-wrap the hose with cotton fabric using the wrapping</li> </ul>	<ul style="list-style-type: none"> <li>Inability to check the quality of</li> </ul>	L	L	L	NA

<p>machine.</p> <ul style="list-style-type: none"> <li>▪ Ability to check the quality of wrapping made over the hose.</li> <li>▪ Ability to replace the cloth reel before it is completely used.</li> </ul> <p><b>Managerial skills</b></p> <p>NA</p> <p><b>Soft skills</b></p> <p>NA</p>	<p>wrapping done over the hose.</p>
H- High; M-Medium; L-Low	

### Occupation: Wrapping

**Job Role:** Helper

**Qualification and Experience:** Minimally educated

#### Roles and Responsibilities:

- Assist the operator in the process of wrapping

#### Knowledge and Skill Requirement

#### Skill Gaps and Intensity level of skill gap

	Particulars	Micro	Small	Medium	Large
<p><b>Technical skills</b></p> <ul style="list-style-type: none"> <li>▪ Ability to load/unload the hose in the wrapping machine as per the instruction of the operator.</li> </ul> <p><b>Managerial skills</b></p> <p>NA</p> <p><b>Soft skills</b></p> <p>NA</p>	<ul style="list-style-type: none"> <li>▪ Inability to understand and follow the instructions of the wrapping machine operator.</li> </ul>	NA	L	L	NA

H-High; M-Medium; L-Low

### Occupation: Curing

Following job roles are involved in moulding occupation:

- Vulcanising machine operator

### Occupation: Curing

**Job Role:** Vulcanising machine operator

**Qualification and Experience:** Minimally educated with more than 10 years of experience in rubber industry

#### Roles and Responsibilities:

- Adequate curing and moulding of rubber compound as per the specified shape.
- Operation of vulcanizing machine.

#### Knowledge and Skill Requirement

#### Skill Gaps and Intensity level of skill gap

#### Technical skills:

- Ability to operate the vulcanizing machine.
- Ability to cure the hose as per the specified duration.
- Ability to cure the hose as per the specified temperature.

#### Managerial skills

NA

#### Soft skills

NA

Particulars	Micro	Small	Medium	Large
<ul style="list-style-type: none"> <li>▪ Inability to cure the hose as per the specified duration.</li> </ul>	L	L	L	NA

H- High; M-Medium; L-Low

### Occupation: Curing

**Job Role:** Helper

**Qualification and Experience:** Minimally educated

#### Roles and Responsibilities:



- Assist the operator in the process of vulcanising

### Knowledge and Skill Requirement

### Skill Gaps and Intensity level of skill gap

#### Technical skills:

- Ability to load/unload the hose in the vulcanizing machine as per the instruction of the operator.

#### Managerial skills

NA

#### Soft skills

NA

Particulars	Micro	Small	Medium	Large
Inadequate communication skills to follow the instructions of vulcanizing machine operator.	NA	L	L	NA

H-High; M-Medium; L-Low

## Occupation: Quality Control

Following job roles are involved in packing and dispatch occupation:

- Quality control manager

## Occupation: Quality control

### Job Role: Quality control manager

**Qualification and Experience:** B.Sc with 20 years of work experience

#### Roles and Responsibilities:

- Ability to develop the chemical formulation
- Ability to test the raw materials and the end product.

### Knowledge and Skill Requirement

### Skill Gaps and Intensity level of skill gap

#### Technical skills

- Ability to set the chemical formulation for the end product as per the required specifications provided by the customer
- Ability to check the quality of the raw

Particulars	Micro	Small	Medium	Large
Inadequate knowledge of the latest trends and technology in	NA	L	L	NA

<p>materials</p> <ul style="list-style-type: none"> <li>▪ Ability to do following tests to check the quality of those <ul style="list-style-type: none"> <li>○ Elongation test</li> <li>○ Bursting pressure test</li> <li>○ Tensile strength test</li> <li>○ Ageing test</li> </ul> </li> <li>▪ Ability to ascertain that the end product is as per the specifications.</li> </ul> <p><b>Managerial skills</b></p> <p>NA</p> <p><b>Soft skills</b></p> <p>NA</p>	<p>rubber industry.</p>
H-High; M-Medium; L-Low	

### Occupation: Packing & Dispatch

Following job roles are involved in packing and dispatch occupation:

- Helper

### Occupation: Packing

**Job Role:** Helper

**Qualification and Experience:** Minimally educated

#### Roles and Responsibilities:

- Pack the finish product
- Loading of finished product

#### Knowledge and Skill Requirement

#### Skill Gaps and Intensity level of skill gap

	Particulars	Micro	Small	Medium	Large
<b>Technical skills</b>					
▪ Ability to pack the finished product as required.	▪ Inability to pack the end product	NA	L	L	NA
▪ Ability to load the finished product as per	as per the				

the specified instructions.	required
<b>Managerial skills</b>	specifications.
<b>NA</b>	
<b>Soft skills</b>	
<b>NA</b>	
H-High; M-Medium; L-Low	

Table 28 Job role wise distribution in all the units for the product segment of Hoses (Estimated)

Occupation	Job role	Number of people	Occupation	Job role	Number of people
<b>Mixing</b>	Kneader Operator	20	<b>Accounts</b>	Manager Accounts	4
	Mixing mill Operator	52		Accountant	8
	Helpers	32	<b>Purchase</b>	Manager Purchase	2
<b>Extrusion</b>	Extruder operator	96		Stores Assistant	4
<b>Braiding</b>	Braiding machine operator	34	<b>Marketing</b>	Manager Marketing/Dispatch	4
<b>Vulcanisation</b>	Vulcanising chamber operator	20	<b>HR</b>	HR Manager	2
<b>Wrapping/unwrapping</b>	Wrapping/unwrapping machine operator	16			0
<b>Inspection</b>	Quality inspector	22	<b>General</b>	Proprietor/MD/Partner	8
<b>Packaging and Dispatch</b>	Packaging and Dispatch Supervisor	10		General Manager	4
	Helpers	72	<b>Production</b>	Production Manager/Foreman	8
				Shift In-charge	2
				Assistant supervisor	14
Production function					
Support function					
Management					

## Summary Sheet: Hoses

Categories	Total no. of rubber hoses manufacturing units in Punjab					10	Qualification wise distribution		
<ul style="list-style-type: none"><li>• Agricultural and garden hose</li><li>• Fire fighting hose</li><li>• Hydraulic hose</li><li>• Radiator hose</li><li>• Steam hose</li></ul>	Distribution of units	Micro	Small	Medium	Large	Total	of human resource		
		40%	50%	10%	0%	100%			
	No. of people employed*	48	282	192	0	522	Ph.D / Research Engineers	0%	
	ManufacturingSupport						BA/B.Sc/B Com	4%	
							Diploma Engineers /Rubber technologist	8%	
	Total no. of occupations identified	7		4		ITI/Vocational Education	5%		
Total no. of job roles identified	9		6		12th std/10th std pass	5%			
User industry	Critical job roles (in terms of skill requirement)		Mixing Operator, extruder operator, braiding machine operator			Below 10th std	10%		
Others (MBAs, CA, ICWA, CS, etc.)						58%			
Total						11%			
100%									
<ul style="list-style-type: none"><li>▪ Manufacturing</li><li>▪ Fire fighting</li><li>▪ Garden hose, etc.</li></ul>	Industry Suggestions <ul style="list-style-type: none"><li>▪ Establish training centres to create new labour for the industry.</li><li>▪ Development of common testing centers for small and tiny units</li><li>▪ Proprietor for small units require training on industry trends and global cues</li></ul>					Function wise distribution of human resource			
							On	Off	
						Core function	74%	26%	
						Support function	73%	27%	

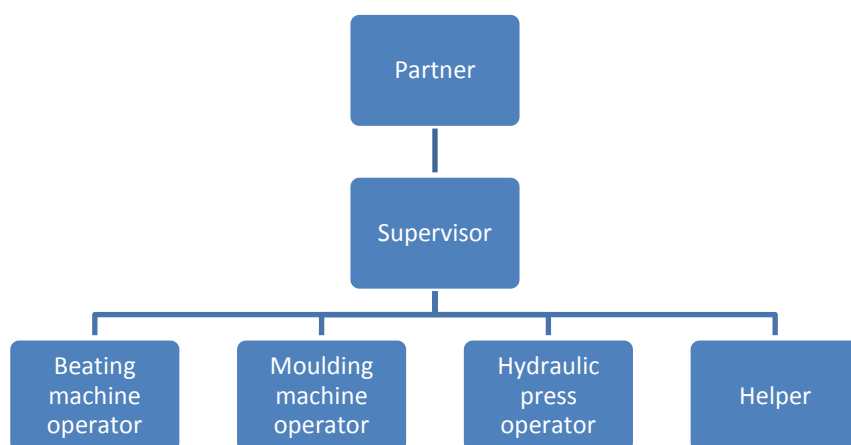
\*Estimation based on sample data

### 1.3.8. Leather board

A leather board is manufactured by using both leather and rubber as primary raw materials. It is used to make insoles of shoes. Since there is only a few units which manufactures leather board so it's a minor segment in Punjab.

#### 1.3.8.1. Organization structure

Figure 18: Organisation structure

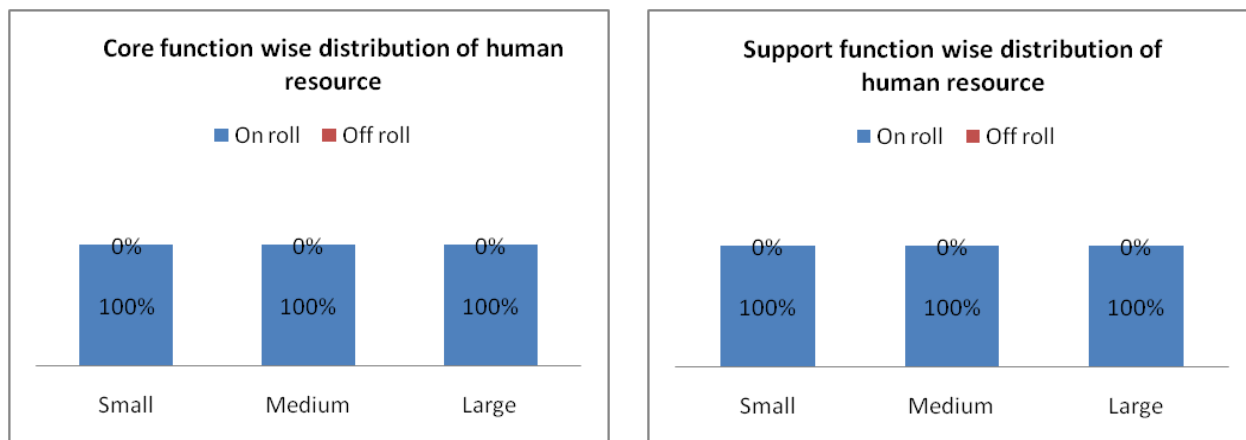


#### Sample covered

	Micro	Small	Medium	Large	Total
No. of units	0	2	1	1	4

### 1.3.8.2. Function wise distribution of human resource

Figure 19: Function wise distribution of human resource



### 1.3.8.3. Job role wise distribution of human resource

Majority of the human resource deployed in leather board units are as helper.

Table 29: Job role wise distribution in the sample units for the product segment of Leather Board

Occupation	Job role	Number of people	Occupation	Job role	Number of people
Beating	Supervisor	7	Accounts	Manager Accounts	0
	Mixing Operator	10		Accountant	2
	Helpers	84	Purchase	Manager Purchase	0
Moulding	Calendaring Supervisors	0		Stores Assistant	0
	Operators	15	Maintenance	Operator	0
	Helpers	0	Marketing	Manager Marketing	0

Occupation	Job role	Number of people	Occupation	Job role	Number of people
Curing	Pressing Supervisor	0	HR	HR Manager	0
	Hydraulic press operator	6			
	Helpers	0	General	Proprietor/MD /Partner	5
Finishing	Finishing Supervisor	0		General Manager	1
	Helper	0	Production	Production Manager	0
Packaging and Dispatch	Packaging and Dispatch Supervisor	0		Shift In-charge	0
	Helpers	0			
Production function					
Support function					
Management					

#### 1.3.8.4. Qualification wise distribution of human resource

Table 30: Qualification wise distribution of human resource

Qualification	Small	Medium	Large
Ph.D / Research	0%	0%	0%
Engineers	0%	0%	0%
BA / BSc/B Com	5%	5%	13%
Below 10th standard	95%	95%	87%
Others (specify - Such as MBAs, CA, ICWA, CS, etc.)	0%	0%	0%
<b>TOTAL</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

### 1.3.8.5. Skill gap analysis

Table 31: Occupation wise distribution of job roles

Occupation	Production	Beating	Moulding	Curing	Packaging and dispatch
Job Roles	Supervisor	Beating machine operator	Moulding machine operator	Hydraulic press operator	Helper

#### Occupation: Production

#### Occupation: Production

#### Job Role: Supervisor

**Qualification and Experience:** Minimally educated with over 10 years of experience

#### Roles and Responsibilities:

- Monitor and manage the complete production process
- Ensure the availability of human resources and raw materials
- Ensure that the quality of the end product is as per the requirement

#### Knowledge and Skill Requirement

#### Skill Gaps and Intensity level of skill gap

#### Technical skills:

- Ability to maintain the quality requirements for the product
- Ability to understand each and every stage of the production process.
- Ability to manage the discrepancies/failures occurring in the production process.
- Ability to understand the chemical

Particulars	Micro	Small	Medium	Large
<ul style="list-style-type: none"> <li>▪ Inability to devise a production strategy so as to increase the efficiency of the system. Increase in efficiency would decrease</li> </ul>		M	M	M



<p>properties of the raw materials and their role in the chemical formulation.</p> <ul style="list-style-type: none"> <li>▪ Must have an understanding of the basic operation of the machines used in the manufacturing process.</li> </ul> <p><b>Managerial skills</b></p> <ul style="list-style-type: none"> <li>▪ Develop the best talent pool of shop floor workforce</li> <li>▪ Ability to perform crisis management.</li> <li>▪ Ability to maintain discipline among his subordinates</li> </ul> <p><b>Soft skills</b></p> <ul style="list-style-type: none"> <li>▪ Ability to resolve conflicts of his subordinates and communicate the unresolved issues to the management.</li> <li>▪ Should possess following skills: teamwork, communication skills, leadership skills</li> </ul>	<p>the cost of manufacturing process which would enable the organization to price its product strategically so as to compete with the substitutes of leather board like paper board which is mostly imported from China.</p>
H- High; M – Medium; L- Low	

### Occupation: Beating

Following job roles are involved in mixing occupation:

- Beating machine operator

### Occupation: Beating

**Job Role:** Beating machine operator

**Qualification and Experience:** 10<sup>th</sup>/12<sup>th</sup> standard with more than 5 years of experience

**Roles and Responsibilities:**

- Operate beating machine so as to crush the leather waste in the form of a pulp.

### Knowledge and Skill Requirement

### Skill Gaps and Intensity level of skill gap

#### Technical skills

- Ability to operate the beating machine.
- Ensure that the leather is crushed adequately.
- Ability to perform basic maintenance activity like regular oiling of the beating machine.

#### Management skills

- NA

#### Soft skills

- Ability to communicate any unresolved fault in the beating machine to the supervisor.

#### Particulars

Micro

Small

Medium

Large

- Lack of discipline to carry out basic maintenance activity like regular oiling.

L

L

L

H- High; M-Medium; L-Low

## Occupation: Moulding

Following job roles are involved in moulding occupation:

- Moulding machine operator

## Occupation: Moulding

### Job Role: Moulding machine operator

**Qualification and Experience:** 10<sup>th</sup>/12<sup>th</sup> standard with more than 5 years of experience in rubber industry

### Roles and Responsibilities:

- Mixing of leather pulp, latex and other raw materials.
- Operation of moulding machine.

Knowledge and Skill Requirement	Skill Gaps and Intensity level of skill gap				
	Particulars	Micro	Small	Medium	Large
<b>Technical skills:</b> <ul style="list-style-type: none"> <li>▪ Ability to adequately mix leather pulp, latex and other raw materials as per the defined proportion.</li> <li>▪ Ability to operate the moulding machine which sucks water content from the mixture by applying a force of vacuum.</li> <li>▪ Ability to perform basic maintenance activity like regular oiling of the beating machine.</li> </ul> <b>Management skills</b> <ul style="list-style-type: none"> <li>▪ NA</li> </ul> <b>Soft skills</b> <ul style="list-style-type: none"> <li>▪ Ability to communicate any unresolved fault in the moulding machine to the supervisor.</li> </ul>	▪ Inability to mix the raw materials as per the defined proportion.		L	L	L
H- High; M-Medium; L-Low					

### Occupation: Curing

Following job roles are involved in moulding occupation:

- Hydraulic press operator

### Occupation: Curing

**Job Role:** Hydraulic press operator

**Qualification and Experience:** Minimally educated with more than 5 years of experience

**Roles and Responsibilities:**

- Adequate curing of leather mould
- Operation of hydraulic press

### Knowledge and Skill Requirement

### Skill Gaps and Intensity level of skill gap

#### Technical skills:

- Ability to place the uncured leather board in the hydraulic press.
- Ability to operate the hydraulic press so as to cure the leather board in the hydraulic press as per the defined duration and temperature.
- Ability to execute basic maintenance activity as required.
- Ability to visually check the curing quality of the end product.

#### Management skills

- NA

#### Soft skills

- Ability to communicate any unresolved fault in the moulding machine to the supervisor.

#### Particulars

#### Micro

#### Small

#### Medium

#### Large

- Inability to cure the leather board as per the specified duration and temperature.

L

L

L

H- High; M-Medium; L-Low

### Occupation: Packing

Following job roles are involved in packing and dispatch occupation:

- Helper

The helper can be asked to execute the very basic manual work like loading and unloading of raw materials/end product at each stage of the production process.

**Occupation:** Packing

**Job Role:** Helper

**Qualification and Experience:** Minimally educated

**Roles and Responsibilities:**

- Pack the finish product
- Loading of finished product

**Knowledge and Skill Requirement**

**Skill Gaps and Intensity level of skill gap**

**Technical skills**

- Ability to cut the leather board as per the required size.
- Ability to pack the finished product in jute bags.
- Ability to load the finished product as per the specified instructions.

**Management skills**

- NA

**Soft skills**

- Ability to understand and follow the instructions of the supervisor

Particulars	Micro	Small	Medium	Large
<ul style="list-style-type: none"> <li>▪ Inadequate discipline to execute the specified instructions</li> </ul>		L	L	L



H-High; M-Medium; L-Low

Table 32: Job role wise distribution in all the units for the product segment of Leather Board (Estimated)

Occupation	Job role	Number of people	Occupation	Job role	Number of people
<b>Beating</b>	<i>Supervisor</i>	10	<b>Accounts</b>	<i>Manager Accounts</i>	0
	<i>Mixing Operator</i>	14		<i>Accountant</i>	3
	<i>Helpers</i>	116		<i>Manager Purchase</i>	0
<b>Moulding</b>	<i>Calendaring Supervisors</i>	0	<b>Purchase</b>	<i>Stores Assistant</i>	0
	<i>Operators</i>	21	<b>Maintenance</b>	<i>Operator</i>	0
	<i>Helpers</i>	0	<b>Marketing</b>	<i>Manager Marketing</i>	0
<b>Curing</b>	<i>Pressing Supervisor</i>	0	<b>HR</b>	<i>HR Manager</i>	0
	<i>Hydraulic press operator</i>	8			0
	<i>Helpers</i>	0	<b>General</b>	<i>Proprietor/MD/Partner</i>	7
<b>Finishing</b>	<i>Finishing Supervisor</i>	0		<i>General Manager</i>	1
	<i>Helper</i>	0		<i>Production Manager</i>	0
<b>Packaging and Dispatch</b>	<i>Packaging and Dispatch Supervisor</i>	0	<b>Production</b>	<i>Shift In-charge</i>	0
	<i>Helpers</i>	0			
Production function					
Support function					
Management					

## Summary Sheet: Leather board

Categories	Total no. of leather board manufacturing units in Punjab					5	Qualification wise distribution of			
NA	Distribution of units	Micro	Small	Medium	Large	Total	human resource			
		0%	40%	40%	20%	100%	Ph.D / Research Engineers BA/B.Sc/B Com Diploma Engineers /Rubber technologist ITI/Vocational Education 12th std/10th std pass Below 10th std Others (MBAs, CA, ICWA, CS, etc.) Total	0% 0% 7% 0% 0% 0% 93% 0%		
	No. of people employed*	0	96	102	18	216				
	ManufacturingSupport					100%				
	Total no. of occupations identified		3		1					
	Total no. of job roles identified		4		2					
	User industry	Critical job roles (in terms of skill requirement)		Beating machine operator, moulding machine operator and hydraulic press operator					0%	
Footwear							93%			
Industry Suggestions							Function wise distribution of human resource			
<ul style="list-style-type: none"><li>Create awareness about the new technology which could decrease the cost of production and also increase the quality of the finished product.</li><li>Due to imported paperboard, a substitute of leatherboard, from China, the leather board industry is in problems. Paper board is preferred over leather board as it is lighter compared to that of leatherboard. In addition, increase in cost of rubber has dampened growth for the sector. Government should take some action to save the industry.</li></ul>						Core function				
						Support function				
						100%0%				

\*Estimation based on sample data

### 1.3.9. Moulded Rubber Products

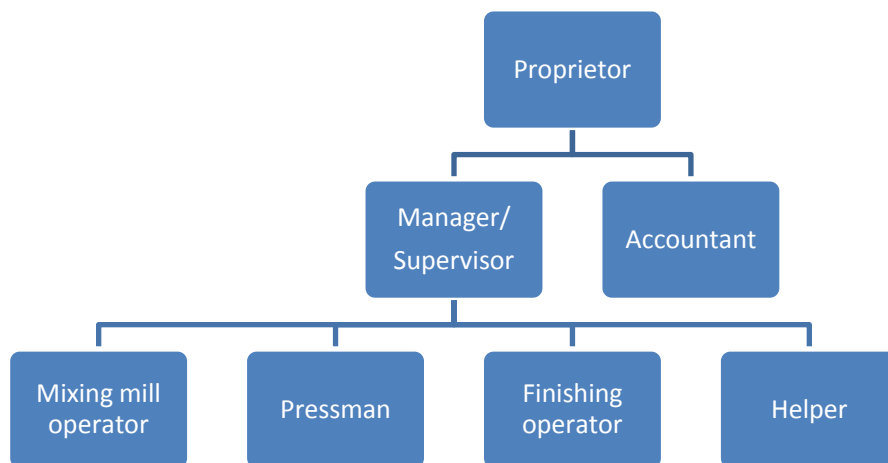
Punjab stands at eleventh position in terms of no. of units manufacturing moulded rubber products at all India level. Major clusters of moulded rubber product units are in Maharashtra followed by Tamil Nadu and Haryana. Among the total number of rubber product manufacturing units in Punjab, moulded rubber products accounts for around 7%. Around 44% of the moulded rubber product manufacturing units in Punjab are located in Jalandhar and the rest are scattered across various locations.

#### Major end consumers of the product

- Automotive and Engineering industries

#### 1.3.9.1. Organisation structure

*Figure 20: Organisation structure*



In case of micro units, the role of the finishing operator could be performed by the pressman or helper.



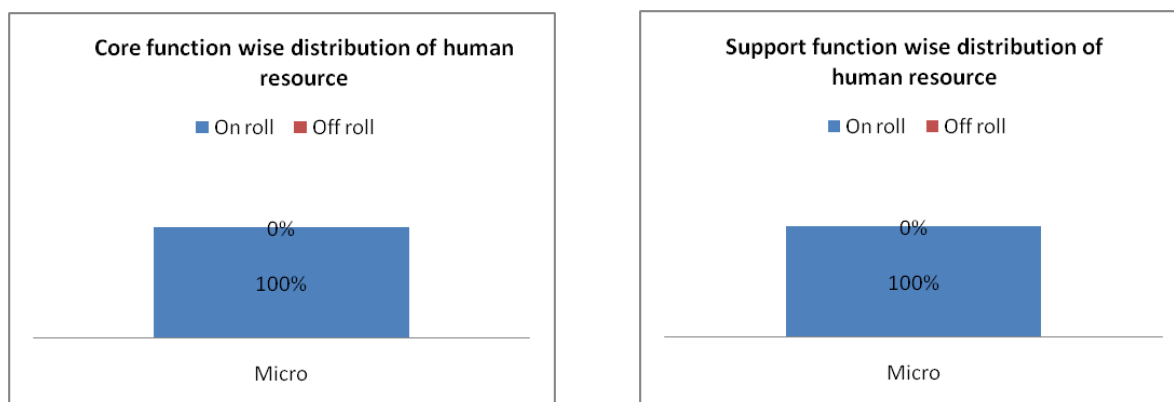
Sample covered

	Micro	Small	Medium	Large	Total
No. of units	9	0	0	0	9

Note: The medium sized company in the product segment is covered under the product segment of tyre and tube.

1.3.9.2. Function wise distribution of human resource

Figure 21: Function wise distribution of human resource



1.3.9.3. Job role wise distribution of human resource

Table 33: Job role wise distribution in the sample units for the product segment of Moulded rubber products

Occupation	Job role	No of people	Occupation	Job role	No of people
Mixing	Mixing Operator	10	Accounts	Manager Accounts	0
				Accountant	0
Moulding	Moulding Supervisor	0	Purchase	Manager Purchase	0
				Stores Assistant	0
	Moulding Operator	13	Marketing	Manager Marketing	0

Occupation	Job role	No of people	Occupation	Job role	No of people
Finishing	Finishing Supervisor	0	HR	HR Manager	0
	Finishing Operator	2	General	Proprietor/MD	6
	Helper	2		General Manager	3
Packaging and Dispatch	Packaging and Dispatch Supervisor	0	Production	Production Manager/Foreman	1
	Helpers	0		Shift In-charge	0
Testing	Chemist	0		Supervisor-labour/raw material	0
	Quality inspector	0		Helpers	17
Production function					
Support function					
Management					

#### 1.3.9.4. Qualification wise distribution of human resource

Table 34: Qualification wise distribution of human resource

Qualification	Micro
Ph.D / Research	0%
Engineers	0%
BA / B.Sc/B Com	11%
Diploma Engineers /Rubber technologist	0%
ITI / Vocational Education	0%
12th std / 10th std pass	0%
Below 10th standard	86%
Others (specify - Such as MBAs, CA, ICWA, CS, etc.)	3%
<b>TOTAL</b>	<b>100%</b>

### 1.3.9.5. Skill gap analysis

Table 35: Occupation wise distribution of job roles

Occupation	Management	Mixing	Pressing
Job roles	Manager/Supervisor	Mixing mill operator	Pressman
		Helper	Helper

#### Occupation: Management

Following job roles are involved in management occupation:

- Supervisor

#### Occupation: Management

##### Job Role: Supervisor

**Qualification and Experience:** Minimally educated/ 10<sup>th</sup> standard/ 12<sup>th</sup> standard with over 10 years of experience in rubber industry.

##### Roles and Responsibilities:

- Manage production process
- Planning for men and material
- Quality check
- Reporting to owner

#### Knowledge and Skill Requirement

#### Skill Gaps and Intensity level of skill gap

##### Technical skills:

- Ability to plan the daily activities based on the monthly plan issues by Proprietor
- Ability to ensure quality parameters
- Ability to perform quality checks
- Knowledge on production process

##### Managerial skills

- Supervisor is expected to possess leadership and mentoring qualities

Particulars	Micro	Small	Medium	Large
<ul style="list-style-type: none"> <li>• Inadequate understanding of the chemical properties of the raw materials which are to be used in the manufacturing</li> </ul>	M			

<ul style="list-style-type: none"> <li>▪ Ability to handle crises situations</li> <li>▪ Ability to enforce discipline at work place</li> <li>▪ Time management skills</li> <li>▪ Planning for human resource requirement and recruiting the required resource</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of knowledge of the latest machinery and raw materials which could enhance the efficiency of the production process and the quality of the end product respectively.</li> </ul>
<b>Soft skills</b> <ul style="list-style-type: none"> <li>▪ Ability to understand the clarifications/help sought by the subordinates and offer solutions</li> <li>▪ Ability to communicate the requirements / expectations from the subordinates in a clear and complete manner</li> <li>▪ Ability to be flexible and open to ideas</li> </ul>	
H- High; M – Medium; L- Low	

### Occupation: Mixing

Following job roles are involved in mixing occupation:

- Mixing operator

### Occupation: Mixing

#### Job Role: Mixing operator

**Qualification and Experience:** Minimally educated with more than 5 years of experience

#### Roles and Responsibilities:

- Weighing the raw material
- Mixing and producing sheets from the rubber compound as per the instruction provided by the owner

#### Knowledge and Skill Requirement

#### Skill Gaps and Intensity level of skill gap

	Particulars	Micro	Small	Medium	Large
<b>Technical skills:</b>					
<ul style="list-style-type: none"> <li>▪ Ability to weigh the raw materials as per the requirement.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Inability to mix the raw materials</li> </ul>	L			

<ul style="list-style-type: none"> <li>▪ Ability to mix the raw materials in the mixing mill as per the pre defined time, order and temperature.</li> <li>▪ Ability to produce rubber sheets from the mixing mill</li> <li>▪ Ability to operate and maintain the mixing mill.</li> <li>▪ Safety skills – Ability to be alert about the safety of his hands as they may get between the rollers of mixing mill.</li> </ul> <p><b>Managerial skills</b></p> <ul style="list-style-type: none"> <li>▪ Ability to instruct the helpers for cleaning, loading/unloading, etc.</li> </ul> <p><b>Soft Skills</b></p> <ul style="list-style-type: none"> <li>▪ Ability to coordinate work with his superiors and subordinates</li> </ul>	<p>as per the specified proportion and duration.</p>
H- High; M – Medium; L- Low	
<b>Occupation: Pressing</b>	

Following job roles are involved in pressing occupation:

- Press man
- Helper

### Occupation: Pressing

**Job Role:** Press man

**Qualification and Experience:** Minimally educated with more than 5 years of experience

### Roles and Responsibilities:

- Responsible for curing rubber sheets

### Knowledge and Skill Requirement

### Skill Gaps and Intensity level of skill gap

	Particulars	Micro	Small	Medium	Large
<b>Technical skills:</b>					

<ul style="list-style-type: none"> <li>▪ Ability to operate the hydraulic press as per the defined time, temperature and pressure.</li> <li>▪ Ability to place the rubber sheet in the hydraulic press.</li> <li>▪ Moulding skills/equipment handling skills like fixing the rubber in the right mould/cavity, placing the mould in the machine, extracting the mould on completion of the moulding time, etc</li> <li>▪ Ability to identify error in the moulded products (such as short fill/cut mark/air pockets) through visual verification of moulded products and reporting to the supervisor in case of observation of any discrepancies from the required end product specifications</li> <li>▪ Deflashing/trimming skills</li> </ul> <p><b>Managerial skills</b></p> <ul style="list-style-type: none"> <li>▪ Ability to instruct the helpers for cleaning, de-flashing, etc.</li> </ul> <p><b>Soft Skills</b></p> <ul style="list-style-type: none"> <li>▪ Ability to coordinate work with his superiors and subordinates</li> </ul>	<ul style="list-style-type: none"> <li>▪ Inadequate curing of the rubber sheet by keeping it in the hydraulic press for more or less than the specified time.</li> </ul> <p>L</p>
---	---

H- High; M – Medium; L- Low

**Occupation:** Production

**Job Role:** Helper

**Qualification and Experience:** Minimally educated with 1 year of experience

**Roles and Responsibilities:**

- Loading/unloading of raw materials.

#### Knowledge and Skill Requirement

#### Skill Gaps and Intensity level of skill gap

#### Technical skills:

- Ability to carry the bags as per the instructions of the operators or the owner.

#### Managerial skills

- N/A

#### Soft Skills

- Ability to coordinate work with his superiors

Particulars      Micro      Small      Medium      Large

- Inability to understand and follow the instructions of the operators/owners.

H- High; M – Medium; L- Low

Table 36: Job role wise distribution in all the units for the product segment of Moulded rubber products  
(Estimated)

Occupation	Job role	No of people	Occupation	Job role	No of people
Mixing	Mixing Operator	43	Accounts	Manager Accounts	0
				Accountant	0
Moulding	Moulding Supervisor	0		Manager Purchase	0
	Moulding Operator	55		Purchase	Stores Assistant
			Marketing	Manager Marketing	0
	Finishing	Finishing Supervisor	0	HR	HR Manager
Finishing Operator		9	General	Proprietor/MD	26
Helper		9		General Manager	13
Packaging and Dispatch	Packaging and Dispatch Supervisor	0	Production	Production Manager/Foreman	4
	Helpers	0		Shift In-charge	0
Testing	Chemist	0		Supervisor-labour/raw material	0
	Quality inspector	0		Helpers	72
Production function					
Support function					
Management					

## Summary Sheet: Moulded Rubber Products

Categories	Total no. of moulded rubber product manufacturing units in Punjab					17	Qualification wise distribution of human resource		
NA	Distribution of units	Micro	Small	Medium	Large	Total	Ph.D / Research Engineers BA/B.Sc/B Com Diploma Engineers ITI/Vocational Education 12th std/10th std pass Below 10th std Others (MBAs, CA, ICWA, CS, etc.) Total	0% 0% 11% 0% 0% 0% 86% 3% 100%	
		71%	24%	6%	0%	100%			
	No. of people employed*	144	96	36	0	276			
	Manufacturing					Support			
	Total no. of occupations identified		3		1				
	Total no. of job roles identified		4		1				
User industry	Critical job roles (in terms of skill requirement)	Mixing mill operator and pressman					Function wise distribution of human resource		
Automotive and engineering industries									
	Industry Suggestions <ul style="list-style-type: none"><li>▪ RSDC can conduct training programs targeted to the proprietor in terms of<ul style="list-style-type: none"><li>○ Creating awareness about the latest machinery and raw materials which are used in the rubber industry.</li><li>○ Technical training which can provide an understanding to develop the chemical formulation as per the required end product. The curriculum of this training should have modules which could explain<ul style="list-style-type: none"><li>▪ The chemical properties of the raw materials.</li><li>▪ The methodology to determine<ul style="list-style-type: none"><li>• The required proportion of the raw materials.</li><li>• The optimum duration and temperature for mixing of raw materials.</li><li>• The optimum duration and temperature for curing of rubber compound.</li></ul></li></ul></li></ul></li></ul>						On roll	Off roll	
						Core function	100%	0%	
						Support function	100%	0%	

\*Estimation based on sample data

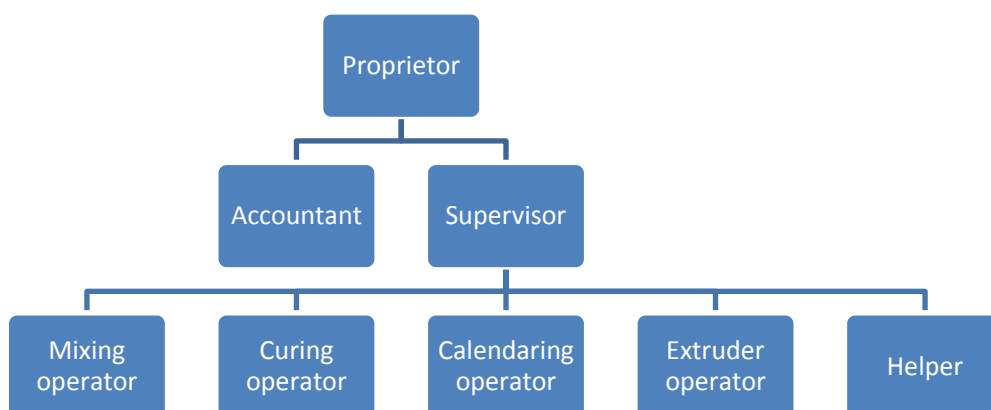


### 1.3.10. Rubber covered rollers

Rubber covered rollers are used in various industries viz. paper industry, printing industry, roofing industry, steel industry, textile industry, etc.

#### 1.3.10.1. Organization structure

Figure 22: Organization structure



The occupation for a helper is not defined as the job which is to be executed by a helper is unskilled in nature. So, the helper would be working across different occupations depending upon the requirement of human resources in the production process. In addition, the mixing operator performs the role of calendaring and extruder operator.

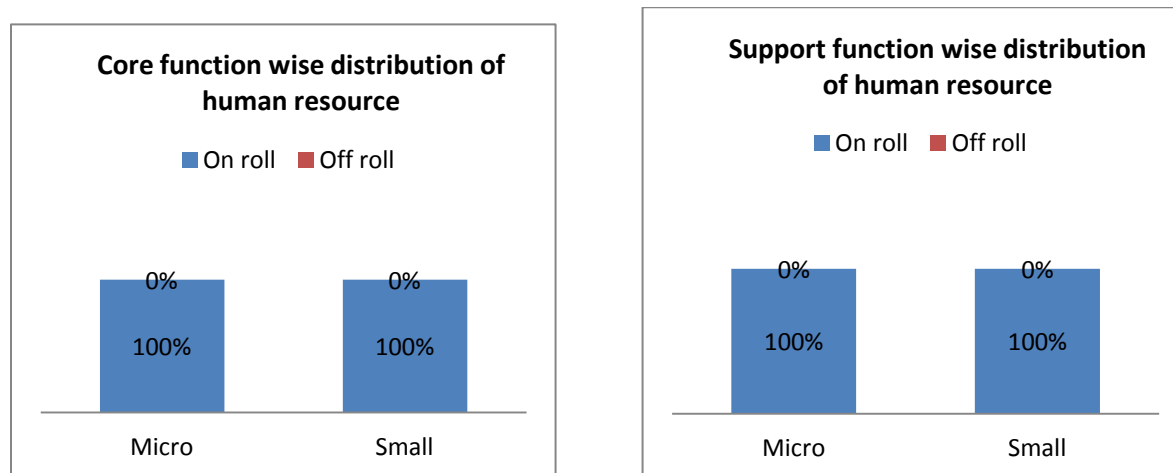
#### Sample covered

	Micro	Small	Medium	Large	Total
No. of units	6	1	0	0	7

Note: The large sized unit is covered under the product segment of sports goods while we were not able to reach the medium sized company.

### 1.3.10.2. Function wise distribution of human resource

Figure 23: Function wise distribution of human resource



### 1.3.10.3. Job role wise distribution of human resource

Majority of the human resource deployed in dipped goods units are under dipping operator and helper (Inspection) job role.

Table 37: Job role wise distribution in the sample units for the product segment of Rubber Covered Rollers

Occupation	Job role	Number of people	Occupation	Job role	Number of people
Mixing	Supervisor	3	Accounts	Manager Accounts	0
	Mixing Operator	17		Accountant	7
	Helpers	61	Purchase	Manager Purchase	0
Extruding	Operators	6		Stores Assistant	0
	Helpers	0	Marketing	Manager Marketing	1
Calendaring	Operators	5		Marketing executives	8
	Helpers	0	HR	HR	0

Occupation	Job role	Number of people	Occupation	Job role	Number of people
				<i>Manager</i>	
<b>Curing</b>	<i>Curing Supervisor</i>	0			
	<i>Curing Operator</i>	17	<b>General</b>	<i>Proprietor/ MD</i>	7
	<i>Helpers</i>	0		<i>General Manager</i>	0
<b>Finishing</b>	<i>Finishing Supervisor</i>	0	<b>Production</b>	<i>Production Manager</i>	2
	<i>Finishing Operator</i>	0		<i>Shift In-charge</i>	0
	<i>Helper</i>	0			
<b>Packaging and Dispatch</b>	<i>Packaging and Dispatch Supervisor</i>	0			
	<i>Helpers</i>	0			

Production function
Support function
Management

#### 1.3.10.4. Qualification wise distribution of human resource

Table 38: Qualification wise distribution of human resource

Qualification	Micro	Small
<b>Ph.D / Research</b>	0%	0%
<b>Engineers</b>	4%	0%
<b>BA / BSc/B Com</b>	20%	16%
<b>Diploma Engineers</b>	0%	0%

ITI / Vocational Education	0%	0%
12th std / 10th std pass	0%	0%
Below 10th standard	72%	84%
Others (specify - Such as MBAs, CA, ICWA, CS, etc.)	4%	0%
<b>TOTAL</b>	<b>100%</b>	<b>100%</b>

### 1.3.10.5. Skill gap analysis

Table 39: Occupation wise distribution of job roles

Occupation	Production	Mixing	Curing	Packaging
Job Roles	Production Manager	Mixing operator	Curing operator	Helper
	Production Supervisor	Helper		

Note: Skill gap analysis of extruding and calendaring job role is incorporated in the mixing job role

#### Occupation: Production

Following job roles are involved in production occupation:

- Production Manager
- Production Supervisor

#### Occupation: Production

##### Job Role: Production Manager

**Qualification and Experience:** Engineer and have a work experience of 8 years

##### Roles and Responsibilities:

- Determine the raw materials and its proportion which are to be mixed based on the requirement of the end product.
- Delegate work to supervisors
- Plan the production processes so as to make optimal use of resources (men, machine and materials)
- Monitor the overall production process.

- Check the quality of the product in various stages of production processes.

### Knowledge and Skill Requirement

### Skill Gaps and Intensity level of skill gap

#### Technical skills:

- In depth knowledge about production process
- Knowledge on properties of various raw materials used for production
- Basic knowledge of operation of machines used in the manufacturing process.
- Ability to develop chemical formulation
- Ability to check quality of products.

#### Managerial skills

- Ability to meet the production targets

#### Soft Skills

- Adequate communication skills so as to interact with supervisors and subordinates.

Particulars      Micro      Small      Medium      Large

Inadequate knowledge of latest technology used in rubber industry

L

L

NA

NA

H- High; M – Medium; L- Low

**Occupation:** Production

**Job Role:** Production Supervisor

**Qualification and Experience:** 12<sup>th</sup> standard/10<sup>th</sup> standard/school education and having experience of 6 years

#### Roles and Responsibilities:

- Monitor the overall production processes like mixing, extruding, calendaring, moulding, pressing etc
- Implement the production plans as specified the production manager.
- Supervision of machine operators
- Coordination with production manager and operators

### Knowledge and Skill Requirement

### Skill Gaps and Intensity level of skill gap

Technical skills	Particulars	Micro	Small	Medium	Large
<ul style="list-style-type: none"> <li>Knowledge of raw material required in production.</li> <li>Ability to check the quality at various stages of the production process.</li> <li>Ability to understand the structure of chemical formulation.</li> <li>Ability to maintain inventory of raw materials.</li> <li>Ability to ensure the smooth working of mixing, extruding and pressing machines</li> <li>Ability to mentor machine operators</li> <li>Basic knowledge on properties of rubber and compound used in moulding process</li> <li>Knowledge of physical properties of rubber (hardness, tensile, etc)</li> <li>Ability to solve basic electrical problems.</li> </ul>	<ul style="list-style-type: none"> <li>Lack of team management</li> </ul>	L	L	NA	NA
<b>Managerial skills</b> <b>NA</b> <b>Soft Skills</b> <b>NA</b>					
H- High; M – Medium; L- Low					

### Occupation: Mixing

Following job roles are involved in mixing occupation:

- Mixing operator
- Helper

**Occupation:** Mixing

**Job Role:** Mixing operator

**Qualification and Experience:** Below 10<sup>th</sup> standard and have a work experience of 4 years

**Roles and Responsibilities:**

- In a small unit, the onus of mixing, calendaring and extrusion process lies with the mixing operator.
- Coordinate with supervisor and helpers for further production activities.
- Supervision of helpers
- Management of mixing machines in terms of speed and running timing of machines.

**Knowledge and Skill Requirement**

**Skill Gaps and Intensity level of skill gap**

**Technical Skills**

- Knowledge on storage locations of the raw materials
- Ability to select the raw materials (like Rubber, Chemicals, Fillers, Oil, etc) as mentioned in the mill sheet by reading the labels in the raw material section
- Ability to weigh the required raw materials as specified in the mill sheet
- Ability to operate Kneader to form dough
- Knowledge of mixing process
- Understanding of mixing machines
- Ability to mix raw material as per the sequence
- Knowledge of mixing properties of fillers and other chemicals
- Ability to operate calendaring machines
- Ability to fed materials in to calendaring machines
- Knowledge of size and width of the rubber sheets coming out from calendaring

Particulars	Micro	Small	Medium	Large
-------------	-------	-------	--------	-------

- |  |   |   |    |    |
|--|---|---|----|----|
| ▪ Inability to mix the raw materials as per the defined duration and sequence. | L | L | NA | NA |
|--|---|---|----|----|

<p>process.</p> <ul style="list-style-type: none"> <li>▪ Knowledge of operating extruder and its basic maintenance</li> <li>▪ Ability to monitor and maintain the temperature in the extrusion machine</li> <li>▪ Ability to fix the appropriate die in the extrusion machine as per the required output</li> <li>▪ Ability to insert the pieces / strips of rubber compound consistently in the machine for desired output</li> </ul> <p><b>Managerial skills</b></p> <ul style="list-style-type: none"> <li>▪ Ability to supervise helpers</li> </ul> <p><b>Soft Skills</b></p> <ul style="list-style-type: none"> <li>▪ Ability to coordinate with supervisors and helpers.</li> </ul>	
H- High; M-Medium; L-Low	

### Occupation: Mixing

#### Job Role: Helper

**Qualification and Experience:** Below 10<sup>th</sup> standard and have a work experience of 1 to 2 year

#### Roles and Responsibilities:

- Responsible for finishing of products
- Assist to operators to work on mixing and calendaring machines
- Remove waste material from machines like mixing, calendaring
- Loading and unloading of raw material in to mixing, calendaring and curing machines
- Packaging of finished products

#### Knowledge and Skill Requirement

#### Skill Gaps and Intensity level of skill gap

	Particulars	Micro	Small	Medium	Large
<b>Technical skills</b>	<ul style="list-style-type: none"> <li>▪ Inadequate</li> </ul>				



<ul style="list-style-type: none"> <li>Ability to weighing raw materials for mixing process</li> <li>Ability to maintain mixing machines, calendaring machines and hydraulic machines in terms of cleaning and removal of wastage from machines.</li> <li>Ability to give assistant to operators in repair of production equipments</li> <li>Ability to do finishing of products.</li> <li>Ability to do packaging of finished products.</li> </ul>	<p>knowledge of safety procedures.</p>	L	L	NA	NA
<b>Managerial skills</b> <b>NA</b> <b>Soft Skills</b> <b>NA</b>					
H- High; M-Medium; L-Low					

### Occupation: Curing

Following job roles are involved in Curing occupation:

- Curing operator

### Occupation: Curing

**Job Role:** Curing operator

**Qualification and Experience:** Below 10<sup>th</sup> standard and have a work experience of 4 years

#### Roles and Responsibilities:

- Assists in production implementation
- Responsible for Curing function
- Ensure smooth functioning of the curing machines
- Coordinate with other operators for production

#### Knowledge and Skill Requirement

#### Skill Gaps and Intensity level of skill gap

#### Technical skills

Particulars	Micro	Small	Medium	Large
-------------	-------	-------	--------	-------

<ul style="list-style-type: none"> <li>Ability to switch on and off the curing machine</li> <li>Ability to cure as per the adequate temperature and pressure</li> <li>Ability to place material into the curing machine</li> <li>Ability to give instructions to helpers.</li> <li>Ability to operate the curing machine as per the specified duration.</li> </ul> <p><b>Managerial skills</b></p> <ul style="list-style-type: none"> <li>Ability to supervise the helpers</li> </ul> <p><b>Soft Skills</b></p> <ul style="list-style-type: none"> <li>Ability to coordinate with production manager, other operators and helpers</li> </ul>	<ul style="list-style-type: none"> <li>Inability to cure the product as per the required specifications of temperature and duration.</li> </ul>	L	L	NA	NA
--	---	---	---	----	----

H- High; M-Medium; L-Low

### Occupation: Packing & Dispatch

Following job roles are involved in packing and dispatch occupation:

- Helper

### Occupation: Packing

#### Job Role: Helper

**Qualification and Experience:** Minimally educated

#### Roles and Responsibilities:

- Pack the finish product
- Loading of finished product

#### Knowledge and Skill Requirement

#### Skill Gaps and Intensity level of skill gap

Particulars	Micro	Small	Medium	Large
-------------	-------	-------	--------	-------

**Technical skills**

- Ability to pack the finished product in plastic bags and boxes as per the size of the roller
- Ability to load the finished product as per the specified instructions.

**Managerial skills**

NA

**Soft Skills**

NA

- Inadequate communication skills to follow the instruction of the supervisor.

H-High; M-Medium; L-Low

Table 40: Job role wise distribution in all the units for the product segment of Rubber Covered Rollers  
(Estimated)

Occupation	Job role	Number of people	Occupation	Job role	Number of people
<b>Mixing</b>	<i>Supervisor</i>	9	<b>Accounts</b>	<i>Manager Accounts</i>	0
	<i>Mixing Operator</i>	52		<i>Accountant</i>	22
	<i>Helpers</i>	188		<i>Manager Purchase</i>	0
<b>Extruding</b>	<i>Operators</i>	18	<b>Purchase</b>	<i>Stores Assistant</i>	0
	<i>Helpers</i>	0	<b>Marketing</b>	<i>Manager Marketing</i>	3
<b>Calendaring</b>	<i>Operators</i>	15		<i>Marketing executives</i>	25
	<i>Helpers</i>	0	<b>HR</b>	<i>HR Manager</i>	0
<b>Curing</b>	<i>Curing Supervisor</i>	0			0
	<i>Curing Operator</i>	52	<b>General</b>	<i>Proprietor/MD</i>	22
	<i>Helpers</i>	0		<i>General Manager</i>	0
<b>Finishing</b>	<i>Finishing Supervisor</i>	0	<b>Production</b>	<i>Production Manager</i>	6
	<i>Finishing Operator</i>	0		<i>Shift In-charge</i>	0
	<i>Helper</i>	0			
<b>Packaging and Dispatch</b>	<i>Packaging and Dispatch Supervisor</i>	0			
	<i>Helpers</i>	0			
Production function					
Support function					
Management					

## Summary Sheet: Rubber covered rollers

Categories	Total no. of rubber covered roller manufacturing units in Punjab					18	Qualification wise distribution of human resource		
NA	Distribution of units	Micro	Small	Medium	Large	Total	Ph.D / Research Engineers BA/B.Sc/B Com Diploma Engineers ITI/Vocational Education 12th std/10th std pass Below 10th std Others (MBAs, CA, ICWA, CS, etc.) Total	0%	
		78%	11%	6%	6%	100%		1%	
	No. of people employed*	302	60	48	84	494		16%	
	Manufacturing					Support		0%	
	Total no. of occupations identified		4		2			0%	
	Total no. of job roles identified		6		3			0%	
User industry	Critical job roles (in terms of skill requirement)	Mixing mill operator and curing press operator.					82%		
Used in various industries viz. paper industry, printing industry, roofing industry, steel industry, textile industry, etc.							2%		
Industry Suggestions							Function wise distribution of human resource		
<ul style="list-style-type: none"><li>▪ RSDC can conduct training programs targeted to the proprietor in terms of<ul style="list-style-type: none"><li>○ Creating awareness about the latest machinery and raw materials which are used in the rubber industry and technical training to develop the chemical formulation</li></ul></li></ul>								On roll	Off roll
							Core function	98.5%	1.5%
							Support function	100%	0%

\*Estimation based on sample data

### 1.3.11. Rubber Matting

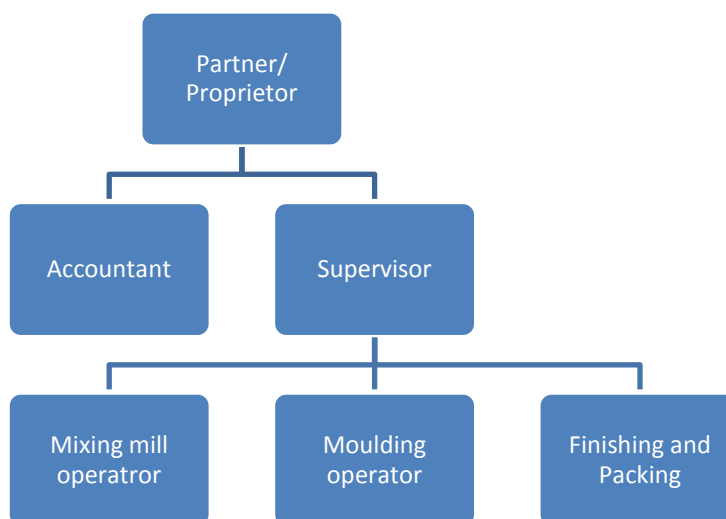
Rubber mat is a piece of flat rubber, generally placed on a floor or other flat surface to cover the surface, to provide insulations, to avoid dust, etc. Since there are only a few units which manufacture rubber mats, it is one of the minor product categories in the state.

#### Types of sub product categories

There are no sub product categories in Rubber matting product segment. However, Rubber mats are used for various purposes and the utilities differ based on the end consumer.

#### 1.3.11.1. Organization structure

*Figure 24: Organisation structure*



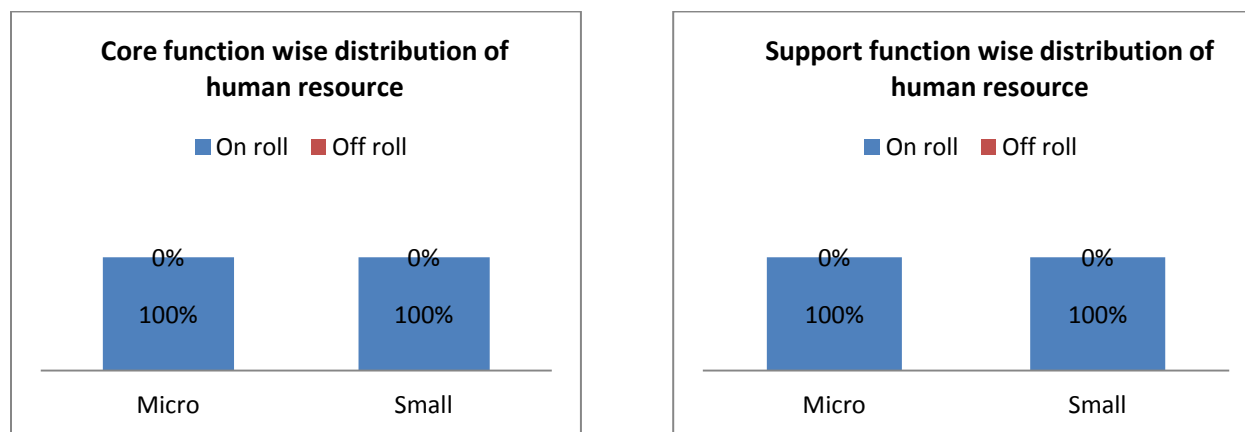
In micro and small units, the activities of the supporting functions are executed by Proprietor or Partners.

#### Sample covered

	Micro	Small	Medium	Large	Total
No. of units	1	1	0	0	2

### 1.3.11.2. Function wise distribution of human resource

Figure 25: Function wise distribution of human resource



### 1.3.11.3. Job role wise distribution of human resource

Majority of the human resource deployed in rubber matting units are under mixing operator, moulding operator and helper.

Table 41: Job role wise distribution in the sample units for the product segment of Rubber matting

Occupation	Job role	Number of people	Occupation	Job role	Number of people
Mixing	Supervisor	2	Accounts	Manager Accounts	0
	Mixing Operator	5		Accountant	5
	Helpers	46	Purchase	Manager Purchase	0
				Stores Assistant	0
			Maintenance	Operator	0
Moulding/Pressing	Moulding Supervisor	0	Marketing	Manager Marketing	0
	Moulding / Pressing Operator	5	HR	HR Manager	0

Occupation	Job role	Number of people	Occupation	Job role	Number of people
	<i>Helpers</i>	0			
<b>Cutting</b>	<i>Cutting Operators</i>	3	<b>General</b>	<i>Proprietor/MD/Partner</i>	4
	<i>Helpers</i>	0		<i>General Manager</i>	0
<b>Finishing</b>	<i>Finishing Supervisor</i>	0	<b>Production</b>	<i>Production Manager</i>	0
	<i>Helper</i>	0		<i>Shift In-charge</i>	0
<b>Packaging and Dispatch</b>	<i>Packaging and Dispatch Supervisor</i>	0			
	<i>Helpers</i>	0			
Production function					
Support function					
Management					

#### 1.3.11.4. Qualification wise distribution of human resource

Table 42: Qualification wise distribution of human resource

Qualification	Micro	Small
Ph.D / Research	0%	0%
Engineers	0%	0%
BA / BSc/B Com	17%	13%
Diploma Engineers	0%	0%
ITI / Vocational Education	0%	0%
12th std / 10th std pass	0%	0%
Below 10th standard	83%	87%
Others (specify - Such as MBAs, CA, ICWA, CS, etc.)	0%	0%
<b>TOTAL</b>	<b>100%</b>	<b>100%</b>

### 1.3.11.5. Skill gap analysis

Table 43: Occupation wise distribution of job roles

Occupation	Production	Mixing	Moulding	Finishing and Packing
Job Roles	Supervisor	Mixing mill operator	Moulding operator	Helper

**Occupation:** Production

**Job Role:** Supervisor

**Qualification and Experience:** Graduate with over 15 years of experience in rubber industry.

#### Roles and Responsibilities:

- Monitor and manage the complete production process
- Strategize for the requirement of human resources and raw material
- Check the quality of the end product.

#### Knowledge and Skill Requirement

#### Skill Gaps and Intensity level of skill gap

#### Technical skills:

- Ability to devise the production strategy so as to meet the required production targets.
- Ability to ensure that the quality of the end product is as per the specifications.
- Knowledge of the complete production process.
- Understanding of the chemical properties of the raw materials.
- Knowledge of the basic operation of the machines used in the manufacturing process.

#### Managerial skills

- Ability to lead and train his subordinates.
- Ability to perform crisis management.

Particulars	Micro	Small	Medium	Large
• Inadequate understanding of the chemical properties of the raw materials.	M	M	NA	NA
• Inadequate knowledge of the latest machinery and raw materials which could enhance the efficiency of the production process and the quality of the end	M	M	NA	NA



- Ability to enforce discipline
- Ability to maximize the returns from the available resources i.e. human and infrastructure

product.

### Soft skills

- Ability to understand the clarifications/help sought by the subordinates and provide feasible solutions
- Ability to resolve conflicts of his subordinates.

H- High; M – Medium; L- Low

### Occupation: Mixing

Following job roles are involved in mixing occupation:

- Mixing mill operator

### Occupation: Mixing

**Job Role:** Mixing mill operator

**Qualification and Experience:** Minimally educated with more than 10 years of experience

### Roles and Responsibilities:

- Homogeneous mixing of raw materials in the mixing mill
- Produce the output in the form of sheet
- Operation of mixing mill

### Knowledge and Skill Requirement

### Skill Gaps and Intensity level of skill gap

### Technical skills

- Ability to identify the raw materials
- Ability to mix the raw materials as per the specified time.

Particulars	Micro	Small	Medium	Large
▪ Inadequate skills in mixing the raw materials as per	L	L	NA	NA

<ul style="list-style-type: none"> <li>▪ Ability to homogeneously mix the raw materials in the specified sequence</li> <li>▪ Ability to produce the output in the form of a sheet which has the specified width.</li> <li>▪ Ability to maintain adequate inflow and outflow of water in the mixing mill so as to maintain the temperature of the machine.</li> <li>▪ Safety skills-Operator must be alert that his hands do not get inside the mixing mill.</li> <li>▪ Ability to execute basic maintenance activity as required.</li> </ul> <p><b>Managerial skills</b></p> <p>NA</p> <p><b>Soft skills</b></p> <p>NA</p>	<p>the required specifications i.e. duration, width and temperature</p>
H- High; M-Medium; L-Low	

### Occupation: Moulding

Following job roles are involved in moulding occupation:

- Moulding operator

### Occupation: Moulding

**Job Role:** Moulding operator

**Qualification and Experience:** Minimally educated with more than 10 years of experience

### Roles and Responsibilities:

- Adequate curing and moulding of rubber compound as per the specified shape
- Operation of hydraulic process

### Knowledge and Skill Requirement

### Skill Gaps and Intensity level of skill gap

Particulars	Micro	Small	Medium	Large
-------------	-------	-------	--------	-------

### Technical skills:

- Ability to cut the rubber sheet as per the shape of the mould.
- Ability to set the required moulds in the hydraulic press
- Ability to operate the hydraulic press as per the defined duration, temperature and pressure so as to provide required curing to the rubber compound.
- Ability to set the die in the hydraulic press.
- Ability to visually check the curing quality of the end product.

### Managerial skills

NA

### Soft skills

NA

- Inability to cure the rubber compound as per the specified duration.

L

L

NA

NA

### Occupation: Finishing and packing

Following job roles are involved in packing and dispatch occupation:

- Helper

### Occupation: Finishing and packing

#### Job Role: Helper

**Qualification and Experience:** Minimally educated

#### Roles and Responsibilities:

- Trim excess flash from the end product
- Pack the finish product
- Loading of finished product

#### Knowledge and Skill Requirement

#### Skill Gaps and Intensity level of skill gap

#### Technical Skills

Particulars

Micro

Small

Medium

Large

- Ability to remove flash from the end product without causing any damage to the end product.
- Ability to pack the finished product as required.
- Ability to load the finished product as per the specified instructions.

**Managerial skills**

NA

**Soft skills**

NA

- Inability to adequately remove flashes from the end product.

L L NA NA

H-High; M-Medium; L-Low

Table 44: Job role wise distribution in all the units for the product segment of Rubber matting(Estimated)

Occupation	Job role	Number of people	Occupation	Job role	Number of people
<b>Mixing</b>	<i>Supervisor</i>	2	<b>Accounts</b>	<i>Manager Accounts</i>	0
	<i>Mixing Operator</i>	5		<i>Accountant</i>	5
	<i>Helpers</i>	46	<b>Purchase</b>	<i>Manager Purchase</i>	0
				<i>Stores Assistant</i>	0
			<b>Maintenance</b>	<i>Operator</i>	0
<b>Moulding/Pressing</b>	<i>Moulding Supervisor</i>	0	<b>Marketing</b>	<i>Manager Marketing</i>	0
	<i>Moulding / Pressing Operator</i>	5	<b>HR</b>	<i>HR Manager</i>	0
	<i>Helpers</i>	0			

Occupation	Job role	Number of people	Occupation	Job role	Number of people
<b>Cutting</b>	<i>Cutting Operators</i>	3	<b>General</b>	<i>Proprietor/MD/Partner</i>	4
	<i>Helpers</i>	0		<i>General Manager</i>	0
<b>Finishing</b>	<i>Finishing Supervisor</i>	0	<b>Production</b>	<i>Production Manager</i>	0
	<i>Helper</i>	0		<i>Shift In-charge</i>	0
<b>Packaging and Dispatch</b>	<i>Packaging and Dispatch Supervisor</i>	0			
	<i>Helpers</i>	0			
Production function					
Support function					
Management					

## Summary Sheet: Rubber matting

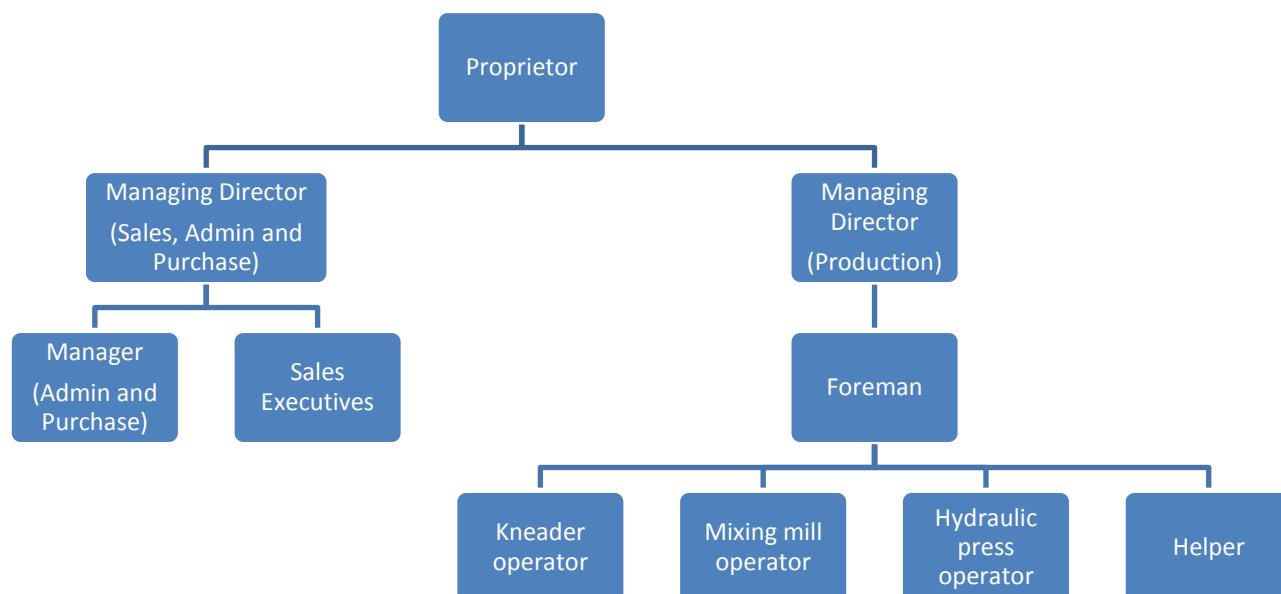
Categories	Total no. of rubber mat product manufacturing units in Punjab					2	Qualification wise distribution of human resource		
NA	Distribution of units	Micro	Small	Medium	Large	Total	Ph.D / Research Engineers BA/B.Sc/B Com Diploma Engineers ITI/Vocational Education 12th std/10th std pass Below 10th std Others (MBAs, CA, ICWA, CS, etc.) Total	0% 0% 15% 0% 0% 0% 85% 0% 100%	
		50%	50%	0%	0%	100%			
	No. of people employed*	14	70	0	0	84			
	Manufacturing					Support			
	Total no. of occupations identified		3		1				
	Total no. of job roles identified		4		1				
User industry	Critical job roles (in terms of skill requirement)	Mixing mill operator and moulding operator.					Total	100%	
Mats									
Industry Suggestions <ul style="list-style-type: none"><li>Conduct awareness programs about the latest machinery and raw materials which are used in the rubber industry</li><li>Conduct technical training programs which could help the industry players to develop the required chemical formulation</li></ul>							Function wise distribution of human resource		
								On roll	Off roll
							Core function	100%	0%
							Support function	100%	0%

\*Estimation based on sample data

### 1.3.12. Rubber Sheeting

The rubber sheet is a general purpose industrial rubber used in any application needing a common elastic rubber material. It is used across several purposes which range from decorative to rubber sheeting flooring runners, industrial buildings, OEM parts, etc. There are only a few units which manufacture rubber sheets so the product segment of rubber sheeting forms a minor segment in Punjab.

#### 1.3.12.1. Organization structure



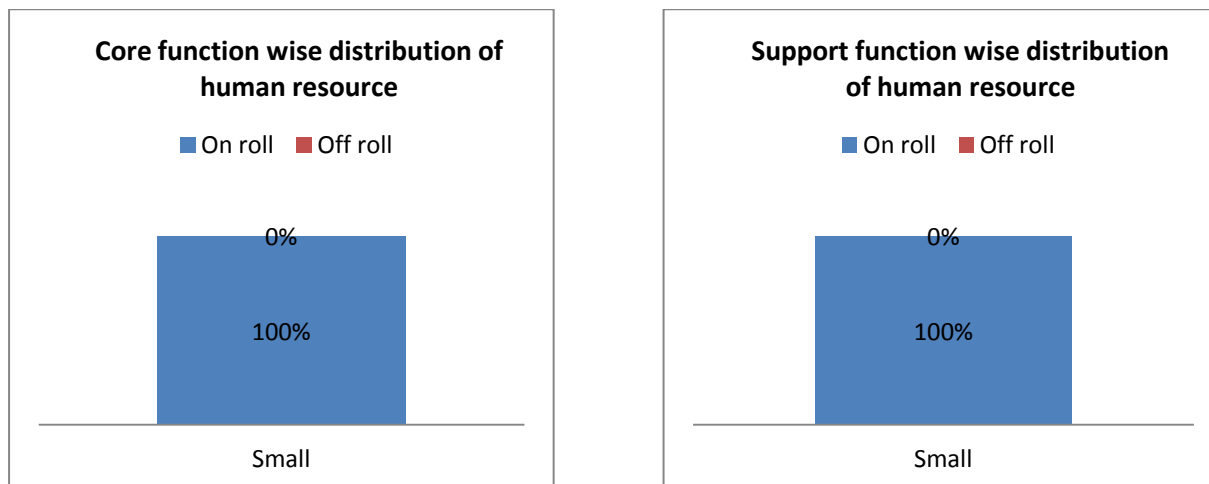
In micro and small units, the activities of the supporting functions are executed by Proprietor.

#### Sample covered

	Micro	Small	Medium	Large	Total
No. of units	0	2	0	0	2

### 1.3.12.2. Function wise distribution of human resource

Figure 26: Function wise distribution of human resource



### 1.3.12.3. Job role wise distribution of human resource

Majority of the human resource deployed in rubber sheeting units are under mixing operator, hydraulic press operator and helper.

Table 45: Job role wise distribution in the sample units for the product segment of Rubber sheeting

Occupation	Job role	Number of people	Occupation	Job role	Number of people
Mixing	Mixing Operator	3	Accounts	Manager Accounts	0
	Helpers	14		Accountant	0
Curing	Curing Operator	4	Purchase	Manager Purchase	0
				Stores Assistant	0
	Helpers	0	Marketing	Sales executive	2
				Manager Marketing	0
Finishing/Cutting	Finishing/Cutti	0	HR	HR Manager	0



Occupation	Job role	Number of people	Occupation	Job role	Number of people
	ng Operator				
	Helper	0	<b>TOTAL</b>		2
	Packaging and Dispatch Supervisor	0	<b>General</b>	Proprietor/MD	4
<b>Packaging and Dispatch</b>	Helpers	0		General Manager	1
	Chemist	0	<b>Production</b>	Production Manager/Fore man	1
<b>Testing</b>	Quality inspector	0		Shift In-charge	0
		21		Supervisor-labour/raw material	0
Production function					
Support function					
Management					

#### 1.3.12.4. Qualification wise distribution of human resource

Table 46: Qualification wise distribution of human resource

Qualification	Small
Ph.D / Research	0%
Engineers	0%
BA / BSc/B Com	10%
12th std / 10th std pass	0%
Below 10th standard	90%
Others (specify - Such as MBAs, CA, ICWA, CS, etc.)	0%
<b>TOTAL</b>	<b>100%</b>

### 1.3.12.5. Skill gap analysis

Table 47: Occupation wise distribution of job roles

Occupation	Production	Mixing	Curing	Finishing and Packing
Job Roles	Foreman	Kneader operator	Hydraulic press operator	Helper
		Mixing mill operator		

**Occupation:** Production

**Job Role:** Foreman

**Qualification and Experience:** 12<sup>th</sup> standard with over 10 years of experience in rubber industry.

#### Roles and Responsibilities:

- Monitor and manage the complete production process
- Meet the production targets
- Maintain the quality of the product with very low line stoppages
- Strategize for the requirement of human resources and raw material
- Check the quality of the end product.

#### Knowledge and Skill Requirement

#### Skill Gaps and Intensity level of skill gap

#### Technical skills:

- Ability to understand the complete process of output at each and every stage of the production process.
- Ability to maintain the quality requirements for the product
- Ability to manage the discrepancies/failures occurring in the production process.
- Ability to develop the best possible

Particulars	Micro	Small	Medium	Large
<ul style="list-style-type: none"> <li>▪ Lack of understanding of the chemical properties of the raw materials.</li> </ul>	NA	M	NA	NA

production strategy so as to meet the required production targets.

- Ability to understand the chemical properties of the raw materials and their role in the chemical formulation.
- Must have understanding of the basic operation of the machines used in the manufacturing process.

### **Managerial skills**

- Meet the targets and should be able to manage a team of people to get the work done
- Develop the best talent pool of shop floor workforce
- Ability to perform crisis management.
- Ability to maintain discipline among his subordinates
- Ability to maximize the returns from the available resources i.e. human and infrastructure

### **Soft skills**

- Ability to resolve conflicts of his subordinates and communicate the unresolved issues to the management.
- Should possess following skills: teamwork, communication skills, leadership skills

H- High; M – Medium; L- Low

## **Occupation: Mixing**

Following job roles are involved in mixing occupation:

- Kneader operator
- Mixing mill operator

**Occupation:** Mixing

**Job Role:** Kneader operator

**Qualification and Experience:** Minimally educated with more than 5 years of experience in rubber industry

**Roles and Responsibilities:**

- Mixing of raw materials in the kneader to make rubber compound
- Instruct the helpers to enable a smooth production process
- Operation of machine

### Knowledge and Skill Requirement

### Skill Gaps and Intensity level of skill gap

#### Technical skills

- Ability to operate the kneader machine
- Ability to identify all the raw materials required to develop the required chemical formulation and ensure their availability before starting the mastication process.
- Ability to weigh the raw materials.
- Ability to mix the raw materials as per the specified duration, proportion and sequence.
- Ability to minimize the wastage of raw materials by adequately feeding the raw materials into the kneader
- Ability to maintain adequate inflow and outflow of water in the kneader so as to maintain the temperature of the machine.
- Ability to execute basic maintenance activity as required for example by

Particulars	Micro	Small	Medium	Large
-------------	-------	-------	--------	-------

- |  |    |   |    |    |
|--|----|---|----|----|
| <ul style="list-style-type: none"> <li>▪ Inadequate skills to mix the raw materials as per the defined sequence, temperature and duration required for mastication.</li> </ul> | NA | L | NA | NA |
|--|----|---|----|----|

regular oiling of the machine.

### Managerial skills

NA

### Soft skills

NA

H- High; M-Medium; L-Low

## Occupation: Mixing

**Job Role:** Mixing mill operator

**Qualification and Experience:** Minimally educated with more than 5 years of experience

### Roles and Responsibilities:

- Homogeneous mixing of raw materials in the mixing mill
- Produce the output in the form of sheet
- Operation of mixing mill

### Knowledge and Skill Requirement

### Skill Gaps and Intensity level of skill gap

#### Technical skills

- Ability to identify the raw materials
- Ability to mix the raw materials as per the specified time.
- Ability to homogeneously mix the raw materials in the specified sequence
- Ability to produce the output in the form of a sheet which has the specified width. The required width can be obtained by maintaining the distance between the rollers of the mixing mill.
- Ability to minimize the wastage of raw materials by adequately feeding the raw materials into the mixing mill
- Ability to maintain adequate inflow and

Particulars	Micro	Small	Medium	Large
<ul style="list-style-type: none"> <li>▪ Inadequate skills in mixing the raw materials as per the required specifications i.e. duration, width and temperature</li> </ul>	NA	L	NA	NA

<p>outflow of water in the mixing mill so as to maintain the temperature of the machine.</p> <ul style="list-style-type: none"> <li>▪ Safety skills-Operator must be alert that his hands do not get inside the mixing mill.</li> <li>▪ Ability to execute basic maintenance activity as required.</li> </ul> <p><b>Managerial skills</b></p> <p>NA</p> <p><b>Soft skills</b></p> <p>NA</p>	
H- High; M-Medium; L-Low	

### Occupation: Curing

Following job roles are involved in moulding occupation:

- Hydraulic press operator

### Occupation: Curing

**Job Role:** Hydraulic press operator

**Qualification and Experience:** Minimally educated with more than 5 years of experience

#### Roles and Responsibilities:

- Adequate curing of rubber sheets
- Cleaning of mould
- Operation of hydraulic press

#### Knowledge and Skill Requirement

#### Skill Gaps and Intensity level of skill gap

	Particulars	Micro	Small	Medium	Large
<b>Technical skills:</b>					
<ul style="list-style-type: none"> <li>▪ Ability to adequately use the air gun to clean the die.</li> <li>▪ Ability to pass the uncured rubber sheet</li> </ul>	<ul style="list-style-type: none"> <li>▪ Inability to cure the rubber sheet as per</li> </ul>	NA	L	NA	NA

<p>through the hydraulic press.</p> <ul style="list-style-type: none"> <li>▪ Ability to cure the rubber sheet in the hydraulic press as per the defined duration, temperature and pressure.</li> <li>▪ Ability to operate the hydraulic press.</li> <li>▪ Ability to execute basic maintenance activity as required.</li> <li>▪ Ability to visually check the curing quality of the end product.</li> </ul> <p><b>Managerial skills</b></p> <p>NA</p> <p><b>Soft skills</b></p> <p>NA</p>	<p>the specified duration which could result to over curing or under curing of rubber sheet</p>
H- High; M-Medium; L-Low	

### Occupation: Finishing and packing

Following job roles are involved in packing and dispatch occupation:

- Helper

### Occupation: Finishing and packing

**Job Role:** Helper

**Qualification and Experience:** Minimally educated

#### Roles and Responsibilities:

- Trim excess flash from the end product
- Pack the finish product
- Loading of finished product

#### Knowledge and Skill Requirement

#### Skill Gaps and Intensity level of skill gap

	Particulars	Micro	Small	Medium	Large
<b>Technical skills</b>					
<ul style="list-style-type: none"> <li>▪ Ability to remove flash from the end product without causing any damage to</li> </ul>	<ul style="list-style-type: none"> <li>▪ Inability to</li> </ul>	NA	L	NA	NA

<p>the end product.</p> <ul style="list-style-type: none"> <li>▪ Ability to pack the finished product as required.</li> <li>▪ Ability to load the finished product as per the specified instructions.</li> </ul> <p><b>Managerial skills</b></p> <p>NA</p> <p><b>Soft skills</b></p> <p>NA</p>	<p>adequately remove flashes from the end product.</p>
H-High; M-Medium; L-Low	

Table 48: Job role wise distribution in all the units for the product segment of Rubber sheeting (Estimated)

Occupation	Job role	Number of people	Occupation	Job role	Number of people
<b>Mixing</b>	<i>Mixing Operator</i>	3	<b>Accounts</b>	<i>Manager Accounts</i>	0
	<i>Helpers</i>	15		<i>Accountant</i>	0
<b>Curing</b>	<i>Curing Operator</i>	4	<b>Purchase</b>	<i>Manager Purchase</i>	0
				<i>Stores Assistant</i>	0
	<i>Helpers</i>	0	<b>Marketing</b>	<i>Sales executive</i>	2
				<i>Manager Marketing</i>	0
<b>Finishing/Cutting</b>	<i>Finishing/Cutting Operator</i>	0	<b>HR</b>	<i>HR Manager</i>	0
	<i>Helper</i>	0	<b>TOTAL</b>		2
	<i>Packaging and Dispatch</i>	0	<b>General</b>	<i>Proprietor/MD</i>	4



Occupation	Job role	Number of people	Occupation	Job role	Number of people
	<i>Supervisor</i>				
<b>Packaging and Dispatch</b>	<i>Helpers</i>	0		<i>General Manager</i>	1
	<i>Chemist</i>	0		<i>Production Manager/Fore man</i>	1
<b>Testing</b>	<i>Quality inspector</i>	0	<b>Production</b>	<i>Shift In-charge</i>	0
		21		<i>Supervisor-labour/raw material</i>	0
Production function					
Support function					
Management					

## Summary Sheet: Rubber sheeting

Categories	Total no. of rubber sheeting manufacturing units in Punjab					2	Qualification wise distribution of human resource		
NA	Distribution of units	Micro	Small	Medium	Large	Total	Ph.D / Research Engineers BA/B.Sc/B Com Diploma Engineers ITI/Vocational Education 12th std/10th std pass Below 10th std Others (MBAs, CA, ICWA, CS, etc.) Total	0%	
		0%	100%	0%	0%	100%		0%	
	No. of people employed*	0	36	0	0	36		6%	
	Manufacturing					Support		0%	
	Total no. of occupations identified		3		1	0%			
	Total no. of job roles identified		4		1	9%			
User industry	Critical job roles (in terms of skill requirement)	Mixing mill operator and curing operator.					85%		
Mats							0%		
Industry Suggestions <ul style="list-style-type: none"><li>Provide training programs which could facilitate the industry players to develop a chemical formulation as per the requirement.</li></ul>							Function wise distribution of human resource		
								On roll	Off roll
							Core function	100%	0%
							Support function	100%	0%

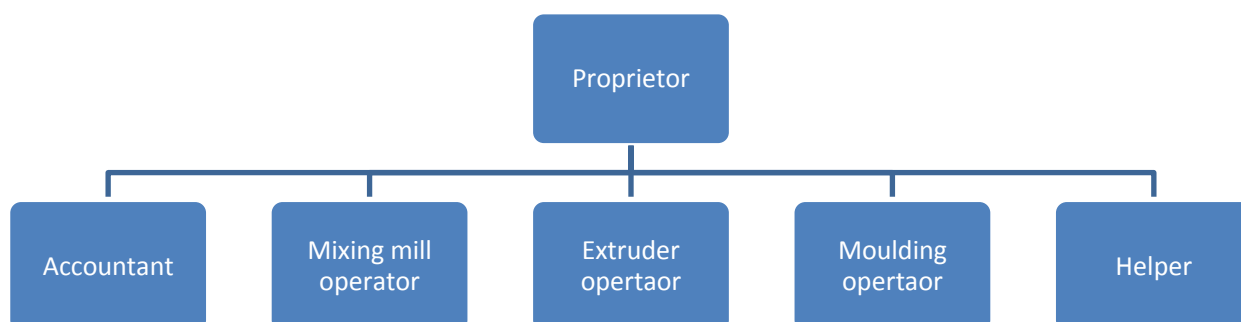
\*Estimation based on sample data

### 1.3.13. Rubber tubing

The objective of a rubber tubes is to carry liquid from one point to another. Rubbing tubing forms a minor product segment in Punjab as there are only a few units which manufacture rubber tubes.

#### 1.3.13.1. Organization structure

*Figure 27: Organisation structure*



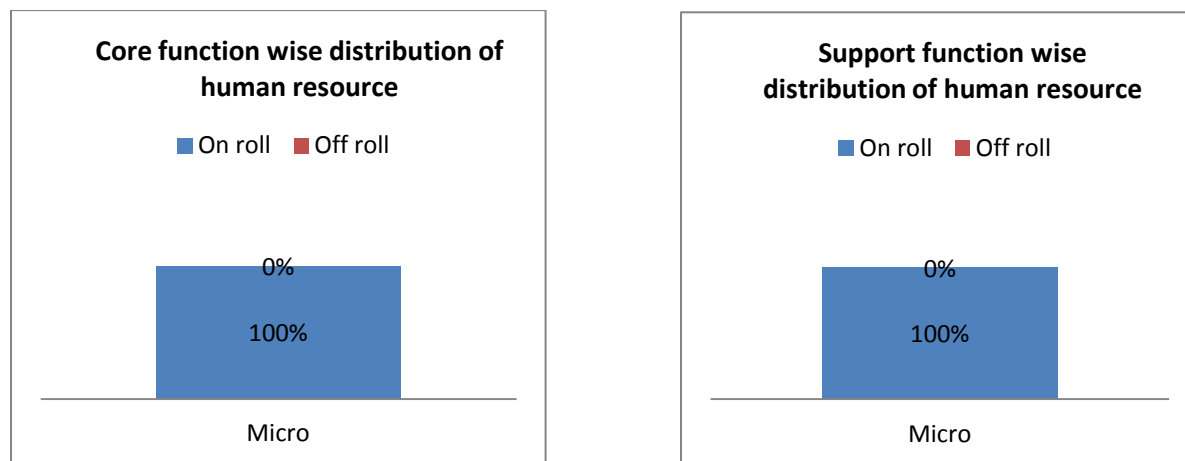
The occupation for a helper is not defined as the job which is to be executed by a helper is unskilled in nature. So, the helper would be working across different occupations depending upon the requirement of human resources in the production process.

#### Sample covered

	Micro	Small	Medium	Large	Total
No. of units	2	0	0	0	2

### 1.3.13.2. Function wise distribution of human resource

Figure 28: Function wise distribution of human resource



### 1.3.13.3. Job role wise distribution of human resource

Majority of the human resource deployed in rubber tubing units are under mixing mill operator, extruder operator and helper.

Table 49: Job role wise distribution in the sample units for the product segment of Rubber tubing

Occupation	Job role	Number of people	Occupation	Job role	Number of people
Mixing	Kneader Operator	0	Accounts	Manager Accounts	0
	Mixing mill Operator	2		Accountant	1
	Helpers	0	Purchase	Manager Purchase	0
Extrusion	Extruding operator	3		Stores Assistant	0
Moulding/Curing	Moulding Operator	2	Marketing	Manager Marketing	0
	Helpers	0	HR	HR Manager	0
Finishing/Cutting	Finishing	0			

Occupation	Job role	Number of people	Occupation	Job role	Number of people
	<i>Supervisor</i>				
	<i>Finishing/Cutting Operator</i>	0	<b>General</b>	<i>Proprietor/M D</i>	2
	<i>Helper</i>	0		<i>General Manager</i>	0
<b>Packaging and Dispatch</b>	<i>Packaging and Dispatch Supervisor</i>	0	<b>Production</b>	<i>Production Manager/Foreman</i>	0
	<i>Helpers</i>	0		<i>Shift In-charge</i>	0
<b>Testing</b>	<i>Chemist</i>	0		<i>Supervisor-labour/raw material</i>	0
	<i>Quality inspector</i>	0			
Production function					
Support function					
Management					

#### 1.3.13.4. Qualification wise distribution of human resource

Table 50: Qualification wise distribution of human resource

Qualification	Micro
Ph.D / Research	0%
Engineers	0%
BA / BSc/B Com	31%
Diploma Engineers	0%
Below 10th standard	69%
Others (specify - Such as MBAs, CA, ICWA, CS, etc.)	0%
<b>TOTAL</b>	<b>100%</b>

### 1.3.13.5. Skill gap analysis

Table 51: Occupation wise distribution of job roles

Occupation	Mixing	Extrusion	Moulding	Packaging and dispatch
Job Roles	Mixing mill operator	Extruder operator	Moulding operator	Helper

#### Occupation: Mixing

Following job roles are involved in mixing occupation:

- Mixing mill operator
- Helper

#### Occupation: Mixing

##### Job Role: Mixing mill operator

**Qualification and Experience:** Minimally educated with more than 10 years of experience

##### Roles and Responsibilities:

- Homogeneous mixing of raw materials in the mixing mill
- Produce the output in the form of sheet
- Operation of mixing mill

##### Knowledge and Skill Requirement

##### Skill Gaps and Intensity level of skill gap

	Particulars	Micro	Small	Medium	Large
<b>Technical skills</b>					
<ul style="list-style-type: none"> <li>▪ Ability to identify the raw materials</li> <li>▪ Ability to mix the raw materials as per the specified time.</li> <li>▪ Ability to homogeneously mix the raw materials in the specified sequence</li> <li>▪ Ability to produce the output in the form of a sheet.</li> <li>▪ Ability to maintain adequate inflow and outflow of water in the mixing mill so as</li> </ul>	<ul style="list-style-type: none"> <li>▪ Inadequate skills in mixing the raw materials as per the required specifications.</li> </ul>	L	NA	NA	NA

to maintain the temperature of the machine.

- Safety skills-Operator must be alert that his hands do not get inside the mixing mill.
- Ability to execute basic maintenance activity as required.

### Managerial skills

NA

### Soft skills

NA

H- High; M-Medium; L-Low

## Occupation: Extrusion

Following job roles are involved in mixing occupation:

- Extruder operator

## Occupation: Extrusion

### Job Role: Extruder operator

**Qualification and Experience:** Minimally educated with more than 10 years of experience

### Roles and Responsibilities:

- Produce the required output from the extruder
- Operation of extruder

### Knowledge and Skill Requirement

### Skill Gaps and Intensity level of skill gap

### Technical skills

- Ability to set the die of the extruder as specified.
- Ability to ensure that there is no dust or any other impurities which may pass

Particulars	Micro	Small	Medium	Large
▪ Inability to maintain cleanliness near the extruder	L	NA	NA	NA

through the extruder.

- Ability to adequately pass the rubber compound into the extruder so as to prevent any overflow at the input end of the machine
- Ability to operate the extruder.

### Managerial skills

NA

### Soft skills

NA

H- High; M-Medium; L-Low

## Occupation: Moulding/Curing

Following job roles are involved in moulding occupation:

- Moulding/Curing operator

## Occupation: Moulding/Curing

### Job Role: Moulding/Curing operator

**Qualification and Experience:** Minimally educated with more than 10 years of experience in rubber industry

### Roles and Responsibilities:

- Adequate curing and moulding of rubber compound as per the specified shape
- Operation of hydraulic process

### Knowledge and Skill Requirement

### Skill Gaps and Intensity level of skill gap

### Technical skills:

- Ability to cut the rubber sheet as per the shape of the mould.
- Ability to set the required moulds in the hydraulic press
- Ability to operate the hydraulic press as per the defined time, temperature and

Particulars	Micro	Small	Medium	Large
<ul style="list-style-type: none"> <li>▪ Inability to cure the rubber compound as per the specified duration.</li> </ul>	L	NA	NA	NA



<p>pressure so as to provide required curing to the rubber compound.</p> <ul style="list-style-type: none"> <li>Ability to set the die in the hydraulic press.</li> <li>Ability to visually check the curing quality of the end product.</li> </ul> <p><b>Managerial skills</b></p> <p>NA</p> <p><b>Soft skills</b></p> <p>NA</p>	
H- High; M-Medium; L-Low	

### Occupation: Packing & Dispatch

Following job roles are involved in packing and dispatch occupation:

- Helper

### Occupation: Packing

**Job Role:** Helper

**Qualification and Experience:** Minimally educated

#### Roles and Responsibilities:

- Pack the finish product
- Loading of finished product

#### Knowledge and Skill Requirement

#### Skill Gaps and Intensity level of skill gap

	Particulars	Micro	Small	Medium	Large
<b>Technical skills</b>					
<ul style="list-style-type: none"> <li>Ability to de flash the end product without causing any damage to the end product.</li> <li>Ability to pack the finished product as required.</li> <li>Ability to load the finished product as per</li> </ul>	<ul style="list-style-type: none"> <li>Inability to adequately remove flashes from the end product.</li> </ul>	M	NA	NA	NA

the specified instructions.

**Managerial skills**

NA

**Soft skills**

NA

H-High; M-Medium; L-Low

Table 52: Job role wise distribution in all the units for the product segment of Rubber tubing  
(Estimated)

Occupation	Job role	Number of people	Occupation	Job role	Number of people
<b>Mixing</b>	<i>Kneader Operator</i>	0	<b>Accounts</b>	<i>Manager Accounts</i>	0
	<i>Mixing mill Operator</i>	2		<i>Accountant</i>	1
	<i>Helpers</i>	0	<b>Purchase</b>	<i>Manager Purchase</i>	0
<b>Extrusion</b>	<i>Extruding operator</i>	3		<i>Stores Assistant</i>	0
<b>Moulding/Curing</b>	<i>Moulding Operator</i>	2	<b>Marketing</b>	<i>Manager Marketing</i>	0
	<i>Helpers</i>	0	<b>HR</b>	<i>HR Manager</i>	0
<b>Finishing/Cutting</b>	<i>Finishing Supervisor</i>	0			
	<i>Finishing/Cutting Operator</i>	0	<b>General</b>	<i>Proprietor/MD</i>	2
	<i>Helper</i>	0		<i>General Manager</i>	0
<b>Packaging and Dispatch</b>	<i>Packaging and Dispatch Supervisor</i>	0	<b>Production</b>	<i>Production Manager/Foreman</i>	0

Occupation	Job role	Number of people	Occupation	Job role	Number of people
	<i>Helpers</i>	0		<i>Shift In-charge</i>	0
<b>Testing</b>	<i>Chemist</i>	0		<i>Supervisor-labour/raw material</i>	0
	<i>Quality inspector</i>	0			
Production function					
Support function					
Management					

## Summary Sheet: Rubber tubing

Categories	Total no. of rubber tubing product manufacturing units in Punjab					2	Qualification wise distribution of human resource		
NA	Distribution of units	Micro	Small	Medium	Large	Total	Ph.D / Research Engineers BA/B.Sc/B Com Diploma Engineers ITI/Vocational Education 12th std/10th std pass Below 10th std Others (MBAs, CA, ICWA, CS, etc.) Total	0% 0% 6% 0% 0% 9% 85% 0% 100%	
		100%	0%	0%	0%	100%			
	No. of people employed*	12	0	0	0	12			
	Manufacturing			Support					
	Total no. of occupations identified		3		1				
	Total no. of job roles identified		4		1				
User industry	Critical job roles (in terms of skill requirement)	Mixing mill operator and curing operator.					Function wise distribution of human resource		
Mats									
							Industry Suggestions		
							▪ Create awareness about the latest machinery and raw materials which are used in the rubber industry and technical training to develop the chemical formulation		
		On roll		Off roll					
Core function		100%		0%					
Support function		100%		0%					

\*Estimation based on sample data

### 1.3.14. Sports Goods

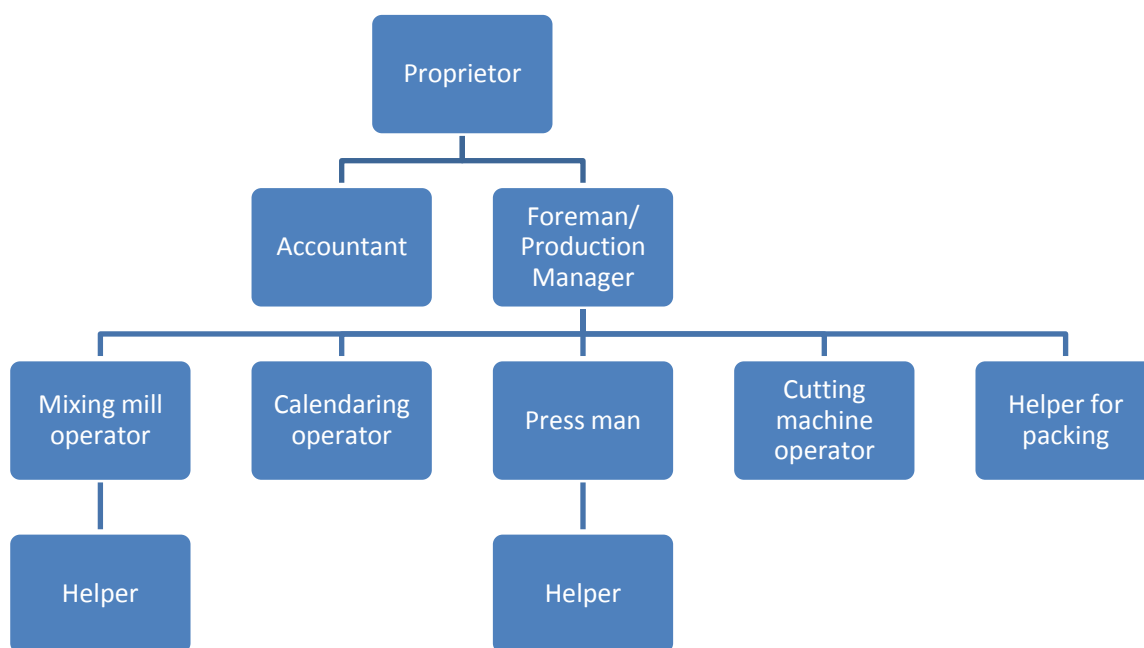
Punjab is a major cluster manufacturing Sports goods in India. Among the total number of rubber product manufacturing units in Punjab, sports goods accounts for around 13%. More than 95% of the sports goods manufacturing units of Punjab are located in Jalandhar cluster.

#### Types of sub product categories

- Balls
- Tennikoit ring
- TT Rubber sheets

#### 1.3.14.1. Organisation structure

*Figure 29: Organisation structure*

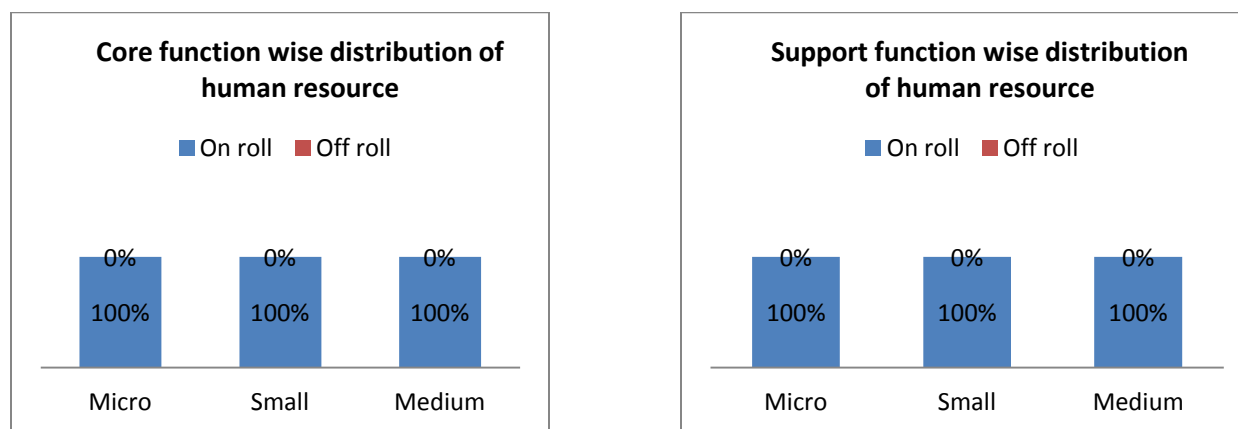


Sample covered

	Micro	Small	Medium	Large	Total
No. of units	6	7	4	0	17

1.3.14.2. Function wise distribution of human resource

Figure 30: Function wise distribution of human resource



1.3.14.3. Job role wise distribution of human resource

Table 53: Job role wise distribution in the sample units for the product segment of Sports goods

Occupation	Job role	No of people	Occupation	Job role	No of people
Mixing	Kneader Operator	3	Accounts	Manager Accounts	0
	Mixing mill Operator	15		Accountant	2
	Supervisor	1	Purchase	Manager Purchase	1
Calendaring	Calendaring operator	9		Stores Assistant	0
Moulding	Moulding Supervisor	0	Marketing	Manager Marketing	1
	Moulding Operator	21	HR	HR Manager	1
			General	Proprietor/MD/Managing partner	9

Occupation	Job role	No of people	Occupation	Job role	No of people
	<i>Helpers</i>	0		<i>General Manager</i>	1
<b>Finishing/ Cutting</b>	<i>Finishing Supervisor</i>	0	<b>Production</b>	<i>Production Manager/Foreman</i>	2
	<i>Finishing/Cutting Operator</i>	18		<i>Shift In-charge</i>	0
	<i>Helper</i>	0		<i>Supervisor-labour/raw material</i>	0
<b>Packaging and Dispatch</b>	<i>Packaging and Dispatch Supervisor</i>	0		<i>Helpers</i>	54
	<i>Helpers</i>	4			
<b>Testing</b>	<i>Chemist</i>	0			
	<i>Quality inspector</i>	0			
Production function					
Support function					
Management					

#### 1.3.14.4. Qualification wise distribution of human resource

Table 54: Qualification wise distribution of human resource

Qualification	Micro	Small	Medium
Ph.D / Research	0%	0%	0%
Engineers	0%	0%	2%
BA / B.Sc/B Com	9%	11%	0%
Diploma Engineers /Rubber technologist	0%	0%	1%
Below 10th standard	91%	84%	97%
Others (specify - Such as MBAs, CA, ICWA, CS, etc.)	0%	0%	0%
<b>TOTAL</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

### 1.3.14.5. Skill gap analysis

Table 55: Occupation wise distribution of job roles

Occupation	Production	Mixing	Calendaring	Moulding	Finishing	Packaging and dispatch
Job Roles	Production Manager/Foreman	Kneader operator	Calendaring operator	Moulding operator	Cutting machine operator	Helper
		Mixing mill operator				
		Compounding operator				
		Helper				

Note: Screening and Sewing process is generally outsourced. Helpers are usually deployed across occupations as per the requirement.

#### Occupation: Production

Following job roles are involved in production occupation:

- Production Manager/Foreman

#### Occupation: Production

##### Job Role: Production Manager/Foreman

**Qualification and Experience:** 12<sup>th</sup> standard with more than 15 years of experience in rubber industry

##### Roles and Responsibilities:

- Monitor the production of the required end product
- Maintain optimum inventory of raw materials
- Provide required specifications to the operators in terms of time and temperature of mixing and curing
- Manage issues like absenteeism of workers and failure of machines
- Meet the production targets as specified by the management of the company



- Check the quality of the product after each process
- Mentor machine operators and helpers

#### Knowledge and Skill Requirement

#### Skill Gaps and Intensity level of skill gap

#### Technical skills:

- Technical understanding of manufacturing process of sports goods.
- Ability to remain updated over the recent technological developments made in the sports goods industry.
- Ability to troubleshoot issues in the operation of machines as and when required
- Ability to provide required specifications to the operators in terms of time and temperature of mixing and curing, proportion of raw materials, etc.
- Ability to inspect whether the end product from the machine is as per the specifications provided.
- Should be able to minimize the rejection rate.

#### Managerial Skills

- Ability to ensure smooth operations in the production process.
- Ability to coordinate with different departments so as to ensure adequate availability of raw materials.
- Ability to independently solve basic problems like failure of machines, absenteeism of operators
- Ability to meet the production targets as

#### Particulars

#### Micro

#### Small

#### Medium

#### Large

#### ▪ Inadequate

knowledge and understanding of latest technology and new raw materials used in rubber industry

M

L

L

#### • Inadequate troubleshooting skills

M

L

L

required by the management.

### Soft Skills

- Ability to communicate the requirement of raw materials to the senior management.
- Ability to provide training and guidance to the machine operators and helpers
- Ability to coordinate work with his superiors and subordinates.
- Ability to resolve conflicts among his subordinates.

H- High; M – Medium; L- Low

### Occupation: Mixing

Following job roles are involved in mixing occupation:

- Kneader operator
- Mixing mill operator
- Compounding operator (Bladder for soccer ball/rugby ball)
- Helper

### Occupation: Mixing

#### Job Role: Kneader operator

**Qualification and Experience:** Minimally educated with more than 5 years of experience in rubber industry

#### Roles and Responsibilities:

- Mixing of raw materials in the kneader to make rubber compound
- Instruct the helpers to enable a smooth production process
- Operation and basic maintenance of kneader machine

#### Knowledge and Skill Requirement

#### Skill Gaps and Intensity level of skill gap

#### Technical skills

- Ability to operate the kneader machine

Particulars	Micro	Small	Medium	Large
▪ The operator	L	L	L	

<ul style="list-style-type: none"> <li>▪ Ability to check the quality of all the raw materials.</li> <li>▪ Before starting the mixing process the operator must ensure that all the required raw materials for the mixing process are available.</li> <li>▪ Ability to mix the raw materials as per the specified time and temperature.</li> <li>▪ Ensure that the kneader machine is used at the optimum level.</li> <li>▪ Ability to weigh the raw materials as per the requirement.</li> <li>▪ Ability to maintain adequate inflow and outflow of water in the kneader so as to maintain the temperature of the machine.</li> <li>▪ Ability to mix the raw materials as per the required sequence.</li> <li>▪ Ability to execute basic maintenance activity as required for example by regular oiling of the machine.</li> <li>▪ Ability to instruct the helpers for cleaning, loading / unloading, etc.</li> </ul>	<p>does not have the understanding of the chemical properties of the raw materials.</p>
<p><b>Managerial skills</b></p> <ul style="list-style-type: none"> <li>▪ Ability to instruct the helpers for cleaning, loading / unloading, etc.</li> </ul> <p><b>Soft Skills</b></p> <ul style="list-style-type: none"> <li>▪ Ability to coordinate work with his superiors and subordinates</li> </ul>	<ul style="list-style-type: none"> <li>▪ Inadequate maintenance skills. (For example, if the kneader machine is making an unusual noise, there is a possibility of some fault in the machine. In this scenario, the operator may completely ignore this issue and continue to operate the kneader. This could cause severe damage to the kneader machine)</li> </ul>

H- High; M-Medium; L-Low

**Occupation:** Mixing

**Job Role:** Mixing mill operator

**Qualification and Experience:** Minimally educated with more than 5 years of experience in rubber industry

**Roles and Responsibilities:**

- Mixing of raw materials in the mixing mill to produce the output in the form of sheet
- Instruct the helpers to enable a smooth production process
- Operation of mixing mill

**Knowledge and Skill Requirement**

**Skill Gaps and Intensity level of skill gap**

**Technical skills**

- Ability to identify the raw materials and mix them as per the specified sequence, time and temperature
- Ability to operate the weighing machine so as to weigh the raw materials as per the requirement in the mixing process.
- Ability to set the required distance between the rollers of the mixing mill so as to produce the sheet as per the required width.
- Must be able to ensure that there is no oil leakage and electrical wiring is intact.
- Ability to operate the mixing mill so as to produce the output in the form of a sheet.
- Ability to maintain adequate inflow and outflow of water in the mixing mill so as to maintain the temperature of the machine.

Particulars	Micro	Small	Medium	Large
-------------	-------	-------	--------	-------

- |   |   |   |   |  |
|---|---|---|---|--|
| ▪ Inability to mix the raw materials as per the specified time, temperature and sequence as provided by the production manager. | L | L | L |  |
|---|---|---|---|--|

- Safety skills-Operator must be alert that his hands do not get between the rollers of the mixing mill.
- Ability to execute basic maintenance activity as required.
- Ability to instruct the helpers for cleaning, loading / unloading, etc.

### Managerial skills

- Ability to instruct the helpers for cleaning, loading / unloading, etc.

### Soft Skills

- Ability to coordinate work with his superiors and subordinates

H- High; M-Medium; L-Low

**Occupation:** Compounding (Latex Mixing)

**Job Role:** Compounding operator

**Qualification and Experience:** Minimally educated with more than 10 years of experience in rubber industry

### Roles and Responsibilities:

- Homogeneous mixing of raw materials in the dispersion mill
- Instruct the helpers to enable a smooth production process
- Operation of dispersion mill

### Knowledge and Skill Requirement

### Skill Gaps and Intensity level of skill gap

### Technical skills

- Ability to maintain the temperature of the mould and the coagulant at the specified temperature.
- Ability to inspect and ensure that the mould, latex and water are free from any unwanted material like dust.

Particulars	Micro	Small	Medium	Large
<ul style="list-style-type: none"> <li>▪ The dispersion mill operator does not have an adequate understanding of the properties</li> </ul>	L	L	L	

<ul style="list-style-type: none"> <li>▪ Ability to set the dipping speed of latex tank as per the specification.</li> <li>▪ Ability to maintain the withdrawal speed of dipping tank.</li> <li>▪ Ability to maintain the temperature and flow of water as required</li> <li>▪ Ability to execute basic maintenance activity as required.</li> <li>▪ Ability to instruct the helpers for cleaning, loading / unloading, etc.</li> </ul> <p><b>Managerial skills</b></p> <ul style="list-style-type: none"> <li>▪ Ability to instruct the helpers for cleaning, loading / unloading, etc.</li> </ul> <p><b>Soft Skills</b></p> <ul style="list-style-type: none"> <li>▪ Ability to coordinate work with his superiors and subordinates</li> </ul>	<p>of latex and other chemicals.</p>
H- High; M-Medium; L-Low	

### Occupation: Mixing

**Job Role:** Helper

**Qualification and Experience:** Minimally educated

#### Roles and Responsibilities:

- Identify raw material used for mixing
- Loading unloading of raw materials and the end product from the machines

#### Knowledge and Skill Requirement

#### Skill Gaps and Intensity level of skill gap

	Particulars	Micro	Small	Medium	Large
<b>Technical skills</b>					
<ul style="list-style-type: none"> <li>▪ Ability to identify the raw materials and</li> </ul>	<ul style="list-style-type: none"> <li>▪ Inadequate</li> </ul>	L	L	L	

<p>the end product produced from each of the machines used in the manufacturing process.</p> <ul style="list-style-type: none"> <li>Ability to execute the required manual work as required by the machine operators</li> <li>Comply with the safety procedures.</li> </ul> <p><b>Managerial skills</b></p> <p>NA</p> <p><b>Soft skills</b></p> <p>NA</p>	<p>knowledge of safety procedures.</p> <p>For example, the helper may try to operate the mixing machines which could lead to an accident as his hands may get inside the rollers of the mixing mill.</p>
H- High; M-Medium; L-Low	

### Occupation: Calendaring operator

Following job roles are involved in moulding occupation:

- Calendaring operator

### Occupation: Calendaring

#### Job Role: Calendaring operator

**Qualification and Experience:** Minimally educated with more than 5 years of experience in rubber industry

#### Roles and Responsibilities:

- Produce homogeneous rubberised ply
- Operate the calendaring machine

#### Knowledge and Skill Requirement

#### Skill Gaps and Intensity level of skill gap

#### Technical skills:

- Ability to operate the machine.
- Ability to maintain the distance between the rolls (nip) of calendaring machine as specified so as to produce an evenly

Particulars	Micro	Small	Medium	Large
.				
<ul style="list-style-type: none"> <li>Inability to adequately operate the machine so as to</li> </ul>	L	L	L	

<p>rubberized ply.</p> <ul style="list-style-type: none"><li>▪ Ability to maintain the inventory of the required quantity of ply.</li><li>▪ Ability to check whether the ply is properly rubberised or not.</li><li>▪ Safety skills-Operator must be alert that his hands do not get between the rollers of the mixing mill.</li><li>▪ Ability to execute basic maintenance activity as required.</li><li>▪ Ability to instruct the helpers for cleaning, loading / unloading, etc.</li><li>▪ Ensure that there is no oil leakage and electrical wiring is intact.</li></ul> <p><b>Managerial skills</b></p> <ul style="list-style-type: none"><li>▪ Ability to instruct the helpers for cleaning, loading / unloading, etc.</li></ul> <p><b>Soft Skills</b></p> <ul style="list-style-type: none"><li>▪ Ability to coordinate work with his superiors and subordinates</li></ul>	<p>produce homogeneous rubberised ply.</p>
H- High; M-Medium; L-Low	

### Occupation: Moulding

Following job roles are involved in moulding occupation:

- Moulding operator

---

### Occupation: Moulding

#### Job Role: Moulding operator

**Qualification and Experience:** Minimally educated with more than 5 years of experience in rubber industry

---



### Roles and Responsibilities:

- Adequate curing of rubber sheet
- Cleaning of mould
- Operation of hydraulic press

### Knowledge and Skill Requirement

### Skill Gaps and Intensity level of skill gap

### Technical skills:

- Ability to adequately use the air gun to clean the die.
- Ability to adequately place the rubberised ply into the press.
- Ability to cure the rubberised ply in the hydraulic press as per the defined time, temperature and pressure.
- Ability to operate the hydraulic press.
- Ability to execute basic maintenance activity as required.
- Ability to instruct the helpers for cleaning, loading / unloading, etc.
- Ability to visually check the curing quality of the end product.

### Managerial skills

NA

### Soft skills

NA

Particulars	Micro	Small	Medium	Large
-------------	-------	-------	--------	-------

- |  |   |   |   |  |
|--|---|---|---|--|
| <ul style="list-style-type: none"> <li>▪ Inability to cure the rubberized ply as per the specified time which could result to over curing or under curing of rubberized ply</li> </ul> | L | L | L |  |
|--|---|---|---|--|

H- High; M-Medium; L-Low

### Occupation: Finishing

Following job roles are involved in cutting occupation:

- Cutting machine operator

**Occupation:** Finishing

**Job Role:** Cutting machine operator

**Qualification and Experience:** Minimally educated with more than 5 years of experience in rubber industry

**Roles and Responsibilities:**

- Cutting panels from the cured rubberised ply
- Set the required die in the cutting machine

**Knowledge and Skill Requirement**

**Skill Gaps and Intensity level of skill gap**

	Particulars	Micro	Small	Medium	Large
<b>Technical skills:</b>					
<ul style="list-style-type: none"> <li>▪ Ability to set the adequate die in the machine as per the required size and shape of the panel</li> <li>▪ Ability to operate the cutting machine.</li> <li>▪ Ability to maintain the minimum distance between two adjacent panels which are to be taken out from the rubber sheet so as to maximize the number of panels which can be obtained from the vulcanized rubber ply.</li> <li>▪ Ability to execute basic maintenance activity as required for example, oiling of machine as per the requirement.</li> <li>▪ Safety skills- Ability to be alert so as to ensure that his hand doesn't come between the machine and the cured rubberised ply.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Inability to obtain the maximum number of panels from the cured rubberised ply.</li> </ul>	L	L	L	
<b>Managerial skills</b>					
<ul style="list-style-type: none"> <li>▪ Ability to instruct the helpers for cleaning, loading / unloading, etc.</li> </ul>					
<b>Soft Skills</b>					
<ul style="list-style-type: none"> <li>▪ Ability to coordinate work with his superiors and subordinates</li> </ul>					

H- High; M-Medium; L-Low

### Occupation: Packing & Dispatch

Following job roles are involved in packing and dispatch occupation:

- Helper

**Occupation:** Packing and Dispatch

**Job Role:** Helper

**Qualification and Experience:** Minimally educated

#### Roles and Responsibilities:

- Pack the finish product
- Loading of finished product

#### Knowledge and Skill Requirement

#### Skill Gaps and Intensity level of skill gap

#### Technical skills

- Ability to pack the finished end product in plastic bags
- Ability to load the finished product as per the specified instructions.

#### Managerial skills

NA

#### Soft skills

NA

Particulars	Micro	Small	Medium	Large
	L	L	L	
Inability to understand the instructions of his supervisors.				

- Inability to understand the instructions of his supervisors.

H-High; M-Medium; L-Low

Table 56: Job role wise distribution in all the units for the product segment of Sports goods (Estimated)

Occupation	Job role	No of people	Occupation	Job role	No of people
Mixing	Kneader Operator	45	Accounts	Manager Accounts	0
	Mixing mill Operator	223		Accountant	30
	Supervisor	15		Manager Purchase	15
Calendaring	Calendaring operator	134	Purchase	Stores Assistant	0
Moulding	Moulding Supervisor	0	Marketing	Manager Marketing	15
			HR	HR Manager	15
	Moulding Operator	312	General	Proprietor/MD/Managing partner	134
	Helpers	0		General Manager	15
Finishing/Cutting	Finishing Supervisor	0		Production Manager/Foreman	30
	Finishing/Cutting Operator	267		Shift In-charge	0
	Helper	0		Supervisor-labour/raw material	0
Packaging and Dispatch	Packaging and Dispatch Supervisor	0	Production	Helpers	802
	Helpers	59			
Testing	Chemist	0			
	Quality inspector	0			
Production function					
Support function					
Management					

## Summary Sheet: Sports Goods

Categories	Total no. of sports goods manufacturing units in Punjab					51	Qualification wise distribution of human resource	
<ul style="list-style-type: none"><li>Balls</li><li>Tennikoit ring</li><li>TT Rubber sheets</li></ul>	Distribution of units	Micro	Small	Medium	Large	Total	Ph.D / Research Engineers BA/B.Sc/B Com Diploma Engineers /Rubber technologist ITI/Vocational Education 12th std/10th std pass Below 10th std Others (MBAs, CA, ICWA, CS, etc.) Total	0%
		61%	27%	12%	0%	100%		1%
	No. of people employed*	874	773	886	0	2532		7%
	Manufacturing					Support		0%
	Total no. of occupations identified		6		1			0%
	Total no. of job roles identified		9		1			2%
User industry	Critical job roles (in terms of skill requirement)	Mixing / Compounding Operator, Calendaring Operator, Press Operator					91%	
<ul style="list-style-type: none"><li>Sports industry</li></ul>							0%	
	Industry Suggestions <ul style="list-style-type: none"><li>Establishment of common testing facility centre and trained lab assistants to perform the testing procedures on the raw materials, compound and end product as per the quality specifications</li><li>Provide technical training to the proprietor’s of micro and small sized industries which would facilitate in improving their existing manufacturing process and quality of product</li></ul>						Function wise distribution of human resource	
			On roll	Off roll				
		Core function	100%	0%				
		Support function	100%	0%				

\*Estimation based on sample data

### 1.3.15. Tread Rubber

The tread of a tire or track refers to the patterns on its rubber circumference that makes contact with the road. There are broadly two types of tread rubber namely hot tread and cold or precured tread rubber.

Hot Tread Rubber



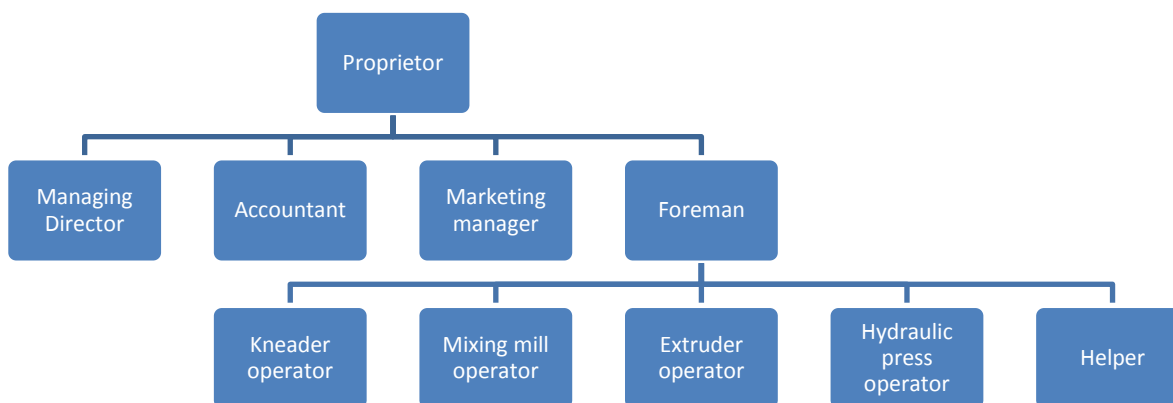
Cold / Precured Tread Rubber



#### Types of sub product categories

1. Hot / Conventional / Camel back tread Rubber
2. Precured / Cold tread Rubber
3. Precured patches for Tyres
4. Cushion Gum Compound
5. Retreading Cement & Solution

#### 1.3.15.1. Organization structure



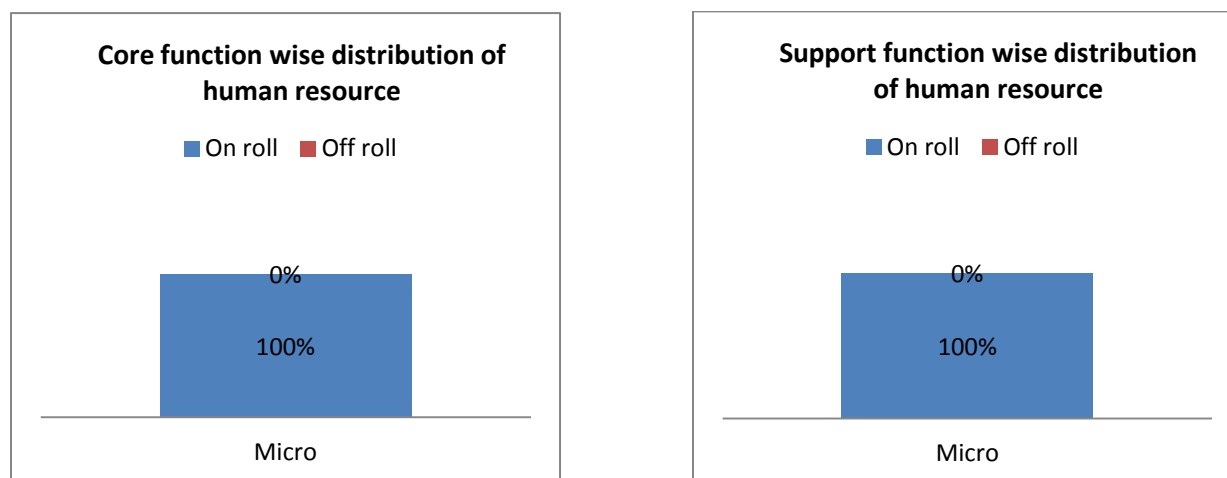
**Sample covered**

	Micro	Small	Medium	Large	Total
No. of units	4	0	0	0	4

The activities of the supporting department are executed by Proprietor who will be managing the Operators and Helpers.

**1.3.15.2. Function wise distribution of human resource**

*Figure 31: Function wise distribution of human resource*



**1.3.15.3. Job role wise distribution of human resource**

Majority of the human resource deployed in tread rubber products units are under extrusion operator and mixing operator job role.

*Table 57: Job role wise distribution in the sample units for the product segment of Tread products*

Occupation	Job role	Number of people	Occupation	Job role	Number of people
Mixing	Mixing Supervisor	0	Accounts	Manager Accounts	0
	Kneader operator	7		Accountant	2
	Mixing mill Operator	9	Purchase	Manager Purchase	0

Occupation	Job role	Number of people	Occupation	Job role	Number of people
	<i>Helpers</i>	15		<i>Stores Assistant</i>	0
<b>Extrusion</b>	<i>Extruder operator</i>	1	<b>Marketing</b>	<i>Manager Marketing</i>	1
	<i>Helper</i>	2	<b>HR</b>	<i>HR Manager</i>	0
<b>Calendaring</b>	<i>Operators</i>	9			
	<i>Helpers</i>	0	<b>General</b>	<i>Proprietor/M D</i>	5
<b>Pressing</b>	<i>Pressing Operator</i>	5		<i>General Manager</i>	0
	<i>Helpers</i>	0	<b>Production</b>	<i>Production Manager</i>	1
<b>Finishing</b>	<i>Helper</i>	0		<i>Shift In-charge</i>	0
<b>Quality check</b>	<i>Quality incharge</i>	0			
<b>Packaging and Dispatch</b>	<i>Packaging and Dispatch Supervisor</i>	0			
	<i>Helpers</i>	12			

Production function
Support function
Management

#### 1.3.15.4. Qualification wise distribution of human resource

Table 58: Qualification wise distribution of human resource

Qualification	Micro
<b>Ph.D / Research</b>	0%
<b>Engineers</b>	0%
<b>BA / BSc/B Com</b>	10%



Qualification	Micro
Diploma Engineers	0%
ITI / Vocational Education	0%
12th std / 10th std pass	0%
Below 10th standard	89%
Others (specify - Such as MBAs, CA, ICWA, CS, etc.)	1%
<b>TOTAL</b>	<b>100%</b>

### 1.3.15.5. Skill gap analysis

Table 59: Occupation wise distribution of job roles

Occupation	Production	Mixing	Extrusion	Curing	Finishing and Packing
Job Roles	Foreman	Kneader operator Mixing mill operator	Extruder operator	Hydraulic press operator	Helper

#### Occupation: Production

#### Job Role: Foreman

**Qualification and Experience:** 10<sup>th</sup> standard with over 15 years of experience

#### Roles and Responsibilities:

- Monitor and manage the complete production process
- Meet the production targets
- Ensure that the quality of the end product is as per the specifications
- Strategize for the requirement of human resources and raw material

#### Knowledge and Skill Requirement

#### Skill Gaps and Intensity level of skill gap

	Particulars	Micro	Small	Medium	Large
<b>Technical skills:</b>					
<ul style="list-style-type: none"> <li>Knowledge of each and every stage of the</li> </ul>		M	NA	NA	NA

production process.

- Ability to ensure the quality of the end product
- Ability to solve the issues occurring in the production process.
- Ability to develop the best possible production strategy so as to meet the required production targets.
- Ability to understand the chemical properties of the raw materials and their role in the chemical formulation.
- Must have an understanding of the basic operation of the machines used in the manufacturing process.

### Managerial skills

- Ability to meet the production targets.
- Ability to motivate and train the employees so as to develop an efficient team of shop floor workforce
- Ability to control the crisis situations.
- Ensure that his subordinates are disciplined towards their work.
- Ability to maximize the returns from the available resources i.e. human and infrastructure

### Soft skills

- Ability to resolve conflicts of his subordinates and communicate the unresolved issues to the management.
- Should possess following skills: teamwork, communication skills, leadership skills

- Inadequate technical understanding about the chemical properties of the raw materials.
- Lack of knowledge about the latest technology used in rubber industry.

H- High; M – Medium; L- Low

### Occupation: Mixing

Following job roles are involved in mixing occupation:

- Kneader operator
- Mixing mill operator

### Occupation: Mixing

**Job Role:** Kneader operator

**Qualification and Experience:** Minimally educated with more than 5 years of experience

#### Roles and Responsibilities:

- Homogeneous mastication of all the required raw materials in the kneader.

#### Knowledge and Skill Requirement

#### Skill Gaps and Intensity level of skill gap

#### Technical skills

- Ability to operate the kneader machine
- Ability to identify all the raw materials required to develop the required chemical formulation and ensure their availability before starting the mastication process.
- Ability to weigh the raw materials.
- Ability to mix the raw materials as per the specified duration, proportion and sequence.
- Ability to minimize the wastage of raw materials by adequately feeding the raw materials into the kneader
- Ability to maintain adequate inflow and outflow of water in the kneader so as to maintain the temperature of the

Particulars	Micro	Small	Medium	Large
<ul style="list-style-type: none"> <li>▪ Inadequate communication skills as the operators are not able to inform the issues in the kneading process to the production manager.</li> </ul>	L	NA	NA	NA

machine.

- Ability to execute basic maintenance activity as required for example by regular oiling of the machine.

### Managerial skills

- NA

### Soft skills

- Ability to communicate any issue in the kneading process to the foreman.

H- High; M-Medium; L-Low

## Occupation: Mixing

### Job Role: Mixing mill operator

**Qualification and Experience:** Minimally educated with more than 5 years of experience

### Roles and Responsibilities:

- Homogeneous mixing of raw materials in the mixing mill
- Produce the output in the form of sheet

### Knowledge and Skill Requirement

### Skill Gaps and Intensity level of skill gap

### Technical skills

- Ability to identify the raw materials
- Ability to mix the raw materials as per the specified duration.
- Ability to homogeneously mix the raw materials in the specified sequence
- Ability to produce the output in the form of a sheet which has the specified width. The operator can attain the required width by setting the distance between the rollers of the mixing mill.

Particulars	Micro	Small	Medium	Large
<ul style="list-style-type: none"> <li>▪ Due to lack of discipline, the operator does not mix the raw materials for the specified duration.</li> </ul>	L	NA	NA	NA

- Ability to minimize the wastage of raw materials by adequately feeding the raw materials into the mixing mill
- Ability to maintain adequate inflow and outflow of water in the mixing mill so as to maintain the temperature of the machine.
- Safety skills-Operator must be alert that his hands do not get inside the mixing mill.
- Ability to execute basic maintenance activity as required.

### Managerial skills

- NA

### Soft skills

- Ability to communicate any issue in the mixing process to the foreman.

H- High; M-Medium; L-Low

## Occupation: Extrusion

Following job roles are involved in mixing occupation:

- Extruder operator

## Occupation: Extrusion

**Job Role:** Extruder operator

**Qualification and Experience:** Minimally educated with more than 5 years of experience

### Roles and Responsibilities:

- Adequate operation of extruder so as to produce the required tread from the extruder

### Knowledge and Skill Requirement

### Skill Gaps and Intensity level of skill gap

Particulars	Micro	Small	Medium	Large
-------------	-------	-------	--------	-------

### Technical skills

<ul style="list-style-type: none"> <li>▪ Ability to set the die of the extruder as specified.</li> <li>▪ Ability to ensure that there is no dust or any other impurities which may pass through the extruder.</li> <li>▪ Ability to adequately pass the rubber compound into the extruder so as to prevent any overflow at the input end of the machine</li> <li>▪ Ability to operate the extruder.</li> <li>▪ Ability to perform basic maintenance of the extruder.</li> </ul> <p><b>Managerial skills</b></p> <ul style="list-style-type: none"> <li>▪ NA</li> </ul> <p><b>Soft skills</b></p> <ul style="list-style-type: none"> <li>▪ Ability to communicate any issue in the extrusion process to the foreman.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The operator does not carry out the basic maintenance activities required by the machine.</li> </ul>	L	NA	NA	NA
--	---	---	----	----	----

### Occupation: Curing

Following job roles are involved in moulding occupation:

- Hydraulic press operator

### Occupation: Curing

**Job Role:** Hydraulic press operator

**Qualification and Experience:** Minimally educated with more than 5 years of experience

#### Roles and Responsibilities:

- Adequate curing of tread
- Cleaning of mould
- Operation of hydraulic press

Knowledge and Skill Requirement	Skill Gaps and Intensity level of skill gap				
	Particulars	Micro	Small	Medium	Large
<b>Technical skills:</b> <ul style="list-style-type: none"> <li>Ability to clean the mould by using silicon emulsion.</li> <li>Ability to pass the uncured tread through the hydraulic press.</li> <li>Ability to set the die into the hydraulic press as per the required shape and size of the end product.</li> <li>Ability to cure the tread in the hydraulic press as per the defined duration and temperature.</li> <li>Ability to operate the hydraulic press.</li> <li>Ability to execute basic maintenance activity as required.</li> <li>Ability to visually check the curing quality of the end product.</li> </ul> <b>Managerial skills</b> <ul style="list-style-type: none"> <li>NA</li> </ul> <b>Soft skills</b> <ul style="list-style-type: none"> <li>Ability to communicate any issue in the process of curing to the foreman.</li> </ul>	<ul style="list-style-type: none"> <li>Inability to cure the tread as per the specified duration which could result to over curing or under curing of tread</li> </ul>	L	NA	NA	NA
H- High; M-Medium; L-Low					

### Occupation: Finishing and packing

Following job roles are involved in packing and dispatch occupation:

- Helper

The helper can be asked to execute the very basic manual work like loading and unloading of raw materials/end product at each stage of the production process.

**Occupation:** Finishing and packing

**Job Role:** Helper

**Qualification and Experience:** Minimally educated

**Roles and Responsibilities:**

- Trim excess flash from the end product
- Pack the finish product
- Loading of finished product

**Knowledge and Skill Requirement**

**Skill Gaps and Intensity level of skill gap**

**Technical skills**

- Ability to remove flash from the end product without causing any damage to the end product.
- Ability to pack the finished product as required.
- Ability to load the finished product as per the specified instructions.

**Managerial skills**

- NA

**Soft skills**

- NA

Particulars	Micro	Small	Medium	Large
<ul style="list-style-type: none"> <li>▪ Inability to adequately remove flashes from the end product.</li> </ul>	L	NA	NA	NA

H-High; M-Medium; L-Low



Table 60: Job role wise distribution in all the units for the product segment of Tread products (Estimated)

Occupation	Job role	Number of people	Occupation	Job role	Number of people
<b>Mixing</b>	<i>Mixing Supervisor</i>	0	<b>Accounts</b>	<i>Manager Accounts</i>	0
	<i>Kneader operator</i>	12		<i>Accountant</i>	3
	<i>Mixing mill Operator</i>	16	<b>Purchase</b>	<i>Manager Purchase</i>	0
	<i>Helpers</i>	26		<i>Stores Assistant</i>	0
<b>Extrusion</b>	<i>Extruder operator</i>	2	<b>Marketing</b>	<i>Manager Marketing</i>	2
	<i>Helper</i>	3	<b>HR</b>	<i>HR Manager</i>	0
<b>Calendarin g</b>	<i>Operators</i>	16			0
	<i>Helpers</i>	0	<b>General</b>	<i>Proprietor/MD</i>	9
<b>Pressing</b>	<i>Pressing Operator</i>	9		<i>General Manager</i>	0
	<i>Helpers</i>	0	<b>Production</b>	<i>Production Manager</i>	2
<b>Finishing</b>	<i>Helper</i>	0		<i>Shift In-charge</i>	0
<b>Quality check</b>	<i>Quality incharge</i>	0			
<b>Packaging and Dispatch</b>	<i>Packaging and Dispatch Supervisor</i>	0			
	<i>Helpers</i>	21			
Production function					
Support function					
Management					

## Summary Sheet: Tread

Categories	Total no. of tread rubber product manufacturing units in Punjab					7	Qualification wise distribution of human resource		
<ul style="list-style-type: none"><li>Hot / Conventional / Camel back tread Rubber</li><li>Precured / Cold tread Rubber</li><li>Precured patches for Tyres</li><li>Cushion Gum Compound</li><li>Retreading Cement &amp; Solution</li></ul>	Distribution of units	Micro	Small	Medium	Large	Total	Ph.D / Research Engineers BA/B.Sc/B Com Diploma Engineers /Rubber technologist ITI/Vocational Education 12th std/10th std pass Below 10th std Others (MBAs, CA, ICWA, CS, etc.) <b>Total</b>	0%	
		100%	0%	0%	0%	100%		0%	
	No. of people employed*	143	0	0	0	143		10%	
								0%	
	Total no. of occupations identified		4		2			0%	
	Total no. of job roles identified		7		2			0%	
User industry	Critical job roles (in terms of skill requirement)	Mixing / Compounding Operator and extruder operator					Below 10th std	89%	
<ul style="list-style-type: none"><li>Sports industry</li><li>General public</li></ul>							Others (MBAs, CA, ICWA, CS, etc.)	1%	
Industry Suggestions <ul style="list-style-type: none"><li>Provide technical training to the owners of micro and small units which could enable them to develop their own chemical formulation as per the required specifications of the product.</li><li>Establish common testing facility centres.</li></ul>							Function wise distribution of human resource		
								On roll	Off roll
							Core function	100%	0%
							Support function	100%	0%

\*Estimation based on sample data

### 1.3.16. Tyre, Tubes and Flaps

Punjab is a major cluster manufacturing tyre, tubes and flaps in India. Among the total number of rubber product manufacturing units in Punjab, tyre, tubes and flaps accounts for around 14%. More than 80% of the tyre, tubes and flaps manufacturing units of Punjab are located in Jalandhar and Ludhiana cluster. The state is home to several nationally known tyre companies like Metro Tyres, Poddar Tyres, Hindusthan Tyres and Speedway Tyres amongst others.

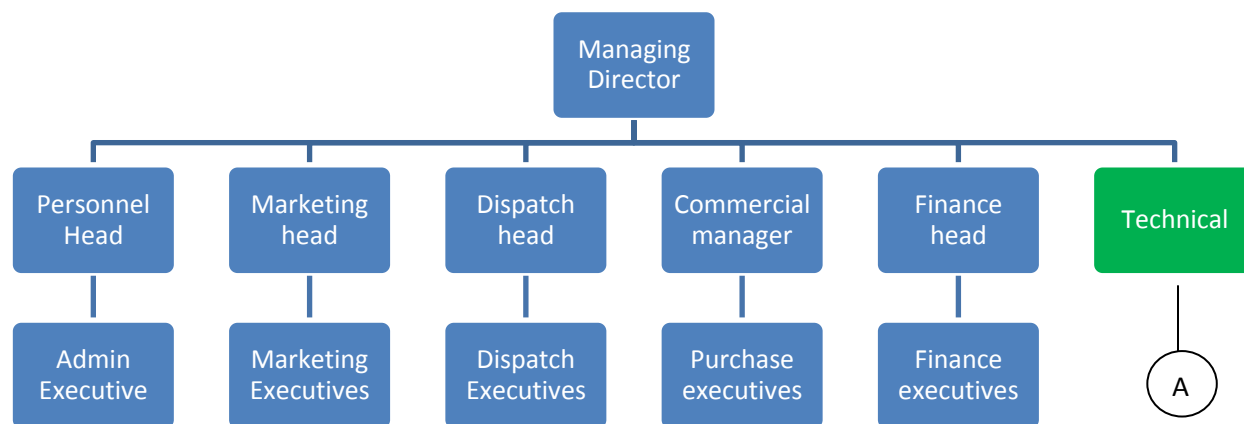
Tyres are used across the automotive segment and in passenger vehicles. Of course, a different set of off-the-road tyres are also manufactured which are put to special uses.

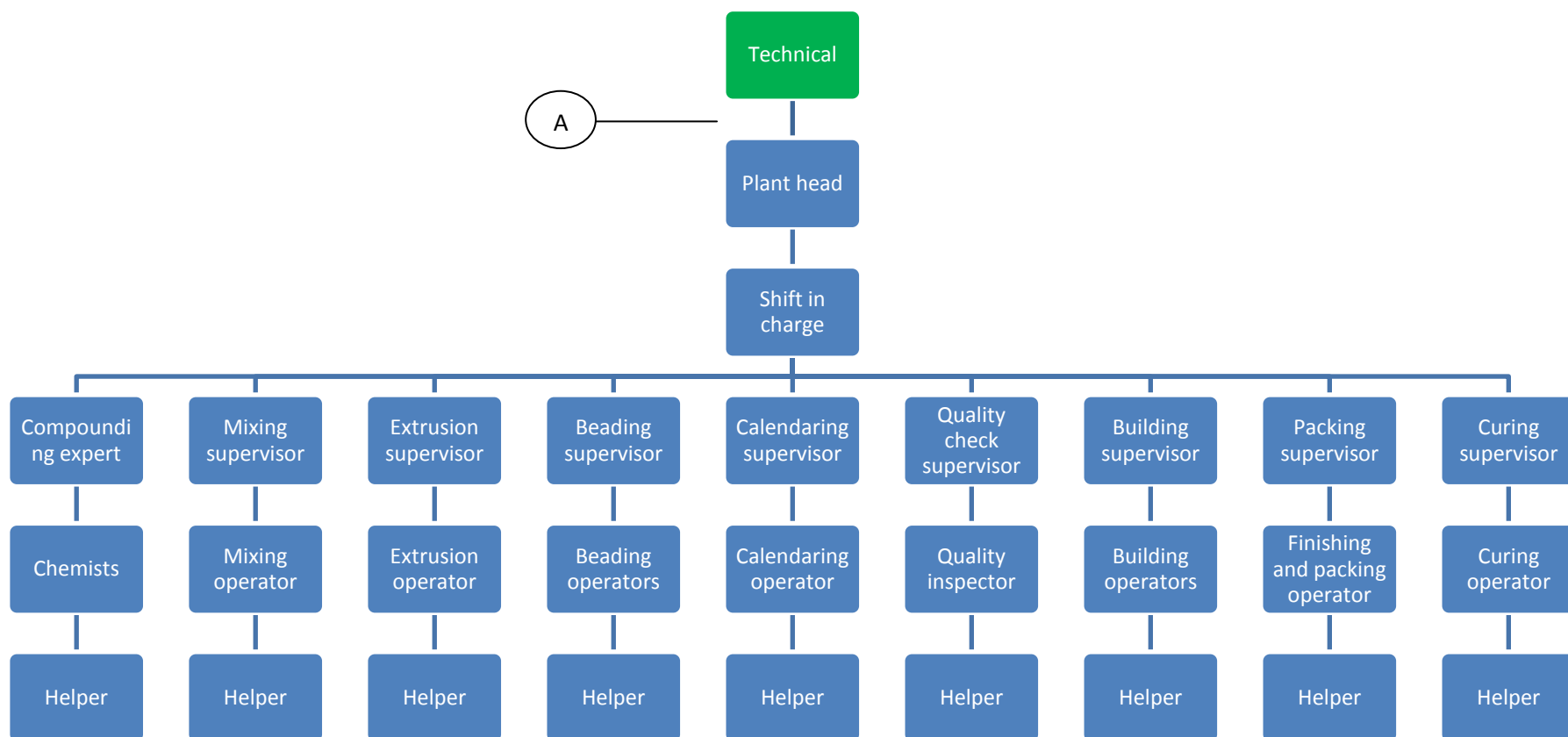
#### Types of sub product categories

- Tyre
- Tube

**1.3.16.1. Organisation structure**

*Figure 32: Organisation structure for tyre manufacturing*





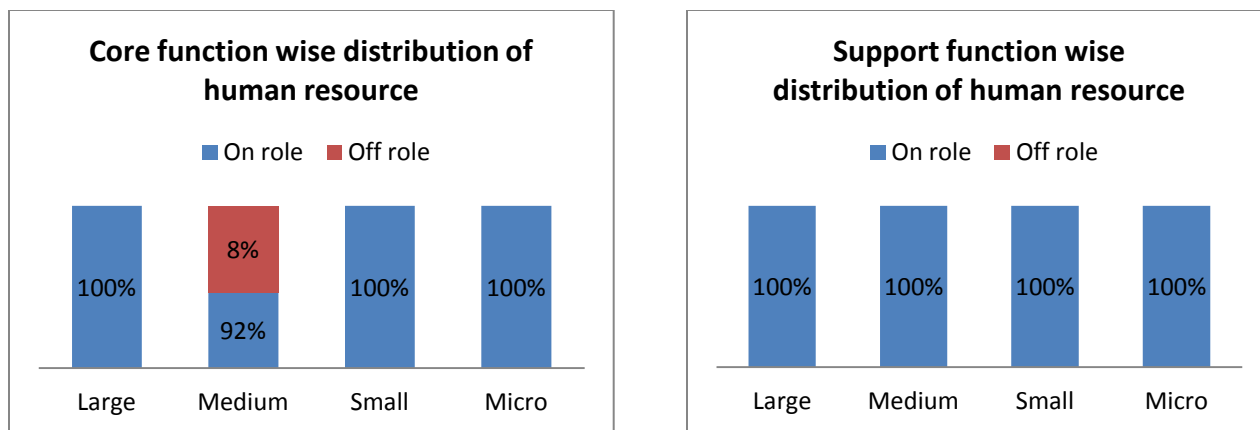
*Note: This organization structure is for a large unit*

Sample covered

	Micro	Small	Medium	Large	Total
No. of units	2	2	7	8	19

1.3.16.2. Function wise distribution of human resource

Figure 33: Function wise distribution of human resource



1.3.16.3. Job role wise distribution of human resource

Table 61: Job role wise distribution in the sample units for the product segment of Tyre and tube

Occupation	Job role	No of people	Occupation	Job role	No of people
Mixing	Mixing Supervisor	19	Accounts	Manager Accounts	2
	Kneader operator	12		Accountant	38
	Mixing Operator	179	Purchase	Manager Purchase	3
Filtering	Strainer operator	12		Stores Assistant	13
Extrusion	Extruder operator	128	Marketing	Sales agent/Marketing executive	188
Tube cutting	Tube cutter	88		Manager Marketing/sales	3
Mantling/ dismantling	Mantling /dismantling operator	14	HR	HR Manager/ Administration	8
Joining	Tube joiner/ splicer machine operator	117	Maintenance	HR executives	21
Curing	Press man	196		Personnel executives	40
	Oven operator	47		Maintenance	122
Valve fitting	Valve fitting operator	17	General	Proprietor/MD/Partner	15
Calendaring	Operators	431		General Manager	8
	Helpers	300	Production	Production Manager	14
Building green tyre	Monoband operator	221		Shift In-charge	13
Finishing	Finishing Supervisor	20		Supervisor	114
	Finishing Operator	218		Helpers	381

Occupation	Job role	No of people	Occupation	Job role	No of people
	<i>Helper</i>	200			
<b>Inspection</b>	<i>Quality inspector</i>	35			
	<i>Chemist</i>	27			
<b>Packaging and Dispatch</b>	<i>Packaging and</i>	60			
	<i>Dispatch Helpers</i>	0			
Production function					
Support function					
Management					

#### 1.3.16.4. Qualification wise distribution of human resource

Table 62: Qualification wise distribution of human resource

Qualification	Micro	Small	Medium	Large
<b>Ph.D / Research</b>	0%	0%	0%	0%
<b>Engineers</b>	0%	8%	0%	2%
<b>BA / B.Sc/B Com</b>	11%	24%	10%	7%
<b>Diploma Engineers /Rubber technologist</b>	0%	0%		4%
<b>ITI / Vocational Education</b>	0%	0%	<1%	4%
<b>12th std / 10th std pass</b>	5%	0%	4%	20%
<b>Below 10th standard</b>	84%	68%	85%	62%
<b>Others (specify - Such as MBAs, CA, ICWA, CS, etc.)</b>	0%	0%	<1%	1%
<b>TOTAL</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>



## 1.3.16.5. Skill gap analysis

Table 63: Occupation wise distribution of job roles

Occupation	Management	Lab	Mixing and Milling	Calendaring	Building	Curing	Quality Check	Finishing and Packing
Job roles	Plant Head	Compounding Expert	Mixing Mill Supervisor	Calendaring and Extrusion Supervisor	Building Supervisor	Curing Supervisor	QC Supervisor	Supervisor
	Shift-in Charge	Chemist	Mixing Mill Operator	Calendaring and Extrusion Operator	Building Operator	Curing Operator	QC Inspector	Finishing and Packing Operator
			Helpers	Beading Supervisor	Helper	Helper		Helper
				Beading Operator				
				Fabric Calendaring Supervisor				
				Fabric Calendaring Operator				
				Helper				

### Occupation: Management

Following job roles are involved in management occupation:

- Plant Head
- Shift-in Charge

### Occupation: Management

#### Job Role: Plant Head

**Qualification and Experience:** Engineering and/or management and about 10-12 years experience in industry for large players and in micro and small 12<sup>th</sup> pass and have over 15 years experience

#### Roles and Responsibilities:

- Oversee the activities in plant
- Manage the human resource
- Maintain productivity
- Manage the core and non-core activities
- Get involved in R&D
- Lead the QC

#### Knowledge and Skill Requirement

#### Skill Gaps and Intensity level of skill gap

#### Technical skills:

- Knowledge of the entire operation
- Knowledge of process parameters
- Knowledge of the rubber market and prices
- Knowledge of the rubber industry scenario in the cluster
- Knowledge of the typical line activities in plant
- Ability to monitor the operation
- Ability to participate in QC of product

#### Managerial skills

- Ability to manage the workforce

Particulars	Micro	Small	Medium	Large
▪ Leadership skills training	M	M	L	L
▪ Lean management techniques training	M	M	L	L
▪ Total productivity management to improve the process efficiency with latest technology	L	L	L	L

<ul style="list-style-type: none"> <li>Ability to enforce industrial discipline</li> <li>Ability to enforce safety in the operators during the process</li> </ul>	knowledge				
<b>Soft skills</b> <ul style="list-style-type: none"> <li>Ability to interface with all the supervisors to gain understanding of the process</li> <li>Ability to interface with shift in-charge to understand the process across all the shifts</li> </ul>	<ul style="list-style-type: none"> <li>Not able to determine the reasons for final product quality gaps</li> </ul>	L	L	N/A	N/A
H- High; M – Medium; L- Low					

**Occupation:** Management

**Job Role:** Shift-in Charge

**Qualification and Experience:** Diploma holder and about 5 years experience in industry

**Roles and Responsibilities:**

- Manage the shift activities
- Manage the particular shift related human resource
- Improve the shift performance

**Knowledge and Skill Requirement**

**Skill Gaps and Intensity level of skill gap**

**Technical skills:**

- Knowledge of the entire operation
- Knowledge of process parameters
- Ability to inspect visually the entire production line
- Inventory control management
- Knowledge of lean manufacturing techniques
- Ability to enforce safety
- Quality check of the sub process outputs

Particulars	Micro	Small	Medium	Large
<ul style="list-style-type: none"> <li>Inadequate knowledge on various techniques such as lean management, total productivity management</li> </ul>	M	M	L	L
<ul style="list-style-type: none"> <li>Inadequate</li> </ul>	M	M	L	L

<p>through visual examination</p> <ul style="list-style-type: none"> <li>▪ Ability to document and communicate the process on a daily basis to the plant manager</li> </ul> <p><b>Managerial skills</b></p> <ul style="list-style-type: none"> <li>▪ Ability to manage the workforce</li> <li>▪ Ability to enforce industrial discipline</li> <li>▪ Ability to enforce safety in the operators during the process</li> </ul> <p><b>Soft skills</b></p> <ul style="list-style-type: none"> <li>▪ Ability to interface with all the supervisors to gain understanding of the process</li> </ul>	<p>leadership qualities</p>
H- High; M – Medium; L- Low	

### Occupation: Lab

Following job roles are involved in lab occupation:

- Compounding expert
- Chemist

### Occupation: Lab

**Job Role:** Compounding expert

**Qualification and Experience:** B.E/ M.E (Mechanical/Rubber Technology/etc) with 15– 20 years of experience in rubber industry

#### Roles and Responsibilities:

- Lead the formulation
- Focus on R&D to improve the formulation
- Train chemists

**Knowledge and Skill Requirement**

**Skill Gaps and Intensity level of skill gap**

	Particulars	Micro	Small	Medium	Large
<b>Technical skills:</b>					
<ul style="list-style-type: none"> <li>Knowledge of additives used in mixing</li> <li>Knowledge of the functions of the additives and their effect on rubber</li> <li>Knowledge of the properties of the various additives</li> <li>Ability to alter the composition of the additives based on the required characteristic of the tyre</li> <li>Designing the compounding to make it cost competitive and to give high performance</li> <li>Ability to alter the composition of the compounding based on the QA team feedback to get the desired properties</li> <li>Knowledge of chemistry related effects like impact of molecular weight, filling, etc on the rubber when the additives are added</li> <li>Knowledge of process parameters like temperature, pressure</li> <li>Ability to operate equipments like rheometer, viscometer, etc</li> <li>Ability to prepare mixing chart to detail the sequence of the compounding operation with chemical name, timings, quantity, etc</li> <li>Knowledge on latest trends and technology in rubber compounding</li> </ul>	<ul style="list-style-type: none"> <li>Not completely aware of the additives and their impact on the formulation</li> </ul>	N/A	N/A	L	N/A
<b>Managerial skills - NA</b>					
<b>Soft skills</b>					

- Ability to communicate the sequence of addition of the compounds to the Mixing Supervisor
- Ability to explain the impact of each of the compounds to the Chemists

H- High; M – Medium; L- Low

**Occupation:** Lab

**Job Role:** Chemist

**Qualification and Experience:** Graduation in chemistry with minimum 2 years experience in rubber industry

**Roles and Responsibilities:**

- Aid in formulation
- Aid in R&D related to formulations

### Knowledge and Skill Requirement

### Skill Gaps and Intensity level of skill gap

#### Technical skills:

- Knowledge of additives used in mixing
- Knowledge of the functions of the additives and their effect on the natural rubber
- Knowledge of the properties of the various additives
- Ability to follow the compounding instructions from the Compounding Head
- Ability to alter the composition of the compounding based on the input from the Compounding Head
- Knowledge of chemistry related effects like impact of molecular weight, filling, etc on the rubber when the additives are added

Particulars	Micro	Small	Medium	Large
▪ Not able to communicate to helpers	M	M	M	L
▪ Not being aware of the impact of additives	M	M	L	L
▪ Not able to think laterally to tweak the compound based on the required end result	M	M	L	L

### Managerial skills - NA

#### Soft skills

- Ability to communicate the compounding process to the Helpers
- Ability to guide the Helpers in knowing about the relevant chemicals
- Ability to explain the impact of each of the compounds to the Supervisor

H- High; M – Medium; L- Low

### Occupation: Mixing and Milling

Following job roles are involved in mixing and milling occupation:

- Mixing mill supervisor
- Mixing mill operator
- Helper

### Occupation: Mixing and milling

#### Job Role: Mixing mill supervisor

**Qualification and Experience:** 10<sup>th</sup>/12<sup>th</sup> pass/diploma with 5-10 years experience in rubber industry

#### Roles and Responsibilities:

- Supervise the milling operation
- Manage the milling section

#### Knowledge and Skill Requirement

#### Skill Gaps and Intensity level of skill gap

#### Technical skills:

- Knowledge of additives used in mixing
- Knowledge of the properties of the various additives
- Knowledge of the sequence of the additives

Particulars	Micro	Small	Medium	Large
<ul style="list-style-type: none"> <li>▪ They supervisors are not able to communicate the process to the operators</li> </ul>	L	L	L	L

<ul style="list-style-type: none"> <li>Knowledge of the location of the chemicals in the store</li> <li>Ability to explain the order to the Mill Operators</li> <li>Knowledge of the process parameters to be set in the mixing mill</li> <li>Ability to spot if there is something wrong with the process</li> </ul> <p><b>Managerial skills</b></p> <ul style="list-style-type: none"> <li>Ability to motivate the Operators</li> <li>Ability to enforce safety in the Operators during the process</li> </ul> <p><b>Soft skills</b></p> <ul style="list-style-type: none"> <li>Ability to communicate the process to the Operators by preparation of mill sheet</li> </ul>	<ul style="list-style-type: none"> <li>Not aware completely aware of chemical properties</li> </ul>	L	L	L	L
---	---	---	---	---	---

H- High; M – Medium; L- Low

**Occupation:** Mixing and milling

**Job Role:** Mixing and milling operator

**Qualification and Experience:** Minimally educated/10<sup>th</sup>/12<sup>th</sup> pass with 1-3 years experience in rubber industry

**Roles and Responsibilities:**

- Assists in production implementation
- Responsible for mixing processes.
- Coordinate with supervisor and helpers for further production activities.
- Supervision of helpers
- Management of mixing machines in terms of speed and running timing of machines.

**Knowledge and Skill Requirement**

**Skill Gaps and Intensity level of skill gap**

	Particulars	Micro	Small	Medium	Large
<b>Technical skills:</b>					
<ul style="list-style-type: none"> <li>Knowledge of additives used in mixing</li> <li>Knowledge of the properties of the</li> </ul>	<ul style="list-style-type: none"> <li>Do not have sufficient</li> </ul>	L	L	L	L



<p>various additives</p> <ul style="list-style-type: none"> <li>Knowledge of the sequence of the additives</li> <li>Knowledge of the location of the chemicals in the store</li> <li>Ability to follow the sequence of process</li> <li>Knowledge of the process parameters to be set in the mixing mill</li> <li>Knowledge of how to operate the mixers</li> <li>Ability to weigh the right quantities of the chemicals, in case of manual weighing</li> <li>Knowledge of safety procedures</li> </ul> <p><b>Managerial skills</b> - NA</p> <p><b>Soft skills</b></p> <ul style="list-style-type: none"> <li>Ability to communicate the process to the helpers</li> </ul>	<p>knowledge about safety skills and this is important for milling operator as he is generally exposed to heat, noise and effects of reaction of chemicals</p> <ul style="list-style-type: none"> <li>Inadequate knowledge on the process parameters</li> </ul>	M	M	L	L
--	---	---	---	---	---

H- High; M – Medium; L- Low

**Occupation:** Mixing and milling

**Job Role:** Helper

**Qualification and Experience:** Minimally skilled/10<sup>th</sup>/12<sup>th</sup> pass with 1-3 years experience in rubber industry

**Roles and Responsibilities:**

- Aid the operators in mixing process

Knowledge and Skill Requirement	Skill Gaps and Intensity level of skill gap				
	Particulars	Micro	Small	Medium	Large
<b>Technical skills:</b>					
▪ Knowledge of additives used in mixing	▪ Not able to	M	M	L	L
▪ Knowledge of the basic properties of the various additives	identify the				
▪ Ability to follow the sequence from the Chemists	assortment of				
▪ Ability to identify the various compounds	chemicals used in				
▪ Knowledge of safety skills	compounding				
<b>Managerial skills - NA</b>					
<b>Soft skills - NA</b>					
▪ Ability to communicate the process	▪ Not being aware	M	M	L	L
	of the basic				
	properties of				
	additives				
	▪ Communication	M	M	L	L
	skills are missing				
H- High; M – Medium; L- Low					

### Occupation: Calendaring

Following job roles are involved in calendaring occupation:

- Calendaring and extrusion supervisor
- Calendaring and extrusion operator
- Beading supervisor
- Beading operator
- Fabric calendaring supervisor
- Fabric calendaring operator
- Helper

### Occupation: Calendaring

**Job Role:** Calendaring and extrusion supervisor

**Qualification and Experience:** 10<sup>th</sup>/12<sup>th</sup> pass with 5-10 years experience in rubber industry

**Roles and Responsibilities:**

- Manage the extrusion and calendaring process
- Manage the calendaring and extrusion operators

### Knowledge and Skill Requirement

### Skill Gaps and Intensity level of skill gap

#### Technical skills:

- Knowledge of process parameters such as speed for rollers, pressures, temperatures, dimensions, and flow of materials
- Ability to prepare the process chart with clear instructions
- Knowledge of the correct composition of talc and solvents that are used in the process
- Ability to troubleshoot when notified by the operators that the process is not going as planned

#### Managerial skills

- Ability to motivate the Operators
- Ability to enforce safety in the Operators during the process

#### Soft skills

- Ability to communicate the process to the Operators by preparation of process sheet

Particulars	Micro	Small	Medium	Large
▪ Not able to implement lean management techniques and build on latest technological advancements	M	M	L	L



H- High; M – Medium; L- Low

**Occupation:** Calendaring

**Job Role:** Calendaring and extrusion operator

**Qualification and Experience:** Minimally educated/10<sup>th</sup>/12<sup>th</sup> pass with 3-5 years experience in rubber industry

**Roles and Responsibilities:**

- Operate the calendar and extrusion machine
- Set the parameters
- Interface with helpers

### Knowledge and Skill Requirement

### Skill Gaps and Intensity level of skill gap

#### Technical skills:

- Adjust machine components to regulate speeds, pressures, temperatures, dimensions, and flow of materials
- Press control buttons to activate machinery and equipment.
- Turn controls to adjust machine functions, such as regulating air pressure, creating vacuums, etc
- Ability to follow the Supervisor instructions
- Notify Supervisor when there is non-conformance to the process
- Knowledge of safety skills

#### Managerial skills - NA

#### Soft skills

- Ability to communicate the process to the helpers

Particulars	Micro	Small	Medium	Large
<ul style="list-style-type: none"> <li>▪ Do not have sufficient knowledge about safety skills and this is important for extrusion and calendaring operator as he is generally exposed to chemicals like solvents and talcs</li> </ul>	M	M	M	L
<ul style="list-style-type: none"> <li>▪ Are not able to understand the process parameters</li> </ul>	M	M	M	L

H- High; M – Medium; L- Low

**Occupation:** Calendaring

**Job Role:** Beading supervisor

**Qualification and Experience:** 10<sup>th</sup>/12<sup>th</sup> pass with 5-7 years experience in industry

#### Roles and Responsibilities:

- Supervise the beading process
- Instruct operators and helpers on the beads, plies, etc required for the process

Knowledge and Skill Requirement	Skill Gaps and Intensity level of skill gap				
	Particulars	Micro	Small	Medium	Large
<b>Technical skills:</b> <ul style="list-style-type: none"> <li>Knowledge of process parameters to be set</li> <li>Knowledge of the various beads, plies, etc required for the process</li> <li>Ability to prepare the process chart with clear instructions</li> <li>Ability to explain the beading process to Calendar Operators</li> <li>Ability to set the amount of rubber that can be coated on the fabric</li> <li>Ability to troubleshoot when notified by the Operators that the process is not going as planned</li> </ul>	<ul style="list-style-type: none"> <li>Not able to implement lean management techniques</li> </ul>	M	M	L	L
<b>Managerial skills</b> <ul style="list-style-type: none"> <li>Ability to motivate the Operators</li> <li>Ability to enforce safety in the Operators during the process</li> </ul>					
<b>Soft skills</b> <ul style="list-style-type: none"> <li>Ability to communicate the process to the Operators by preparation of process sheet</li> </ul>					
H- High; M – Medium; L- Low					

**Occupation:** Calendaring

**Job Role:** Beading operator

**Qualification and Experience:** Minimally educated/10<sup>th</sup>/12<sup>th</sup> pass with 2-3 years experience in industry

**Roles and Responsibilities:**

- Bead calendaring machine operation

- Manage the helpers

#### Knowledge and Skill Requirement

#### Skill Gaps and Intensity level of skill gap

#### Technical skills:

- Adjust machine components to regulate speeds, pressures, and temperatures, and amounts, dimensions, and flow of materials
- Press control buttons to activate machinery and equipment.
- Turn controls to adjust machine functions, such as regulating air pressure, creating vacuums, etc
- Ability to follow the supervisor instructions
- Notify supervisor when there is non-conformance to the process
- Knowledge of safety skills

#### Managerial skills - NA

#### Soft skills

- Ability to communicate the process to the helpers

#### Particulars

Micro

Small

Medium

Large

- Less knowledge on safety skills

L

L

L

L

- Inadequate knowledge on the process parameters

L

L

L

L

- Inadequate ability to handle the calendaring machine

L

L

L

L

H- High; M – Medium; L- Low

**Occupation:** Calendaring

**Job Role:** Fabric calendaring supervisor

**Qualification and Experience:** 10<sup>th</sup>/12<sup>th</sup> pass with 5-7 years experience in industry

#### Roles and Responsibilities:

- Supervise the fabric calendaring process
- Instruct operators and helpers on the fabrics required for the process

#### Knowledge and Skill Requirement

#### Skill Gaps and Intensity level of skill gap

	Particulars	Micro	Small	Medium	Large
<b>Technical skills:</b>					
<ul style="list-style-type: none"> <li>Knowledge of process parameters to be set</li> <li>Knowledge of the various materials like rayon, nylon, polyester, etc required for the process</li> <li>Ability to prepare the process chart with clear instructions</li> <li>Ability to explain the fabric calendaring process to calendar operators</li> <li>Ability to set the amount of rubber that can be coated on the fabric</li> <li>Ability to troubleshoot when notified by the Operators that the process is not going as planned</li> </ul>	<ul style="list-style-type: none"> <li>Not able to implement lean management techniques</li> </ul>	M	M	L	L
<b>Managerial skills</b>					
<ul style="list-style-type: none"> <li>Ability to motivate the Operators</li> <li>Ability to enforce safety in the Operators during the process</li> </ul>					
<b>Soft skills</b>					
<ul style="list-style-type: none"> <li>Ability to communicate the process to the Operators by preparation of mill sheet</li> </ul>					
H- High; M – Medium; L- Low					

**Occupation:** Calendaring

**Job Role:** Fabric calendaring operator

**Qualification and Experience:** Minimally educated/10<sup>th</sup>/12<sup>th</sup> pass with 2-3 years experience in industry

**Roles and Responsibilities:**

- Bead calendaring machine operation
- Manage the helpers

### Knowledge and Skill Requirement

### Skill Gaps and Intensity level of skill gap

#### Technical skills:

- Adjust machine components to regulate speeds, pressures, temperatures, dimensions, and flow of materials
- Press control buttons to activate machinery and equipment.
- Turn controls to adjust machine functions, such as regulating air pressure, creating vacuums, etc
- Ability to follow the Supervisor instructions
- Notify Supervisor when there is non-conformance to the process
- Knowledge of safety skills

#### Managerial skills - NA

#### Soft skills

- Ability to communicate the process to the helpers

#### Particulars

#### Micro

#### Small

#### Medium

#### Large

- Less knowledge on safety skills L L L L
- Inadequate knowledge on the process parameters L L L L
- Ability to handle the calendaring machine L L L L

H- High; M – Medium; L- Low

**Occupation:** Calendaring

**Job Role:** Helper

**Qualification and Experience:** 10<sup>th</sup> pass/less than 10<sup>th</sup> and about 1-3 years experience in industry

#### Roles and Responsibilities:

- Aid the operators in the calendaring process
- Communicate any process deviations to the operator



Knowledge and Skill Requirement	Skill Gaps and Intensity level of skill gap				
	Particulars	Micro	Small	Medium	Large
<b>Technical skills:</b>					
▪ Basic knowledge of the process					
▪ Ability to handle the equipment if required	▪ Less knowledge on safety parameters	L	L	L	L
▪ Ability to follow instruction from operator					
▪ Ability to notify the operator when required	▪ Not able to understand instructions	L	L	L	L
▪ Knowledge of safety skills					
<b>Managerial skills - NA</b>					
<b>Soft skills – NA</b>					
H- High; M – Medium; L- Low					

### Occupation: Building

Following job roles are involved in building occupation:

- Building supervisor
- Building operator
- Helper

### Occupation: Building

**Job Role:** Building Supervisor

**Qualification and Experience:** Diploma and about 5 years experience in industry

**Roles and Responsibilities:**

- Manage the building process
- Communicate the sequence to the operators
- Visually inspect the green tyre
- Manage the operators and helpers in building section

### Knowledge and Skill Requirement

### Skill Gaps and Intensity level of skill gap

#### Technical skills:

- Knowledge of the sequence of the building process
- Knowledge of the components for building required
- Knowledge of the location of the building materials
- Ability to prepare the process chart with clear instructions
- Ability to communicate to keep the green tyre from sticking to the mould after the building
- Knowledge of solvents that need to be used to keep the green tyre from sticking to the mould
- Ability to troubleshoot when notified by the Operators that the process is not going as planned

#### Managerial skills

- Ability to motivate the Operators
- Ability to enforce safety in the Operators during the process

#### Soft skills

- Ability to communicate the process to the Operators by preparation of the building process chart

Particulars	Micro	Small	Medium	Large
-------------	-------	-------	--------	-------

- |  |   |   |   |   |
|--|---|---|---|---|
| ▪ At times not able to communicate the sequence to the operators | L | L | L | L |
|--|---|---|---|---|

H- High; M – Medium; L- Low

**Occupation:** Building

**Job Role:** Building Operator

**Qualification and Experience:** Minimally educated/10<sup>th</sup> pass/12th pass/ITI and over 3-5 years experience in industry

**Roles and Responsibilities:**

- Build the green tyre
- Follow the building process
- Manage the helpers
- Communicate with supervisor and helper

**Knowledge and Skill Requirement**

**Skill Gaps and Intensity level of skill gap**

**Technical skills:**

- Knowledge of all the components required to assemble the green tyre
- Knowledge of the sequence of the building operation
- Knowledge of the location of the components in the building area
- Ability to follow the sequence of process given by Building Supervisor
- Ability to carry out the repetitive nature of the actions in the building area
- Knowledge on how to spray the solvents on the green tyre to prevent sticking
- Knowledge of safety procedures

**Managerial skills - NA**

**Soft skills**

- Ability to communicate the process to the helpers

Particulars	Micro	Small	Medium	Large
<ul style="list-style-type: none"> <li>▪ As the nature of the building activity is repetitive, the skill gaps here are more towards sequence adherence</li> <li>▪ At times, place more of the tread component than what is required</li> </ul>	L	L	L	L

H- High; M – Medium; L- Low

**Occupation:** Building

**Job Role:** Building Helper

**Qualification and Experience:** 10<sup>th</sup> pass/less than 10<sup>th</sup> and about 1-2 years experience in industry

**Roles and Responsibilities:**

- Aid the building operators
- Communicate any process deviations

**Knowledge and Skill Requirement**

**Skill Gaps and Intensity level of skill gap**

**Technical skills:**

- Basic knowledge of the process
- Knowledge of the basic building process sequence
- Ability to handle the equipment if required
- Ability to follow instruction from Operator
- Ability to notify the Operator when required
- Knowledge of safety skills

**Managerial skills - NA**

**Soft skills – NA**

Particulars	Micro	Small	Medium	Large
<ul style="list-style-type: none"> <li>▪ Not able to understand instructions at times</li> </ul>	L	L	L	L



H- High; M – Medium; L- Low

**Occupation:** Curing

Following job roles are involved in curing occupation:

- Curing Supervisor
- Curing Operator

- Helper

**Occupation:** Curing

**Job Role:** Curing Supervisor

**Qualification and Experience:** Diploma and about 3-5 years experience in industry

**Roles and Responsibilities:**

- Oversee the curing process
- Communicate the relevant process parameters to cure the green tyre
- Manage the curing operators and helpers

**Knowledge and Skill Requirement**

**Skill Gaps and Intensity level of skill gap**

**Technical skills:**

- Process knowledge
- Understanding of the machines used for curing
- Knowledge about the Hydraulic press machine used
- Knowledge on the temperature, pressure that needs to be set to convert the green tyre to tyre
- Ability to vary the above parameters depending on the type of tyre
- Quality check of the compound through visual examination
- Knowledge of various chemical exposures that can happen during curing

**Managerial skills**

- Ability to motivate the Operators
- Ability to enforce safety in the Operators during the process

**Soft skills**

- Ability to communicate the process to the

Particulars	Micro	Small	Medium	Large
-------------	-------	-------	--------	-------

- |  |   |   |   |   |
|--|---|---|---|---|
| ▪ Not able to implement lean management techniques | M | M | L | L |
|--|---|---|---|---|

Operators by preparation of the curing process chart

H- High; M – Medium; L- Low

### Occupation: Curing

**Job Role:** Curing Operator

**Qualification and Experience:** Minimally educated/10<sup>th</sup> pass/12th pass/ITI and over 3-5 years experience in industry

### Roles and Responsibilities:

- Handle the curing presses
- Set the relevant parameters
- Manage the helpers

### Knowledge and Skill Requirement

### Skill Gaps and Intensity level of skill gap

#### Technical skills:

- Ability to operate the hydraulic pressing machine
- Understanding of the process parameters (Power, temperature, curing time, press, etc)
- Ability to place green tyre between the curing moulds
- Knowledge of safety to protect from the chemical exposure
- Monitor the pressing function and release the press after the curing time
- Ability to carefully lift the set tyre after the curing process

**Managerial skills - NA**

#### Soft skills

- Ability to communicate the process to

Particulars	Micro	Small	Medium	Large
-------------	-------	-------	--------	-------

- |   |   |   |   |   |
|---|---|---|---|---|
| ▪ Less knowledge on safety skills                                 | L | L | L | L |
| ▪ At times, the operator over cures or under cures the green tyre | L | L | L | L |

the helpers

H- High; M – Medium; L- Low

**Occupation:** Curing

**Job Role:** Helper

**Qualification and Experience:** 10<sup>th</sup> pass/less than 10<sup>th</sup> and about 1-2 years experience in industry

**Roles and Responsibilities:**

- Aid the curing operators
- Communicate relevant process related inputs to the operator

**Knowledge and Skill Requirement**

**Skill Gaps and Intensity level of skill gap**

**Technical skills:**

- Basic knowledge of the process
- Ability to handle the equipment if required
- Ability to follow instruction from operator
- Ability to notify the operator when required
- Knowledge of safety skills

**Managerial skills - NA**

**Soft skills – NA**

Particulars	Micro	Small	Medium	Large
<ul style="list-style-type: none"> <li>▪ Not able to understand instructions at times</li> </ul>	L	L	L	L

H- High; M – Medium; L- Low

### Occupation: Finishing and Packing

Following job roles are involved in finishing and packing occupation:

- Finishing and Packing Supervisor
- Finishing and Packing Operator
- Helper

### Occupation: Finishing and Packing

#### Job Role: Finishing and Packing Supervisor

**Qualification and Experience:** 12<sup>th</sup> pass/Diploma and about 3-5 years experience in industry

#### Roles and Responsibilities:

- Oversee the finishing and packing process
- Visual examination of tyre
- Manage the finishing and packing helpers

#### Knowledge and Skill Requirement

#### Skill Gaps and Intensity level of skill gap

#### Technical skills:

- Ability to understand the packing operation
- Knowledge of finishing techniques to be employed
- Ability to prepare finishing chart to instruct the operators on the finishing skills
- Quality check of the final product through visual examination
- Ability to document and communicate the results of the visual inspection

#### Managerial skills

- Ability to motivate the operators
- Ability to enforce safety in the operators during the process

Particulars	Micro	Small	Medium	Large
<ul style="list-style-type: none"> <li>▪ Not able to implement lean management techniques</li> </ul>	M	M	L	L



### Soft skills

- Ability to communicate the process to the operators by preparation of the finishing and packing process chart

H- High; M – Medium; L- Low

**Occupation:** Finishing and Packing

**Job Role:** Finishing and Packing Operator

**Qualification and Experience:** Minimally educated/10<sup>th</sup> pass/less than 10<sup>th</sup> and about 1-2 years experience in industry

### Roles and Responsibilities:

- De-flash the cured tyre
- Sort and pack according to instructions

### Knowledge and Skill Requirement

### Skill Gaps and Intensity level of skill gap

### Technical skills:

- Ability to trim the excess/additional rubber in the cured tyres (Process of deflashing)
- Usage of knives and scissors to deflash
- Ability to trim only the additional rubber and not parts of the tread
- Sorting and packing (Bundling)

### Managerial skills - NA

### Soft skills

- Ability to communicate the process to the helpers

Particulars	Micro	Small	Medium	Large
<ul style="list-style-type: none"> <li>▪ New finishers do not have the ability to de-flash neatly. At times, they might also damage the product</li> </ul>	L	L	L	L
<ul style="list-style-type: none"> <li>▪ Lack the ability to fluently explain the process to the helpers</li> </ul>	L	L	L	L

H- High; M – Medium; L- Low

**Occupation:** Finishing and Packing

**Job Role:** Helper

**Qualification and Experience:** 10<sup>th</sup> pass/less than 10<sup>th</sup> and about 1 year experience in industry

**Roles and Responsibilities:**

- Aid the finishing and de-flashing operators in the process
- Fetching the right instrument when asked by the operators

**Knowledge and Skill Requirement**

**Skill Gaps and Intensity level of skill gap**

**Technical skills:**

- Basic knowledge of the process
- Ability to de-flash, if required
- Ability to follow instruction from Operator
- Ability to bundle the tyres
- Ability to aid in packing the tyres
- Ability to notify the operator when required
- Knowledge of safety skills

**Managerial skills - NA**

**Soft skills - NA**

Particulars	Micro	Small	Medium	Large
<ul style="list-style-type: none"> <li>▪ Inability to bundle the tyres at required rate due to repetitive nature of job</li> </ul>	L	L	L	L



H- High; M – Medium; L- Low

**Occupation: Quality Control**

Following job roles are involved in quality control occupation:

- QC Supervisor
- Chemist

**Occupation:** Quality Control

**Job Role:** QC Supervisor

**Qualification and Experience:** Rubber/Polymer technologist and about 10 years experience in industry

### Roles and Responsibilities:

- Lead the QC process
- Evolve stringent QC methodologies
- Instruct the QC team on the methodologies
- Evolve documentation procedures for the QC

### Knowledge and Skill Requirement

### Skill Gaps and Intensity level of skill gap

#### Technical skills:

- Knowledge of the QC procedures
- Knowledge of various tests like elongation, breaking load, etc
- Ability to use advanced testing equipment like rheometer, viscometer, etc
- Knowledge of testing parameters
- Ability to interpret the results
- Ability to analyze which aspect of the compound is impacting the test results
- Ability to think laterally to cross-analyze the test results
- 

#### Managerial skills

- Ability to manage the QC Supervisors
- Ability to enforce safety in the Operators during the process

#### Soft skills

- Ability to interface with all the supervisors to understand the process

Particulars	Micro	Small	Medium	Large
<ul style="list-style-type: none"> <li>▪ Not able to link the QC results and the production process</li> </ul>	L	L	N/A	N/A

and how it impacts the final QC

- Ability to communicate the results to Shift in-charge and Plant Manager
- Ability to maintain the record of the results by documentation

H- High; M – Medium; L- Low

**Occupation:** Quality Control

**Job Role:** QC Inspector

**Qualification and Experience:** B. Sc/M. Sc Chemistry and about 2-3 years experience

**Roles and Responsibilities:**

- Follow the QC procedures
- Document the results
- Use various test equipments

**Knowledge and Skill Requirement**

**Skill Gaps and Intensity level of skill gap**

**Technical skills:**

- Knowledge of the QA procedures
- Knowledge of various tests like elongation, breaking load, etc
- Ability to use advanced testing equipment like rheometer, viscometer, etc
- Knowledge of testing parameters
- Ability to interpret the results
- Ability to analyze which aspect of the compound is impacting the test results
- Ability to think laterally to cross-analyze the test results
- Ability to follow the instructions from QA

Particulars	Micro	Small	Medium	Large
▪ Not able to handle advanced equipment	M	M	L	L
▪ Not aware of the impact of properties on final product	M	M	L	L
▪ Not able to analyze laterally the impact of properties	M	M	L	L
▪ Documentati	M	M	L	L

Supervisor	on skills are not upto the mark
<b>Managerial skills</b>	
▪ Ability to guide the Helpers	
<b>Soft skills</b>	
▪ Ability to maintain the record of the results by documentation	
H- High; M – Medium; L- Low	

Table 64: Job role wise distribution in all the units for the product segment of Tyre and tube (Estimated)

Occupation	Job role	No of people	Occupation	Job role	No of people
Mixing	Mixing Supervisor	67	Accounts	Manager Accounts	7
	Kneader operator	43		Accountant	135
	Mixing Operator	635	Purchase	Manager Purchase	11
Filtering	Strainer operator	43		Stores Assistant	46
Extrusion	Extruder operator	454	Marketing	Sales agent/Marketing executive	667
Tube cutting	Tube cutter	312		Manager Marketing/sales	11
Mantling/dismantling	Mantling /dismantling operator	50	HR	HR Manager/ Administration	28
Joining	Tube joiner/ splicer machine operator	415		HR executives	75
Curing	Press man	695	Maintenance	Personnel executives	142
	Oven operator	167		Maintenance	433
Valve fitting	Valve fitting operator	60	General	Proprietor/MD/Partner	53
Calendaring	Operators	1529		General Manager	28
	Helpers	1064	Production	Production Manager	50
Building green tyre	Monoband operator	784		Shift In-charge	46
Finishing	Finishing Supervisor	71		Supervisor	404
	Finishing Operator	773		Helpers	1352
	Helper	710			
Inspection	Quality inspector	124			

Occupation	Job role	No of people	Occupation	Job role	No of people
	Chemist	96			
Packaging and Dispatch	Packaging and Dispatch Helpers	213			
		0			
Production function					
Support function					
Management					

## Summary Sheet: Tyre, Tubes and Flaps

Categories	Total no. of Tyre, tubes and flaps rubber product manufacturing units in Punjab					62	Qualification wise distribution of human resource	
<ul style="list-style-type: none"><li>Tyres</li><li>Tubes</li></ul>	Distribution of units	Micro	Small	Medium	Large	Total	Ph.D / Research Engineers BA/B.Sc/B Com Diploma Engineers /Rubber technologist ITI/Vocational Education 12th std/10th std pass Below 10th std Others (MBAs, CA, ICWA, CS, etc.) <b>Total</b>	0%
		37%	11%	31%	21%	100%		3%
	No. of people employed*	497	84	2713	10858	14152		13%
								1%
	Total no. of occupations identified		8		5			1%
	Total no. of job roles identified		22		10			7%
User industry	Critical job roles (in terms of skill requirement)	Compounding, Building and Quality Check					Below 10th std	75%
<ul style="list-style-type: none"><li>Automobile owners</li><li>Automobile industry</li></ul>							Others (MBAs, CA, ICWA, CS, etc.)	0%
	Industry Suggestions <ul style="list-style-type: none"><li>Enhance the automation in the entire production process</li><li>Have special focus on building the softer components like discipline, motivation, etc in human resource</li><li>More focus on research and development</li><li>Small and micro proprietors need enhanced technical training to understand chemical properties, application, global best practices, etc</li><li>Training focused to develop rubber technologists</li></ul>					Function wise distribution of human resource		
		On roll		Off roll				
	Core function	97%		3%				
	Support function	100%		0%				

\*Estimation based on sample data

## 1.4 Support function skill gap mapping

This section outlines the skill gaps in the various support functions.

Boiler attendant is a job role present across most of the rubber product units. Boiler operation is a part most of the rubber product manufacturing process. Boilers are used for heating process (vulcanisation / curing) in the production process. The skill gap of Boiler attendant is presented below:

### Occupation: Boiler Operation

**Occupation:** Boiler Operation

**Job Role:** Boiler Attendant

**Qualification and Experience:** ITI / 12<sup>th</sup> pass with boiler operation license

### Roles and Responsibilities:

- Operate the boiler
- Perform maintenance of boilers in the unit
- Take precautionary safety measures
- Comply with safety policy of the company

### Knowledge and Skill Requirement

### Skill Gaps and Intensity level of skill gap

### Technical skills:

- Knowledge of boiler operation
- Knowledge of various types of boilers
- Knowledge of using diesel, coke, fire wood, etc as input for boiler
- Ability to set parameters in the boiler such as temperature, pressure, etc
- Knowledge of controls in boiler machine
- Knowledge of safety and precautionary measures to be taken
- Ability to check for faults in the machine
- Ability to perform preventive maintenance of boiler
- Ability to use controls for controlling

Particulars	Micro	Small	Medium	Large
<ul style="list-style-type: none"> <li>▪ Not able to multitask – work in rubber product machineries</li> </ul>		M	L	L



steam output to various machines

- Knowledge of cooling agents in machines
- Knowledge of vulcanising machines used in rubber industry such as auto clave, vulcanising chambers, hydraulic press machines, etc.

### Managerial skills

- Ability to coordinate with production department to understand requirement
- Ability to enforce safety in the Operations during the process

### Soft skills

- Ability to interface with all the supervisors to understand the process and their requirement
- Ability to communicate the safety measures related details to all operator
- Ability to maintain the record of fuel as required by company

H- High; M – Medium; L- Low

The other support functions are across the key areas of marketing, purchase, accounts and Human Resource.

Table 65: Occupation wise distribution of job roles

Occupation	Sales and marketing	Purchase	Human resource	Accounts and finance
Job Roles	Marketing Head	Purchase Manager	Personnel Manager	Accounts Head
	Marketing Manager	Purchase Executive	Personnel Executive	Accounts Manager
	Marketing Executive			Accountant/Finance Executive

Variation in the existence of the above listed job roles across various categories of companies – micro, small, medium and large are depicted below:

Table 66: Support function profiling across micro, small, medium and large

Occupations	Job roles	Large	Medium	Small	Micro
Sales and Marketing	Marketing Head				
	Marketing Manager				
	Marketing Executive			In some cases done by Owner/Production Manager	Mostly done by the Owner
Purchase	Purchase Manager				
	Purchase executive			Mostly done by Admin Executive/Production Manager/Owner	Mostly done by Owner/Production Supervisor
Human Resource	Personnel Manager				
	Personnel Executive			Mostly done by Admin Executive/Production Manager/Owner	Mostly done by Owner / Production Supervisor
Accounts and Finance	Accounts Head				
	Accounts Manager		Observed in limited number of companies		
	Accounts/Finance Executive			Mostly outsourced / done by Admin Executive	Mostly outsourced

Note: Cells highlighted in blue defines the existence of job role in the company

### Occupation: Sales and Marketing

Following job roles are involved in sales and marketing occupation:

- Marketing Head
- Marketing Manager
- Marketing Executive

---

### Occupation: Sales and Marketing

#### Job Role: Marketing Head

**Qualification and Experience:** MBA (Marketing) / any graduate with 5 to 10 years of experience

#### Roles and Responsibilities:

- Develop marketing strategy and annual marketing plans
- Solicit business for the company
- Understanding current and potential customer requirements
- Customer relationship management
- Researching and reporting on business opportunities
- Building competitive intelligence
- Brand development
- Drive sales team to achieve the target
- Reporting to management team on performance

#### Skill Requirement

#### Skill Gaps

	Particulars	Micro	Small	Medium	Large
▪ Ability to understand the market trends	▪ Limited understanding on market trends and competitiveness	M	M	M	L
▪ Ability to understand the market structure of the segment in which the company is operating					
▪ Ability to develop marketing strategies and plan in coordination	▪ Inadequate product knowledge and their	M	M	M	L

<p>with production department</p> <ul style="list-style-type: none"><li>▪ Ability to evaluate the strategies of competitors</li><li>▪ Brand development skills</li><li>▪ Ability to identify business opportunities (domestic and export) and highlight it to the management team at a appropriate time</li><li>▪ Adequate knowledge on products offered and their specifications</li><li>▪ Ability to maintain good working relationship with the existing customers</li><li>▪ Ability to understand the market and target the right location and customer segment</li><li>▪ Transfer the market requirements/ trends information to production team and facilitate for making changes in production accordingly</li><li>▪ Ability to talk with prospect customers (through calls, meetings, stalls, etc) and converting them as customers</li><li>▪ Managing the sales team to achieve the sales target</li><li>▪ Excellent communication (to interact with customers from various locations)</li><li>▪ Understanding on the commercial aspects of transaction and pricing techniques for negotiation</li></ul>	<p>technical specification</p>
---	--------------------------------

- Ability to coordinate with Packing & Dispatch Supervisor to ensure that goods are delivered as per customer requirements
- Reporting skills

H – High; M – Medium; L – Low

**Occupation:** Sales and Marketing

**Job Role:** Marketing Manager

**Qualification and Experience:** Any graduate with 1 to 2 years of experience

### Roles and Responsibilities:

- Assist in developing marketing strategy and annual marketing plans
- Solicit business /assist in soliciting the business for the company
- Understand current and potential customer requirements
- Customer relationship management
- Understand customer concerns and coordinate with Production Manager to address the concern

### Skill Requirement

### Skill Gaps

- Ability to assist Marketing Head/Management team in developing marketing strategy/plan
- Knowledge on competition and industry trends
- Ability to talk with prospect customers (through calls, meetings, stalls, etc) and converting them as customers

Particulars	Micro	Small	Medium	Large
▪ Inadequate product knowledge and their specifications	M	M	M	L
▪ Limited knowledge of competition and industry trends	M	M	M	L
▪ Inadequate communication (verbal and non-verbal) and negotiation skills	M	M	L	L

<ul style="list-style-type: none"> <li>▪ Ability to maintain good working relationship with the existing customers which will help in getting repeat orders</li> <li>▪ Ability to understand the concerns of the customers and to work with Production Manager in addressing the issue</li> <li>▪ Adequate product related knowledge</li> <li>▪ Ability to understand and transfer the market requirements/ trends information to production team and make changes in production accordingly</li> <li>▪ Good communication skills (to interact with customers from various locations)</li> <li>▪ Negotiation skills</li> <li>▪ Ability to coordinate with packing &amp; dispatch supervisor to ensure that goods are delivered as per customer requirements</li> </ul>	<ul style="list-style-type: none"> <li>▪ Inability to make effective sales pitch</li> </ul>	L	L	L	L
--	---	---	---	---	---

H – High; M – Medium; L – Low

**Occupation:** Sales and Marketing

**Job Role:** Marketing Executive

**Qualification and Experience:** Any graduate with 0 to 1 years of experience

**Roles and Responsibilities:**

- Solicit business /assist in soliciting the business for the company
- Understand current and potential customer requirements
- Customer relationship management
- Understand customer concerns and coordinate with Production Manager to address the concern
- Ensure timely delivery of the end product

Skill Requirement		Skill Gaps				
		Particulars	Micro	Small	Medium	Large
<ul style="list-style-type: none"><li>▪ Good verbal and written communication skills to interact with customers from various locations</li><li>▪ Ability to understand the market</li><li>▪ Ability to share the market knowledge with the Manager / Management team</li><li>▪ Negotiation skills</li><li>▪ Ability to talk with prospect customers to close deals</li><li>▪ Ability to interface with compounding, production department and finishing departments to ensure timely delivery of the end product to the customers</li><li>▪ Ability to maintain records as per the company protocol</li></ul>	▪ Inadequate communication skills	M	M	L	L	
	▪ Lack basic knowledge about the rubber sector	M	M	L	L	
	▪ Inability to maintain proper records	H	H	M	L	
	▪ Inadequate negotiation skills					
		L	L	L	L	

H – High; M – Medium; L – Low

### Occupation: Purchase

Following job roles are involved in purchase occupation:

- Purchase Manager / Purchase Executive / Admin Executive

**Occupation:** Purchase

**Job Role:** Purchase Manager / Purchase Executive / Admin Executive

**Qualification and Experience:** Any degree with 1 to 3 years of relevant experience

### Roles and Responsibilities:

- Placing of orders for raw materials based on requirement
- Liaison and coordination with the vendors
- Maintain the store records
- Ensure timely availability of raw materials and other tools/materials that are used in production

### Skill Requirement

### Skill Gaps

	Particulars	Micro	Small	Medium	Large
▪ Knowledge on various types of raw materials such as rubber, chemicals (Zinc Oxide, Stearic Acid, Sulphur, etc), fillers and oil.	▪ Inadequate awareness about the rubber commodities market	L	L	L	L
▪ Procedural knowledge for placing purchase order	▪ Inability to efficiently monitor the inventories in stores	L	L	L	L
▪ Understanding the market trends and ability to understand its impact on the raw material prices	▪ Inability to maintain records in disciplined manner	M	M	L	L
▪ Ability to ensure that raw materials are received on time					
▪ Ability to decide the quantum of raw material requirement in coordination with other departments such as production and marketing					
▪ Ability to negotiate for better price					
▪ Ability to follow the formalities to					



check the quantity and quality of raw materials once received

- Ability to stock all the requisite raw materials and chemicals with prior planning
- Ability to understand the supplier capacity and plan for alternative suppliers in case of crises situation
- Ability to maintain inventory of raw materials to ensure continuous production
- Knowledge of the position of various raw materials in the store
- Ability to organize the store
- Ability to monitor and document daily raw material consumption
- Good interpersonal skills
- Ability to manage the material movement
- Good communication skills to understand the material performance from production side
- Ability to track the commodities market
- Basic knowledge on export related transaction and foreign currency conversion rates (for export based units)

H – High; M – Medium; L – Low

Following job roles are involved in human resource occupation:

- Personnel Manger / Personnel Executive / Admin Executive

**Occupation:** Human Resource

**Job Role:** Personnel Manager/ Personnel Executive / Admin Executive

**Qualification and Experience:** Any degree / specialization in HR with 1-3 years of industry experience

### Roles and Responsibilities:

- Plan for human resource requirements
- Manage workforce (including contractual employees)
- Process payroll
- Structure training modules to build the competencies

### Skill Requirement

### Skill Gaps

	Particulars	Micro	Small	Medium	Large
▪ Good verbal and written communication	▪ Inadequate people management skills	M	M	M	L
▪ Ability to plan and manage the workforce – especially during the season where the contractual labour will exhibit absenteeism	▪ Inadequate ability to assess the training requirements of the employees	M	M	L	L
▪ Ability to organize training and development modules (including safety and hygiene) for the employees	▪ Failing to get adequate contract labour during crises situation which leads to under utilization of production capacity	M	M	L	L
▪ Ability to interface with compounding and production department to understand the various competencies required					
▪ Ability to process payroll					
▪ Establish and maintain contacts with					

various sources for getting contract employees for the organisation

- Ability to maintain the shift details
- Interpersonal skills

H – High; M – Medium; L – Low

### Occupation: Accounts and Finance

Following job roles are involved in accounts and finance occupation:

- Accounts/Finance Head
- Accounts/Finance Manager
- Accountant/Finance Executive

### Occupation: Accounts and Finance

#### Job Role: Accounts/Finance Head/Manager/Executive

#### Qualification and Experience:

- Head / Manager: CA / Post graduate in finance/accounts with 10 years of experience
- Executive: Degree in finance/accounts with 1 to 3 years of experience

#### Roles and Responsibilities:

- Maintain accounts
- Preparation of budgets
- Issue purchase order and invoice for sales
- Reporting to management team/owner
- Collecting payments from customers and making payments to vendors

#### Skill Requirement

#### Skill Gaps

	Particulars	Micro	Small	Medium	Large
▪ Ability to plan the budget	▪ Difficulty in planning	M	M	L	L
▪ Ability to be aware of the raw	the budget				

material prices to aid in the purchasing at the right time	▪ Inadequate system knowledge like book keeping, transaction recording, etc	M	M	L	L
▪ Knowledge on book keeping (recording of transactions and maintain the books of accounts)	▪ Inadequate IT skills like Tally, etc	M	M	L	L
▪ Knowledge of accounting software such as tally					
▪ Knowledge of issuing purchase order, invoice, etc.					
▪ Maintaining the bank accounts and ensure payments for loans on time					
▪ Ability to interact with customers and receive the payment during credit period					
▪ Ability to interface with the shift in charge and plant manager to understand the process and to know where to cut costs					
▪ Maintaining the bank accounts and ensure payments for loans on time					
▪ Ability to do analysis on the financial performance of the company and update the management team at periodical intervals					

H – High; M – Medium; L – Low

### 1.5 Estimation of Current Human Resource in Rubber Industry for Punjab

We have estimated the current human resource in rubber industry for Punjab state based on the sample companies visited as shown in table 40.

Table 67: Number of Human Resource (Product category and size wise) in the sample units visited

Product Category	Micro	Small	Medium	Large	Total
Adhesive	6	0	0	0	6
Auto & Cycle Parts	228	30	72	0	330
Beltings	158	29	192	697	1076
Dipped Goods	22	0	0	0	22
Foam Products	0	17	11	0	28
Foot Wear	240	520	401	0	1160
Hoses	12	56	192	0	260
Leather Board	0	96	42	18	156
Moulded Rubber Products	106	0	0	0	106
Rubber Covered Rollers	131	30	0	0	161
Rubber Mattings	14	70	0	0	84
Rubber Sheeting	0	35	0	0	35
Rubber Tubing	12	0	0	0	12
Sports Goods	186	383	590	0	1159
Tread Rubber Products	83	0	0	0	83
Tyre, Tubes & Flaps	42	24	1001	6678	7745
<b>Grand Total</b>	<b>1240</b>	<b>1289</b>	<b>2501</b>	<b>7393</b>	<b>12422</b>

Table 68: Number of Human Resource (Product category and size wise) for Rubber Industry<sup>1</sup> in Punjab –  
Estimated based on sample units visited

Product Category	Micro	Small	Medium	Large	Total
Adhesives	7	0	0	0	7
Auto And Cycle Parts	907	94	144	0	1145
Beltings	486	86	480	698	1751
Dipped Goods	29	0	0	0	29
Foam Products	0	34	11	0	44
Footwear	1102	2592	515	0	4208
Hoses	48	282	192	0	522
Latex Thread	0	1	0	0	1
Leather Board	0	96	102	18	216
Moulded Rubber Products	144	96	36	0	276
Rubber Covered Rollers	302	60	48	84	494
Rubber Matting	14	70	0	0	84
Rubber Sheetings	0	36	0	0	36
Rubber Tubings	12	0	0	0	12
Rubberised Coir, Jute & Woolen Products	1	0	0	0	1
Rubberised Fabric Products	0	1	0	0	1
Sports Goods	874	773	886	0	2532
Tread Rubber Products	143	0	0	0	143
Tyre, Tube & Flaps	497	84	2713	10854	14148
<b>Grand Total</b>	<b>4566</b>	<b>4304</b>	<b>5126</b>	<b>11654</b>	<b>25651</b>

<sup>1</sup> The human resource estimate comprises only for the direct employment generated by the Rubber industry. There are indirect employment generated and is not considered for estimation.

## 2. Human Resources Supply in Punjab

### 2.1 Socio-Economic Profile of Punjab

Punjab is a state in the northwest part of India. The capital of the state is in Chandigarh which is a union territory. The State is divided into 22 districts, 5 divisions, 81 tehsils, 86 sub tehsils, 145 blocks and 12,581 inhabited villages. There are 22 Zila Parishads, 140 Municipal committees and 23 improvement trusts.

The area of Punjab can be sub divided into three different regions viz. Malwa-region of Punjab south to river Sutlej, Majha- region of Punjab between river Ravi, Beas and Sutlej, and Doaba- region of Punjab between rivers Beas and Sutlej.

### 2.2 Demography

As of 2011 Census, the State has a population of 2.8 crore persons. In the last ten years, the State's population has grown at a decadal growth rate of 13.73 per cent, as compared to 17.64 per cent All-India growth rate.

**Table 69: Key demographic indicators**

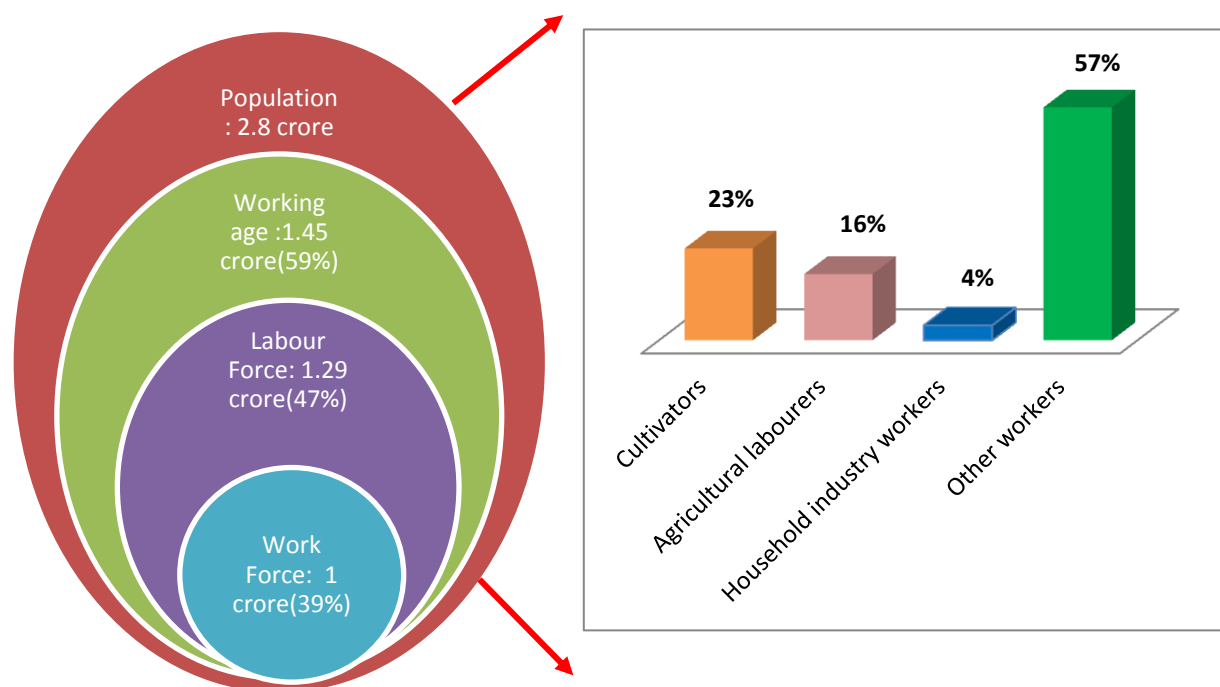
Indicator	Year	Punjab	India
Population, No.	2011	2,77,04,236	1,210,193,422
Decadal growth rate of population, %	2001-11	13.73%	17.64%
Urban population as a percentage of total population, %	2011	37.5%	31.2%
Sex ratio, No. of females per 1000 males	2011	893	940
Population density, per sq. km.	2011	550	382
Literacy rate, %	2011	77%	74%
Working age population* as a percentage of total population, %	2001	59%	57%
Work participation rate^, %	2001	37.5%	39%

*\*Working age population is the population in the age-group of 15 to 59 years. ^ Work participation rate is defined as the percentage of total workers (main and marginal workers) to total population. It is also known as the labour force participation rate. Source: Census 2001, Census 2011*

As of Census 2011, the State has a literacy rate of 76.7 per cent, which is higher than the All-India average of 74 per cent. Compared across districts, Hoshiarpur district has the highest literacy rate in the State at 85.4 per cent, while Mansa district has the lowest literacy rate at 62.8 per cent.

As of 2011, the State's workforce is estimated at 1.04 crore persons. Workers in other sectors constitute 57 per cent of total workers while 39 per cent of total workers are in agriculture sector and 4 per cent work as household workers.

Figure 34: Demographic and worker profile of Punjab



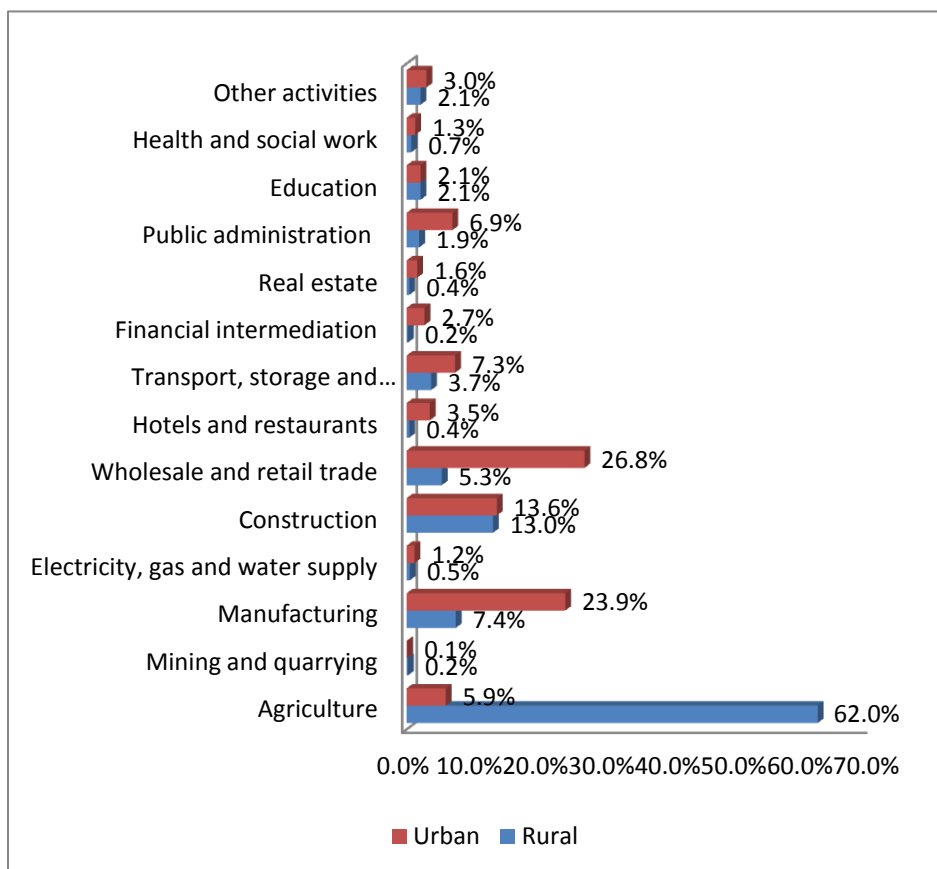
*HHI: Household Industry; Other workers include all government servants, municipal employees, teachers, factory workers, plantation workers, those engaged in trade, commerce, business, transport banking, mining, construction, political or social work, priests, entertainment artists, etc. In effect, all those workers other than cultivators or agricultural labourers or household industry workers, are 'Other Workers'.*

Source: Census 2001, Census 2011, NSS 66<sup>th</sup> Round



According to NSS 66<sup>th</sup> round on 'Employment and unemployment' conducted in 2009-10, around 62 per cent of the workers in Punjab in rural areas are in agriculture and allied activities. While in urban areas, around 24 per cent of the workers are in 'manufacturing' and 27 per cent are in wholesale and retail trade.

Figure 35: Distribution of usually working persons in the principal status and subsidiary status by broad industry division



Source: NSS 66<sup>th</sup> Round – by NSSO

## 2.3 Education and Training Infrastructure

Punjab's education infrastructure consists of 10 universities, 238 arts, commerce, home science and science colleges, 84 engineering colleges with enrollment of 56,665, 92 polytechnic institutions with student strength of 44,800, ITI and ITC with capacity of 20,000 and 30,158 government schools with enrollment of 54 lakh students.

Table 70: Education infrastructure in Punjab, as of 2011-12

#	Category	Number	Enrollment/Sanctioned intake <sup>#</sup> , in 'Lakh
1	Primary Only	13918	12.7
2	Primary with Upper Primary	705	1.3
3	Primary with upper Primary Sec/H.Sec	2847	10.7
4	Upper Primary Only	2997	0.2
5	Upper Primary with Sec./H.Sec	3495	5.3
A	Total Schools	23962	30.3
B	ITI and ITC	180	0.20 <sup>#</sup>
C	Polytechnic	92	0.44 <sup>#</sup>
1	Arts and Science including Home science and commerce	238	2.34
2	Teacher training	185	0.15
3	Medical	84	0.28
4	Agriculture	2	0.02
5	Engineering	84	0.57
6	Veterinary	1	0.005
7	Physical education	8	0.02
8	Oriental	2	0.003
D	Total	604	3.39

Source: Economic Survey of Punjab, Department of Technical Education & Industrial Training, Punjab, District Information System for Education (DISE)

### 2.3.1 Rubber Specific Training Infrastructure

Rubber specific training infrastructure is limited to a very few colleges in Punjab. Following are the Rubber specific training infrastructures available in Punjab:-

#	Category	Course	Capacity
1	Beant College of Engineering and Technology, Gurdaspur	B.Tech in Chemical Engineering	30

Punjab does not have any Polytechnic which offers courses relevant to rubber industry.

Table 71: Feedback from training providers' interaction in Punjab State

Parameter	Engineering Colleges	Polytechnics	Others
<b>Student Mobilization</b>	Announcements in newspapers, magazines, etc.	NA	NA
<b>Student Selection</b>	Prospective students are sourced through counseling conducted under Punjab Technical University	NA	NA
<b>Curriculum</b>	The curriculum is formulated for the degree course in chemical engineering. The course also offers an elective in polymer science and rubber technology	NA	NA
<b>Training</b>	<ul style="list-style-type: none"> <li>There are five faculties in the department of chemical engineering.</li> <li>The training is a mix of theory and practical</li> </ul>	NA	NA
<b>Infrastructure availability</b>	Infrastructure include classrooms, lab, auditorium, hostels,	NA	NA

	etc.		
<b>Certification</b>	<ul style="list-style-type: none"> <li>▪ Recognised Degree</li> <li>▪ Assessment is done through both theory and practical exams</li> </ul>	NA	NA
<b>Placement percentage</b>	70% to 80% of students are able to get placed	NA	NA
<b>Placement Companies (Indicative list)</b>	<ul style="list-style-type: none"> <li>▪ The students from chemical engineering are able to get placements not only in rubber but also in various other industries.</li> <li>▪ The students from mechanical branch are getting placements in various tyre companies like Apollo tyres</li> </ul>	NA	NA
<b>Placement Location</b>	Most of the students are placed outside the state	NA	NA
<b>Indicative average Salary of trainees</b>	Average salary of Rs. 15,000	NA	NA
<b>Faculty Profile</b>	M.Tech in Polymer technology / Ph. D	NA	NA
<b>Qualitative feedback on Faculties</b>	Over 10 years of teaching experience and the quality is observed to be good.	NA	NA
<b>Importance of non technical skills</b>	To fulfill the organisational requirements students are also trained in terms of communication skills, IT and other soft skills	NA	NA

### 3 Job-role Compatibility Matrix

This section profiles the compatibility of the job roles in the rubber sector across the key product groups. The compatibility has been defined as the measure of the amount of internal training an organization has to invest in when an operator moves across the product groups. The lower is the training/mentoring duration; the more compatible is the operator across the product groups.

This has been done across dry rubber based units. It has not been done for latex based units as there are only very few units which manufacture latex based products.

The dry rubber based compatibility chart shows that the mixing operators and curing operators are compatible across most product groups.

Figure 36: Compatibility matrix – Dry rubber based units

#	Job roles	Occupations									
		Mixing Operator	Extrusion Operator	Calendarin g Operator	Sandblastin g Operator	Grinding Operator	Mouldin g Operator	Vulcanizing / Curing Operator	Finishing Operator s	Braiding Operator s	Building Operator
	Product Group										
1	Auto & Cycle Parts										
2	Beltings										
3	Footwear Products										
4	Hoses										
5	Leather Board										
6	Moulded Rubber Products										
7	Rubber Covered Rollers										
8	Rubber Mattings										
9	Rubber Sheetings										
10	Rubber Tubings										
11	Sports Goods										

		Occupations									
#	Job roles	Mixing Operator	Extrusion Operator	Calendarin g Operator	Sandblastin g Operator	Grinding Operator	Mouldin g Operator	Vulcanizing / Curing Operator	Finishing Operator s	Braiding Operator s	Building Operator
1 2	Tread Rubber Products										
1 3	Tyres										

The job role is compatible and the operator with minimum training can move across the product groups

**Note:**

- 1 Production management job roles such as Production Manager and Shift in charge not covered and are applicable for all the product groups.
- 2 Quality related job roles such as Quality in charge and lab assistants are not covered and are applicable for all the product groups.

#### 4 Human Resource estimation for Punjab state

Based on our forecasts, we estimate that between 2012-13 and 2017-18, an incremental human resource (cumulative for five years) of about 9,319 persons will be generated in Punjab.

Maximum demand will be generated for product segment tyres and tubes and employment fall will be expected in segments like footwear.

The fall in footwear is expected due to the lesser demand and for the latter two segments the fall is anticipated due to the rise in automation that will lead to higher productivity without increasing the human resource number.

Table 72: Projected human resource requirement for Rubber Industry in Punjab state till 2018

S.No	Product group	2012 - 13	2017 - 18	Incremental
1	Tyre and Tube	14,152	20,978	6,826
2	Camel back	143	163	21
3	Footwear	4,424	3,631	-
4	Belt and hose	2,273	2,273	0
5	Latex foam	52	40	-
6	Dipped goods	29	28	-
7	Others	4,579	7,051	2,472
<b>Total</b>		<b>25,651</b>	<b>34,165</b>	<b>9,319</b>

*Source: IMaCS Analysis. Camelback comprises of tread rubber products. Footwear comprises of footwear products and leather boards. Latex foam comprises of foam products, adhesives, adhesive tapes, latex thread. Cables and wires comprise of cables and rubber tubings. Battery boxes comprise of ebonite products. Others comprise of moulded rubber products, rubber linings, rubber covered rollers, rubber matting, rubber sheeting, sports goods, flaps, auto and cycle parts, extruded goods, rubberized coir and rubberized fabric*

#### 4.1 Job Role-wise Incremental Human Resource estimation for Punjab

This section will outline the job role-wise HR requirement in Punjab. The training ecosystem has to be built keeping in mind the compatibility of the job roles. For Punjab, these numbers have been given for dry rubber based.

For the dry rubber based job role number computation, product segments Tyres, Camelback, Others, Belts and Hoses have been considered. Footwear has not been taken into account due to HR reduction (as outlined above).

In Punjab, for the dry rubber based there are maximum operators required in the Helpers, Curing Operator, Calendaring Operator and Mixing Operator. This is in line with the rubber manufacturing structure in the state which has higher focus on moulded goods. The helpers are involved occupations.

Table 73: Punjab job role-wise numbers – Dry Rubber based

Job roles	Incremental HR	%
Mixing Supervisor	144	1.5%
Mixing Operator	708	7.6%
Extruding Supervisor	49	0.5%
Extruding Operator	487	5.2%
Calendaring Supervisor	99	1.1%
Calendaring Operator	1000	10.7%
Beading Supervisor	7	0.1%
Beading Operator	130	1.4%
Building Supervisor	106	1.1%
Building Operator	781	8.4%
Curing Supervisor	238	2.6%
Curing Operator	1463	15.7%
Helpers	2620	28.1%
Inspection / finishing	371	4.0%
QC	254	2.7%
Support	862	9.2%
<b>TOTAL</b>	<b>9,319</b>	<b>100.0%</b>

Source: IMaCS Analysis



In Punjab, the latex based job roles do not show any increment as there are only few units which manufacture latex based products.

In addition to the above mentioned core functions, the industry also requires skilled maintenance operators (mechanics). Based on the industry players' interaction and our analysis, it is observed that the maintenance operation will gain more importance in the coming days with increased mechanization and automation in the manufacturing process. Equipped operators are required for maintenance activity to be performed. Therefore, we have estimated the requirement of maintenance operators for the rubber manufacturing units. These operators are acting as a third party service provider to the manufacturing units and generally provide service to multiple units. Generally large companies have their own maintenance team and these services are usually provided to Micro, Small and Medium enterprises.

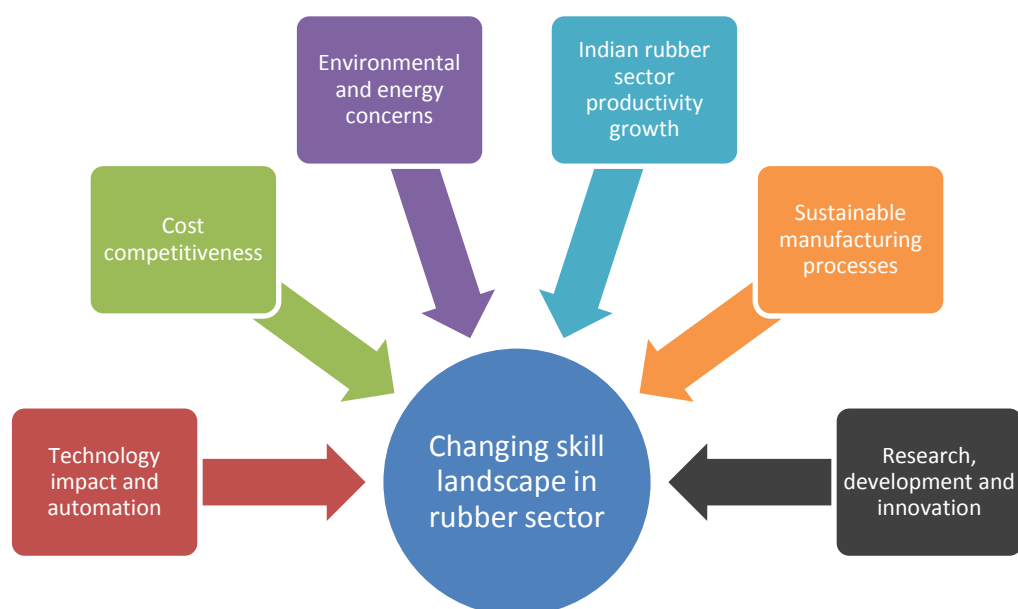
Punjab has more than 380 rubber product manufacturing units. These units require around 290 operators to perform the maintenance operation. In the next years, considering the increase in output, the number may increase to around 350 operators. The maintenance operator requirement is calculated based on industry interaction and IMaCS analysis considering parameters such as no. of maintenance activity undertaken (break down maintenance and periodical maintenance) and man hours required for performing the maintenance activity.

## 5 Recommendations

### 5.1 Introduction

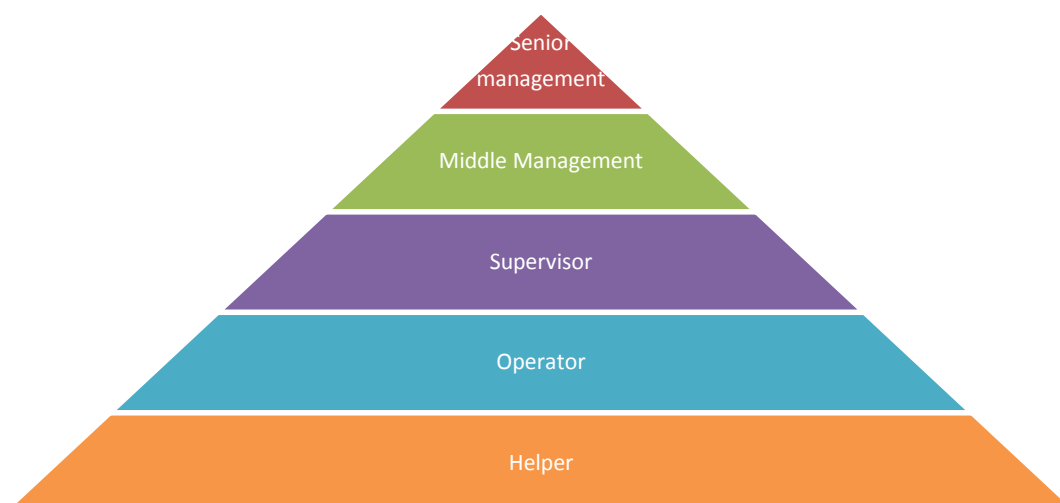
The skilling landscape for the rubber sector has undergone significant changes. There are several factors that have been attributed to this change; of course the mainstay being the dynamic nature of the sector both in terms of the manufacturing process and technology. Some of the predominant points that have impacted the skill landscape are depicted in figure 49.

*Figure 37: Factors that have changed the skill landscape in rubber*



Thus, there is a heightened need to revisit the skilling initiatives that are currently used in the rubber sector, across all the employee profiles to ensure holistic development.

Predominantly, the human resource in the rubber sector can be classified in the following manner based on their experience and skill level.



Thus, based on this division, the skilling requirement and themes will also vary. These themes will address both the skilling and upskilling necessities of the sector.

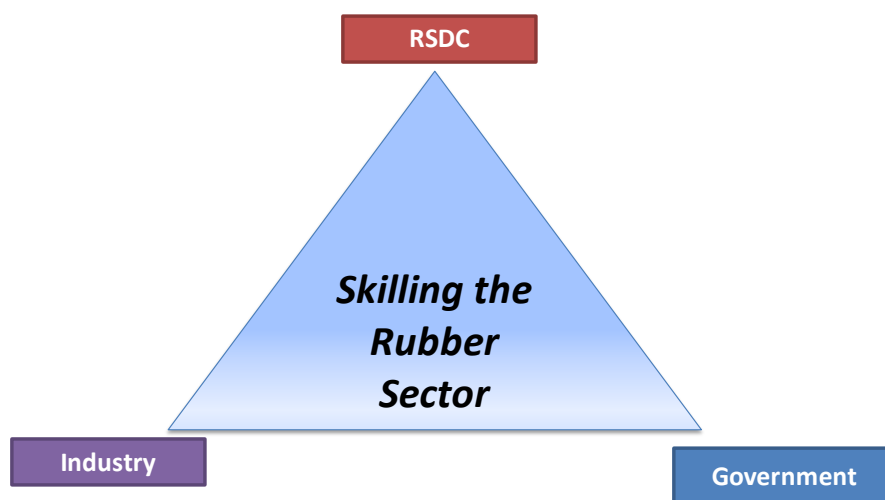
**Table 74: Rubber sector skilling themes**

Skilling theme	Brief description	Target human resource profile
<b>Building systems for manufacturing excellence</b>	These skills are aimed at building the expertise across several ambits like lean manufacturing, Kaizen, Corrective Action Preventive Action (CAPA), Total Productivity Management (TPM), and Six Sigma amongst others, which will change manufacturing scenario that is followed in most rubber units in India.	<b>Supervisors, Middle Management, Senior management</b>
<b>Building skills for technical competency</b>	These skills are predominantly for the operators of the various machines used in manufacturing	<b>Operators, Helpers</b>
<b>Building skills for maintenance</b>	These skills will target the supervisor grade personnel who will need not only understanding on machine operation but also know the properties and the basic preventive maintenance sequences.	<b>Operators, Helpers</b>
<b>Building skills for research and</b>	This again will fall under the ambit of up-skilling where personnel with over 10-12 years of experience in the	<b>Senior management,</b>

Skilling theme	Brief description	Target human resource profile
<b>innovation</b>	industry can be encouraged and skilled to pursue research	<b>Middle Management</b>
<b>Soft skill development</b>	The industry has the big challenge of migrant workforce and people who are minimally educated who need to be skilled with communication and soft skills so that they can adapt to the shop-floors quickly and also have basic industrial discipline/culture	<b>Supervisors, Operators, Helpers</b>

Given this background and need for skilling, there needs to be synergy with all the stakeholders involved in the rubber sector to achieve the skill targets.

Figure 38: Synergy between stakeholders



The recommendations thus, have been outlined based on the role each stakeholder has to play in the skill sphere. In addition, some Best Case examples in the training sphere have also been outlined.

### 5.1.1 For RSDC

This section will focus on recommendations for the RSDC. The recommendations for the RSDC will focus on the following modules:

- 1. Identification of critical job roles and training mechanism of Punjab**
- 2. Upskilling the human resource**
- 3. Train the trainer**
- 4. Recognizing the skill gleaned through prior experience**
- 5. Focus on building maintenance skills**

This first sub-section will highlight the technical skills competency that needs to be built for Punjab state for both dry rubber and latex based products.

#### 5.1.1.1 Punjab – Identification of critical job roles and training mechanism of Punjab

Punjab houses around 500 rubber manufacturing units which are distributed across the tyre and non-tyre segments. The dominant segments in the state are tyre, sports goods, belting, footwear and moulded rubber products.

The industry feedback in Punjab has been analyzed to reveal what are the job roles across the product segments that require interventions. This has been depicted in the form of a heat map where three dimensions are analyzed:

- 1. The criticality of the job role**
  - a. In terms of the end product quality
  - b. In terms of the continuity of the manufacturing line
- 2. Availability of the human resource for that particular job role**
- 3. Intensity of the skill gap exhibited (across 3 variations, as in the skill gap section)**
  - a. Mismatch between expected competency for that job role and what skill the personnel exhibits is high
  - b. Mismatch between expected competency for that job role and what skill the personnel exhibits is medium
  - c. Mismatch between expected competency for that job role and what skill the personnel exhibits is low

The critical job roles are identified only for dry rubber based units and not for latex products as only less than 5% of companies in Punjab may be manufacturing latex based products.

### Dry rubber based units

Figure 39: Heat map for Punjab – Dry rubber based

	Occupation	Mixing	Extrusion	Calendaring	Moulding	Finishing	Vulcanising Curing	Quality Check	Building	Beading
S. No.	Products Category	Mixing operator	operator	operator	operator	Finishing operator	Vulcanising/ Curing operator	charge Operator	Building operator	Beading Operator
1	Auto & Cycle Parts									
2	Beltings									
3	Footwear Products									
4	Hoses									
5	Moulded Rubber Products									
6	Rubber Covered Rollers									
7	Rubber Matting									
8	Rubber Sheetings									
9	Rubber Tubings									
10	Sports Goods									
11	Tread Rubber Products									
12	Tyre, Tube & Flaps									

### Legend

Criticality/intensity high  
Criticality/intensity medium  
Criticality/intensity low



The key takeaways from the above heat map lead to identification of critical roles. Based on primary survey, IMaCS proposes indicative training mechanism for these dry rubber based job roles in Punjab, which the RSDC can build an ecosystem for by partnering the stakeholders:

**Table 75: Identification of critical job roles and indicative training mechanism for Punjab – Dry rubber based units**

Critical job role	Rationale for criticality*	Indicative training mechanism	Other comments from industry
<b>Mixing and milling operator</b>	<ul style="list-style-type: none"> <li>The compounding/formulation are the most critical process for the entire manufacturing cycle. The operators involved should understand the basics of raw material properties and follow the sequence and weighing to the last detail</li> </ul>	<ul style="list-style-type: none"> <li>Class room module on basics of raw material properties</li> <li>Practical sessions on mixing operations</li> <li>Scenario based training on how to manage the corrective actions</li> <li>Safety skills exposure</li> <li>Soft skills</li> </ul>	<p>“In addition must invest in basic machine maintenance as this would definitely help the overall productivity and reduce costs. Also, for majority of small units, if mixing goes wrong we only find it in the end after the final product comes.”</p>
<b>Extrusion operator</b>	<ul style="list-style-type: none"> <li>Right parameters like temperature need to be maintained to prevent curing of compound in the extruder</li> <li>When the product comes out of the extruder, the operator must be able to judge the quality of the product</li> <li>The feeding needs to be</li> </ul>	<ul style="list-style-type: none"> <li>Practical sessions on extrusion operations. This should form bulk of training</li> <li>Scenario based training on how to manage the corrective actions</li> <li>Soft skills</li> </ul>	<p>“The experienced and sufficiently skilled extruder operators are difficult to find.”</p>

Critical job role	Rationale for criticality*	Indicative training mechanism	Other comments from industry
	done consistently to avoid non-uniform extruded product		
<b>Moulding operator</b>	<ul style="list-style-type: none"> <li>Right parameters like temperature need to be maintained to prevent over-curing/ under-curing of compound</li> <li>Productivity numbers finally rest with this operator</li> <li>The curing operator judges the final quality of the product from the mould and should be able to flag off the issues encountered</li> </ul>	<ul style="list-style-type: none"> <li>Practical sessions on moulding operations. This should form bulk of training</li> <li>Scenario based training on how to manage the corrective actions</li> <li>Safety skills exposure</li> <li>Soft skills</li> </ul>	“The availability of skilled moulding operators is a challenge. Most of them tend to leave the job.”

\* based on industry feedback

#### 5.1.1.2 Up-skilling potential

This section will detail the upskilling potential for various profiles of job roles in the rubber sector.

The rubber sector requires not only a pipeline of human resource skilled in equipment usage and various other basics but also the up-skilling of the personnel currently working in the sector.

Skill gaps identified in the IMaCS primary survey bring to the fore that the current workers recruited have generic employability skills and not specific task skills/knowledge. This further gains import for the rubber sector as new technology, increasing compliance requirements, global pressures to increase productivity and new work practices all keep changing significantly.



This up-skilling recommendation will need proactive participation from the industry to aid the RSDC to successfully facilitate the same.

The indicative up-skilling areas for the RSDC where they can build a training ecosystem are:

Human resource profile	Indicative topics
<b>Operators with experience of over 5 years</b>	<ul style="list-style-type: none"><li>▪ Latest advancements in rubber sphere</li><li>▪ Advanced equipment handling</li><li>▪ Basic management modules</li><li>▪ Maintenance of apparatus</li><li>▪ Refresher module on rubber and chemical basics</li></ul>
<b>Supervisors</b>	<ul style="list-style-type: none"><li>▪ Leadership modules</li><li>▪ Lean manufacturing techniques</li><li>▪ Total Productivity Management principles</li><li>▪ Production planning modules</li><li>▪ QC tools</li></ul>
<b>Senior management</b>	<ul style="list-style-type: none"><li>▪ New product development</li><li>▪ Value addition techniques</li><li>▪ Development of QC systems</li><li>▪ Global best production practices</li></ul>

### 5.1.1.3 Training of trainer

There needs to be an adequate trainer pool built to offer the training programs to the skilling and upskilling modules.

The RSDC can partner the industries to have a mechanism like guest faculty who know the topics through both theory knowledge and practical experiences. In fact, several industry experts can regularly have ToT sessions to keep the faculty abreast of the developments and the RSDC can create the ecosystem for the same.

### 5.1.1.4 Recognizing the training already gleaned

Many workers in the rubber are classified as minimally skilled due to their low qualification (below X<sup>th</sup> pass in most cases). However, once they are on-the-job, they tend to acquire skills simply through experience. However, there is no certification which is provided for such skills acquired. When these workers move from one unit to another, they have no proof of the skills acquired.

Thus, there is a need to recognise such skills also, for the benefit of the workers in the rubber sector. The RSDC can introduce certification programmes, wherein such workers can sit for examinations (with greater focus on practical) and get certified for their skills, if they pass the exam.

By doing so, they also get slotted as skilled personnel and will be eligible for upskilling going forward.

### 5.1.1.5 Focus on maintenance

The rubber industry utilizes several machinery and equipment across the product segments. Some of the commonly used equipments in manufacturing are:

- Open mixing mill
- Intermix
- Ban bury mixer
- Kneader
- Calendar
- Cold feed extruder
- Extruder
- Hydraulic press – for compression moulding, transfer moulding, injection moulding
- Rotocuring machine
- Autoclave vulcanizer
- Dispersion mixer
- Cryogenic machine
- Auto vacuum machine
- Ball milling machine
- Dipped goods manufacturing line
- Tumbling machine

- Boilers

This translates to active machine maintenance.

The consistent feedback received from the industry the IMaCS team visited is the difficulty in engaging personnel for the maintenance of the machines and equipments used in the shop floor.

Thus, the RSDC can focus on identifying ITI and polytechnic which in turn can offer maintenance training by tying up with the polytechnics and ITI in the manufacturing clusters. Specifically, the electrical and mechanical trades can be targeted for this.

As the equipments are of high criticality, the types of maintenance modules that can be offered for training include:

1. Breakdown Maintenance or Operate to Failure or Unplanned Maintenance
2. Preventive or Scheduled Maintenance
3. Predictive or Condition Based Maintenance

In addition to the above, new strategies concepts such as Proactive Maintenance, Reliability Centred Maintenance (RCM), Total Productive Maintenance (TPM), etc. have recently been evolved to look it from different perspectives and this has helped in developing effective maintenance. In proactive maintenance, the aim is identify what can go wrong, i.e. by monitoring of parameters that can cause failures.

In RCM, the type of maintenance is chosen with reliability of the system in consideration, i.e. system functions, failures relating to those functions and effects of the dominant functional system failures.

These advanced modules can also be offered as upskilling.

### 5.1.2 Industry

This section will focus on recommendations for the industry. The recommendations for the industry will focus on the following modules:

1. ***Strategies to mitigate the current challenges faced by industries***
2. ***Mechanism to have constant upskilling***
3. ***Knowledge sharing***

#### 4. Support of RSDC LMIS

##### 5.1.2.1 Challenges faced by industries

Based on the interaction with the industry, certain common challenges have been identified:

- Attracting the Human Resource to the sector
- Retaining the existing Human Resource
- Providing on the job training (OJT) to make them shop-floor ready
- Attracting women to the sector

Going forward, strategies will be outlined to address these challenges.

Challenge	Industry feedback	Strategy
<b>1. Attracting HR to be a part of the rubber sector</b>	“The primary concern in the rubber sector is that we are finding it extremely difficult to attract HR. Once the HR is there only we can think about training, skilling and upskilling”	<ul style="list-style-type: none"> <li>▪ Healthier work environment has to be implemented. The perception in the HR that rubber is ‘dirty’ and ‘unhealthy’ can be rooted out by following fundamental facility maintenance doctrines like 5S.</li> <li>▪ The AIRIA should take steps with RSDC to educate the small, tiny and medium entrepreneurs the importance of 5S in cluster level workshops. The implementation phases for 5S with success case examples should be</li> </ul>

Challenge	Industry feedback	Strategy
		highlighted.

### 5S --- The Mantra for Organized and Healthy Work Environment

The 5S-operation model is one part of the Lean model. It is just one of the many tools which the Lean-ideology includes. 5S consists of five (5) different phases and it was also created in Japan. The names of the phases come from Japanese and all of them begin with the letter s. That is where the name 5S stems from. The phases are:

- ✚ Seiri = Sort
- ✚ Seiton = Stabilize/Set in order
- ✚ Seiso = Shine/Sweep
- ✚ Seiketsu = Standardize
- ✚ Shitsuke = Sustain

Cleanliness and order characterize significant issues both for customers and potential labor force. The starting point is that profitable and high quality tasks can be conducted only in a clean environment. The basic idea is to increase productivity, to improve the level of quality and to raise work ethic. These factors are reached when the working environment is clean and in good order.

*Exhibit 1: Rubber Seals before 5S and after 5S*



*Source: Introduction and implementation of the 5S-operation model for St-Koneistus Ltd*

Challenge	Industry feedback	Strategy
<b>2. Retaining the existing HR</b>	“Attrition is the biggest problem. This affects the productivity planning, the output, and the organization vision.”	<ul style="list-style-type: none"> <li>▪ One of the means to combat attrition will be to clearly spell out the career graph of the person who walks in as a helper. Giving the blueprint for the growth to the</li> </ul>

Challenge	Industry feedback	Strategy
		<p>person will enable him to better productivity and tie him to the organization.</p> <ul style="list-style-type: none"> <li>▪ To retain workers, employers should consider offering nationally recognized qualifications aligning with RSDC.</li> <li>▪ Employees may see the chance to gain qualifications as a good reason to stay with an employer. Once a qualification has been gained, they can be offered the next qualification level.</li> </ul>

### *Case Study: Ireland Manufacturing Industry Career Path*

Internationally, there are clear paths in many countries for career progression from operative level up to senior roles in manufacturing, linked to their systems of training, education and qualifications. Industry takes the lead role in establishing and developing these career paths in collaboration with education and training providers.

Ireland does not have a comparable resource at present.

The most significant gap in the system is the lack of a clear framework for training at operative level, and for progressing from operative level. There are existing elements to the system which function well; there are discrete sector level initiatives for operative level training that might fit well into an overarching framework; and there are examples of very good practice on career paths within individual firms. The challenge is to build on good work that is already being done.

Key features of a career path framework for manufacturing at this range of levels would include:

- ✚ Establishing competency frameworks for the main occupations, mapped to the National Framework of Qualifications;
- ✚ Establishing learning pathways for the skills associated with each occupation, and for progression between occupations, that meet the needs of both industry and employees, and are robust in terms of learning and qualifications; and
- ✚ Facilitating both college-based and industry-based learning pathways where these meet industry and learner needs, with cross-linkages and even joint provision between the two types of pathway.
- ✚ Consideration should be given to the possibility of an industry-based track to qualifications for higher level occupations, comparable to German Meister or time-served engineer.

#### **Recommendations:**

The Manufacturing Development Forum should lead a review of manufacturing career paths. It should engage industry, employee representatives and relevant providers of education and training and the qualifications bodies including Industry Representatives, Further Education providers, FÁS/SOLAS, Skillnets and Higher Education representatives.

Challenge	Industry feedback	Strategy
	operator teaching the newer operators and this reduces the productivity. Of course, with the attrition factor this becomes a frequent event for us ”	<p>with defined time schedules.</p> <ul style="list-style-type: none"> <li>▪ With the professional training and certification given by RSDC, there will be less lead time in an employee adapting to the shop floor.</li> </ul>

Challenge	Industry feedback	Strategy
<b>4. Attracting women to the rubber sector</b>	“Women perceive this sector as a man’s domain. There are job roles where women can definitely play a part ”	<ul style="list-style-type: none"> <li>▪ Awareness spread on certain job roles like QC, packing, etc where the role of women is heightened</li> <li>▪ In addition women can be trained to be active part of the shop floor in highly automatized production lines</li> <li>▪ To retain the women in the industry employers could consider providing flexible work conditions</li> <li>▪ Many women have childcare responsibilities and are therefore not able to engage in full time employment. If</li> </ul>

Challenge	Industry feedback	Strategy
		affordable, 24/7 childcare in close proximity to the rubber unit can be organized to provide the support

### 5.1.2.2 Mechanism for upskilling

In addition to combating the above outlined challenges, the industries have to proactively pitch for the notion of upskilling. Rubber is a sector which requires a lot of internal learning to be competitive in a segment that has rising input costs and shrinking margins. Thus, this ideology of upskilling assumes tantamount importance.

Industries have to employ a periodic means to evaluate their HR and make sure each and every personnel is exposed to the modern technology upgradation in the rubber sphere.

Some of the action points for the industry in upskilling could be:

- Identify progressive skilling opportunities for the operators/helpers in the organization and periodically conduct tests to ascertain their level of competency
- Develop and roll-out an operative accredited upskilling programmes – joining hands with the RSDC
- Internally develop a skill competency framework and keep track on the expected competency vies-a-vie the actual performance

Infact, this initiative to frequently skill and arm the employees with newer skill sets will arrest the tendency to quit the organization.



*Case Study: Lake Region Medical*

Lake Region Medical is an Original Development Manufacturer of minimally invasive devices and components with clinically-focused product innovations with facilities in Wexford and Galway. In 2012, Lake Region Medical became the first company in the Republic of Ireland—and the first medical device manufacturer in Europe—to be awarded a global standard in Operational Excellence—the prestigious Shingo Accreditation Bronze Medallion.

Lake Region has developed a system to select production operators who had the potential and drive to become maintenance fitters and put them through a national apprenticeship program. Lake Region views the main benefits from this initiative as:

- ✚ Internal candidates (because they have worked for a number of years in production) bring a culture of flexibility & accountability to their new position. They also bring a thorough understanding of Lake Region Medical equipment, systems & processes.
- ✚ Once the apprentice is fully qualified it creates an opportunity to train and promote an experienced fitter to an engineering role as vacancies arise, therefore creating a pipeline of talent right from operations up through engineering and potentially to management one day.
- ✚ Turnover within the maintenance department has effectively ceased since 2007, which Lake Region consider remarkable given the number of blue chip medical device companies operating within the catchment area.

### 5.1.2.3 Knowledge sharing

Rubber being a sector that is evolving and being put through new technology dimensions, there should be consistent knowledge sharing among the cluster industries.

Industry feedback	Strategy
Lack of experience sharing	<ul style="list-style-type: none"> <li>▪ Encourage subject specific competition for sharing of knowledge and experience in the rubber manufacturing cluster</li> <li>▪ Specific targets for experienced employees in engaging with local educational institutions, publishing thought leadership articles and journals</li> </ul>

### 5.1.2.4 Support of private training providers in rubber sector

The industries' biggest contribution to the ecosystem of training will be the support they can lend to the private training providers setup in their cluster. The type of support the industries can provide will lead to the development of human resources who know the work environment in the rubber sector as well as being familiar with the machines.

Some of the indicative ways in which the industry can become supportive of any private training provider in the rubber sector in a particular cluster are:

- ✓ Offering internship opportunities
- ✓ Exposure to shop-floor with industry visits
- ✓ Utilization of facilities (under supervision) after shift hours
- ✓ Guest lectures by industry personnel
- ✓ Mentoring of students by industry personnel

### 5.1.2.5 RSDC Labour Market Information System (LMIS) Support

One of the critical mandates of RSDC is the Labour Market Information System (LMIS). This system will become a repository of information on industries, job seekers and educational institutions for the rubber sector. Thus the system will present a holistic picture of the sector as a whole.

Once the system is fully developed, it can be used as a tool for conducting real-time job role wise gap analysis in the rubber sector across the national scene.

But, for this to happen, full compliance from industry is required. Some of the key areas where the industry has to have a periodic feedback/response to the RSDC for the LMIS are:

- Updating the real time job number requirements
- Updating the job qualifications requirement
- Updating on the replacement demand that could arise due to retiring personnel
- Updating on the internship opportunities
- Updating on the skills pipeline that can be built with the changing technology

### 5.1.3 Government

The recommendations for the government focus on setting more infrastructures to cater to the rubber sector – namely by setting up more rubber parks and rubber zones to aid in manufacturing.

#### 5.1.3.1 Rubber Parks

India has two rubber parks – in Ernakulam (Kerala) and in Bodhunagar (Tripura). The salient features of the Ernakulam rubber park are<sup>2</sup>:

- Fully integrated office space
- An efficient network of internal roads.
- A full service bank, Extension Counters and ATMs
- Guest suites
- Fully equipped Testing and Certification and Research center : "J J Murphy Research Centre"
- Bachelor accommodation for executives
- Dormitory for workers Dispensary and medicare
- State of the art communication facilities
- Tooling and support service at the Rapid Prototype Development Center
- Quality power & water – Any amount of uninterrupted power at 11kV
- Common Effluent Treatment & Total Waste Management
- Executive Board Room
- Training Room
- Shopping Mall
- Library– packed with journals, books and magazines of real value to the industry
- Convention Centre
- Humidity and temperature controlled warehouse for Natural Rubber

The Rubber Park in Tripura has been inaugurated in early 2012. The park is a joint venture between the Tripura Industrial Development Corporation (TIDC) and the Rubber Board. At least 20 rubber-based industrial projects would be set up in the park in the next few years. The rubber park was built on an area of about 58 acres of land in the Bodhunagar industrial growth centre in western Tripura and over Rs.75 crore is expected to be invested in the park over a period of three years.

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<sup>2</sup> Source: The Rubber Park, Ernakulam

Similar rubber parks like these which have an integrated training, testing and tooling centers will aid in more units being set up. This is especially important as in the last few years; the number of the rubber units is coming down.

### **5.1.3.2 Shared Service Model**

The shared service model proposed in this sub-section builds on the synergy between the key stakeholders in the rubber sector namely the RSDC, Government, Industry, Employees (for upskilling avenues) and students (to get skilled).

This model gains greater significance for the rubber sector due to the dearth of a formal system which ensures constant mechanism for skilling, upskilling, apprentice-ship and placement avenues.

This type of a system has to be implemented in key rubber manufacturing clusters to ensure that the captive and cluster specific unique requirements in terms of skills and numbers are met.

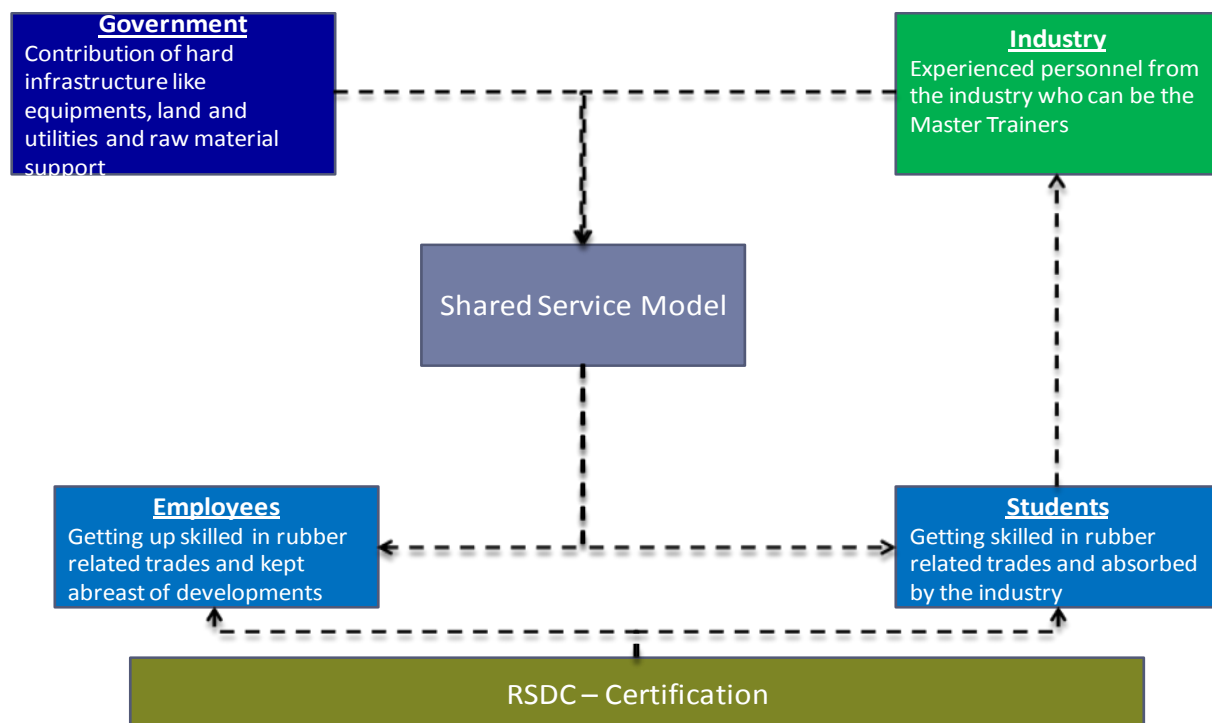
#### **Salient Features of the Shared Service Model**

As depicted in the figure, the shared service draws on the strengths of the key stakeholders.

- The Government to provide infrastructure and raw material support
- The Industry to provide experienced personnel as master trainer
- The RSDC to issue the certification

The students and employees will be appropriately skilled and up-skilled in the cluster specific skills.

Figure 40: Depiction of Shared Service Model for the Rubber Sector



### 5.1.4 Best Case Examples

This section will outline some of the best case examples and models adopted in the training sphere in India and abroad.

#### 5.1.4.1 CIPET Model

CIPET is an ISO 9001:2008 QMS, NABL, ISO/IEC 17020 accredited premier national Institution devoted to Academic, Technology Support & Research (ATR) activities for the growth of Polymer & allied industries in the country. CIPET operates on hub & spokes model with 23 locations spread across the country. CIPET has centres at Ahmedabad, Amritsar, Aurangabad, Bhopal, Bhubaneswar, Chennai, Guwahati, Hyderabad, Hajipur, Haldia, Imphal, Jaipur, Kochi, Lucknow, Mysore and Panipat. All the CIPET centres have infrastructural facilities in the areas of Design, CAD/CAM/CAE, Tooling & Mould Manufacturing, Plastics processing, Testing and Quality control to cater to the needs of Polymer & allied industries in the country.

The objectives of CIPET are<sup>3</sup>:

- Development of skilled Human Resource for plastics industries.
- Upgradation of technical knowledge through advanced training programmes
- Quality control and standardization of plastics materials and products.
- Technical consultancy and advisory services for enhancing techno-commercial competitiveness of the industries.
- Design and development of moulds, dies for plastics industries.
- Research and Application development in the areas of Plastics Engineering & Technology.

The success of CIPET in aiding the HR growth in the plastic industry is due to the twin factors of courses and infrastructure for training. Courses are designed to produce technically trained manpower for ready immediate work on the shop floor with minimum training. The infrastructure facilities in terms of machinery and equipment are continuously upgraded or modernized to match with the technological development and needs of the industry globally. To keep the industries abreast with the new technological developments and update the skill levels of the personnel working in the industry, short-term programmes, tailor-made programmes, modular training programmes, technical seminars are conducted on Design, Tooling, Plastics Processing, Plastics Testing and Quality Assurance.

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<sup>3</sup> Source: CIPET

CIPET also lends itself to technology support with the following functions:

- Testing and standardization for plastics materials and products
- Material selection for new applications or substitution of conventional material
- Machinery and equipment selection
- Setting up of tool room / processing industries & testing laboratories
- Technical Support to the industry in product design / mould / dies / tools design, product failure analysis with the aid of CAD / CAM / CAE
- Undertaking job works in all the areas of Plastics Engineering & Technology

CIPET also two dedicated R&D Wings where integrated Research Programmes are undertaken in the Polymeric Materials & Product Design and Development areas.

In addition to these, CIPET engages in industry training. CIPET conducts industry specific/oriented Short-term technology up-gradation/ modular/ tailor-made programs for updating the knowledge of technical personnel working in different fields of Plastics and allied industries. Depending upon the need of the industries and development of new technology in the field, short-term courses are tailored in such a way that the industries could derive maximum benefits out of it. Through such programs, personnel from plastics industries acquaint themselves with the latest trends in technology and get their technical problems solved through interaction and exchange of ideas with CIPET faculty. CIPET thus has courses for the industry across the following prongs:

- Short Term Programs
- Modular Training Programs
- Entrepreneurship Development Programs

CIPET model takeaway for the rubber sector:

Factor	Takeaway	Why it will work in rubber sector
<b>Geographical spread</b>	Working across India, they are able to cater to the local needs. Also, the visibility of the institute is high where the personnel interested	The rubber sector also needs regional institute of excellence that operates on a hub and spoke model. The RSDC can aid in the replication of this model to build the trained HR pipeline.

Factor	Takeaway	Why it will work in rubber sector
	in plastic become a part of this institute	
<b>Thrust on industrial training</b>	The short term, modular and entrepreneurial courses offered for the industry cater to the upskilling	Rubber sector personnel also require constant upskilling to keep abreast with the technology changes and global market movement. Thus, industrial courses on similar lines can be offered to the existing personnel to up skill them and refresh their knowledge.
<b>R&amp;D focus</b>	The R&D wings have programmes in polymeric material, product design, etc	The industry's constant feedback on the R&D efforts in the rubber sector has been discouraging. Thus, a nodal institute that has specialized efforts for R&D will augur good for rubber. In fact, retiring industry experts can also be made part timers here whose knowledge will not be fossilized after their retirement but will continue to aid the sector in some way.
<b>Technology support</b>	CIPET offers technology support to the industries across several domains like equipment testing, material testing, etc	The industry will benefit tremendously from technology help in terms of common testing centers, equipment centers, etc in key clusters. Thus, in key rubber manufacturing clusters, similar technology support centers can be established

### 5.1.4.2 Industry training models

Established industries can also offer training to people aspiring to get employable skills in the rubber sector. In many countries across the globe, these reputed organizations offer courses in their traditional areas of expertise. These courses offered by the industry giants serve the twin purposes of improving the employability of the workforce and enhancing the industry's visibility.



### Example: Gates Corporation<sup>4</sup>

Gates Corporation is a global diversified industrial company that provides advanced power transmission and fluid transfer solutions by engineering products and services that reduce the total cost of ownership for a wide variety of applications.

They operate across several segments like:

- Energy/Exploration/Extraction (Oil & Gas)
- Infrastructure & Agriculture (Construction)
- Transportation (Fleet)
- Automotive
- Process & Specialty (Manufacturing)

The Gates Corporation offers training programmes across several topics. One of their flagship programs is the Hydraulic Training Program.

The program was designed to help counter personnel, store managers, technicians and outside sales people increase their hydraulic knowledge to help grow the business. The training schedule offered three dates schedules. The sessions combined classroom training with individual hands-on activities and group problem solving projects.

They also design a program specifically for any company's needs. The courses are designed to cover equipment, safety, sales, basic knowledge and any other need that has to be bridged by training.

### **5.1.4.3 Education Institute-led Training**

The education institute led training usually is upskilling modules that are offered to the personnel. They usually combine the academic rigour with the industry expectations. The success of these courses are high as the key points of any course are offered to the employees in short capsules.

### Example: The University of Akron<sup>5</sup>

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<sup>4</sup> Source: The Gates Corporation

<sup>5</sup> Source: The University of Akron

The Akron Polymer Training Center specializes in customized training developed specifically for employees. Depending on a company's particular needs, the courses can be taught on site at the location, or at their state-of-the-art facility on the campus of The University of Akron.

The programs are designed to enhance on-the-job effectiveness for all professionals working in the polymer field. The indicative list of courses offered by the Akron University in the rubber sphere is:

- Advanced Color Technologies
- Automotive Elastomers
- Color Matching and Correction
- Injection Moulding of Elastomers
- Principles of Color Technologies
- Rubber Compounding for Performance
- Rubber Technicians Training Course
- Solving Problems in Rubber Compounding and Processing
- Testing of Rubber Processability and Dynamic Properties

### Annexure

#### Human resource forecasting Methodology

As a part of the study, we have forecasted the employment numbers for the rubber sector from 2012-13 to 2017-18. For forecasting the human resources in the industry, variables such as consumption of rubber by product groups, growth rate of rubber consumption (product category-wise), growth rate of rubber units, current human resource employed and consumption of rubber/employee are considered. The employment number forecasts help determine the potential gaps (quantitative) in the rubber sector in Kerala.

For the current employment numbers the industry responses have been analyzed and projected to the hundred per cent sample size in the state and 20 percent additional workforce were included for contract workforce and casual labour as per stakeholders discussion. The product category-wise consumption pattern, unit distribution and product category dynamics have been used in the projection.