

CHAPTER - VII:

DATA COLLECTION AND ANALYSIS

1. Accident Statistics of the Mill.

2. Tabulation and Interpretation.

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CHAPTER - VIIDATA COLLECTION AND ANALYSIS1. ACCIDENT STATISTICS OF THE MILLS:

Table No.1 : Monthwise distribution of Reportable  
Accidents in the year 1984.

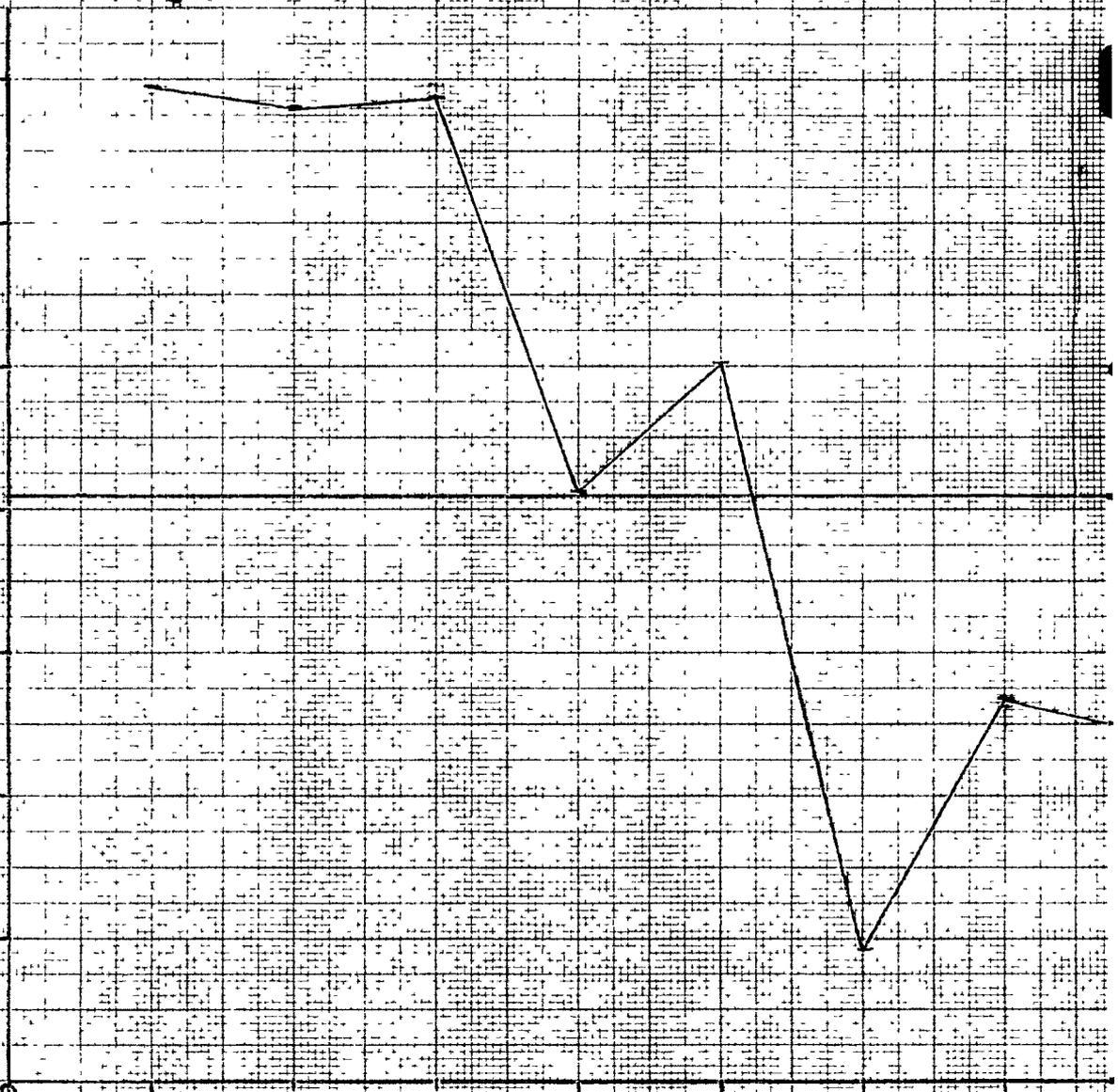
MONTH	Man hours worked.	Total no.of Accidents	Mandays lost	F.Rate per million man hours worked	S.Rate per million man hours worked
January	3,15,336	22	208	69.8	659.6
February	3,08,472	21	329	68.1	1066.5
March	3,34,024	23	223	68.9	667.6
April	3,14,704	13	126	41.3	400.3
May	2,98,3176	15	193	50.3	646.8
June	3,21,784	03	85	9.3	264.1
July	3,34,696	9	158	26.9	472.1
August	3,24,392	8	318	24.7	980.3
September	3,21,352	15	246	46.7	765.5
October	2,95,560	10	156	33.8	527.8
November	2,94,760	9	157	30.5	532.6
December	3,34,448	7	55	20.8	164.4
	37,97,904	155	2,254	40.9	595.6

GRAPH

FREQUENCY RATE

70  
60  
50  
40  
30  
20  
10  
0

Jan Feb March April May June July  
Months in the year 1984



GRAPH I

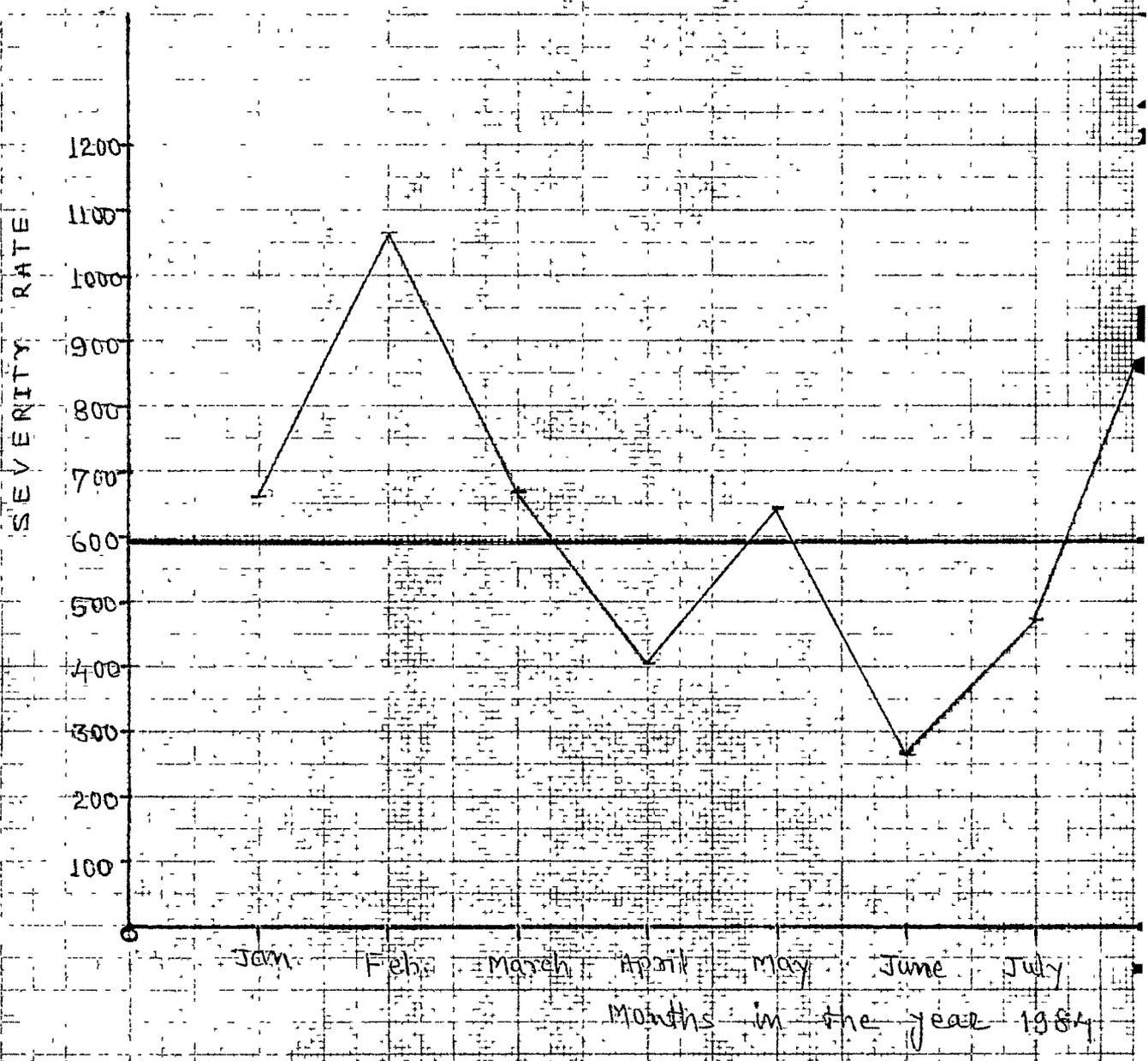


Table No.1 reveals the entire statistics of the reportable accidents occurred in the year 1984. Total no. of accidents are classified monthwise and their Frequency Rates and Severity Rates are also calculated. From the figures given above it seems that the number of accidents are reduced considerably. The highest no. of mandays lost were recorded in the month of February i.e. 329 and then they decreased gradually. The Frequency Rates are also very high in the first quarter of the year as compared to the next and in the month of December it stands very low i.e. 20.8.

Table No.2. Departmentwise classification of Reportable Accidents in the year 1984.

<u>Deptt. Month.</u>	<u>Spinn- ing</u>	<u>Weaving</u>	<u>Process and Folding</u>	<u>Engl. &amp; General</u>	<u>Total</u>	<u>Perce- nage</u>
January	14	8	-	-	22	14.19
February	9	12	-	-	21	13.55
March	11	10	-	1	23	14.84
April	5	7	-	1	13	8.39
May	5	10	-	-	15	9.68
June	1	1	-	1	3	1.94
July	5	3	-	1	9	5.80
August	5	2	-	1	8	5.16
September	5	8	2	-	15	9.68
October	3	5	-	2	10	6.45
November	3	5	1	-	9	5.80
December	3	4	-	-	7	4.52
<b>Total</b>	<b>70</b>	<b>75</b>	<b>3</b>	<b>7</b>	<b>155</b>	<b>100 %</b>

The above table reveals it clearly that the spinning

and weaving departments are the most accident-prone departments. It goes without saying that the above mentioned departments need more safety measures as compared to other departments, since the risky procedures and processings are done in these departments such as carding, speed framing and Ring Spinning etc.

Table No. 3: Accident statistics in the year 1985 and monthwise distribution of reportable accidents upto August, 1985.

Month	Man hours worked	Total no. of Accidents	Mandays lost	Frequency Rate	Severity Rate
January	3,51,346	5	46	14.2	130.9
February	2,83,160	10	72	35.3	254.2
March	3,24,936	8	192	24.6	590.8
April	3,13,936	15	78	47.7	248.4
May	3,02,800	11	77	36.3	254.2
June	3,23,400	13	88	40.2	272.1
July	3,23,488	17	157	52.5	485.3
August	3,34,262	21	138	62.8	412.8
	25,57,328	100	848	39.2	331.0

Table No.3 highlights the entire statistics of the reportable accidents in the year 1985. In the first quarter of the year, the number of accidents is notably low, but in the succeeding months the number of accidents has increased gradually. The highest mandays lost are in the month of March, July and August i.e. 192, 157 & 138 respectively.

The highest Frequency Rates were recorded in the month of August, July and April i.e. 62.8, 52.5 and 47.7 respectively.

2) TABULATION AND INTERPRETATION:

Table No.4: Year-wise distribution of accidents for the period 1976 to 1985.

Year	Total number of Accidents
1976	854
1977	668
1978	805
1979	760
1980	1060
1981	1230
1982	1045
1983	1284
1984	1170
1985 upto 31st Sept.	678

The above table states the ratio of accidents happened since 1976 yearwise. It reveals that the highest number of accidents were occurred in the year 1983, i.e. 1284. The total number of accidents in the year 1976 were recorded, 854 but in the following years the number of accidents is reduced upto 1979 respectively. Further from 1980 there seems to be a gradual increase in the number of accidents.

In the year 1980 the number of accidents shot-up

upto 1060, which states clearly that there were 300 accidents as surplus. The highest number of accidents occurred in the year 1983. The cause behind it probably may have been the benefits which workers get under the ESI Scheme or lack of knowledge, skill and carelessness.

ACCIDENT ANALYSIS AND INTERPRETATION:

For the purpose of Accidents Analysis and investigation of their causes, accidents statistics in the year 1984 is considered thoroughly. 155 reportable accidents which occurred in the Mills in 1984 has been analysed and classified. But in order get insight into the factors which causes to accidents the investigator has selected 300 accidents which occurred in 1984 by giving equal opportunity to the accidents occurred in each month. So the investigator has concentrated and interpreted only 300 accidents, segregated and analysed, for the purpose of dissertation, in the year 1984.

Table No.5: Departmentwise classification of 300 selected accidents in the year 1984.

Sr.No.	Department	Number of Accidents.	Percentage
1	Spinning	116	38.67
2	Weaving	120	40.00
3	Process & Folding	20	6.66
4	Engineering & General	44	14.67
	Total	300	100 %

Table No.5 shows classification of accidents departmentwise of the year 1984. The table reveals that the main hazards are in Spinning and Weaving departments contributing about 78.67 % of the total accidents.

In these departments, there are major consideration of workmen and machines and most of these machines are fast moving machines. In other departments there were less number of accidents.

Table No.6 : Monthwise and departmentwise distribution of accidents in the year 1984.

Deptts. Month.	Spinning deptt.	Weaving deptt.	Process deptt	Engi. & others	Total	%
Jan.	44	50	-	11	105	8.97
Feb.	38	32	02	13	85	7.27
March	34	37	02	17	90	7.69
April	43	32	01	11	87	7.44
May	36	37	04	17	94	8.03
June	43	52	03	12	110	9.40
July	44	49	02	14	109	9.32
Aug.	40	47	03	16	106	9.06
Sept.	37	39	04	18	98	8.38
Oct.	48	35	02	25	110	9.40
Nov.	42	36	04	10	92	7.86
Dec.	33	35	02	14	84	7.18
<b>Total</b>	<b>482</b>	<b>481</b>	<b>29</b>	<b>178</b>	<b>1170</b>	<b>100 %</b>

In the above table month-wise and department-wise classification of the accidents are made. From the above table it is clear that the highest number of accidents were recorded in the month of June, July and August i.e. 110, 109 and 106 respectively. Further the accident rate was higher i.e. 9.40 % in the month of October.

It was observed that, the main reason behind it might be the harvest season. In these months the crops are to be reaped. Most of the workers belong to the rural area. They have to manage their farm simultaneously which causes mental strain leading to accidents.

Table No.7: Distribution of 300 selected accidents on the basis of shift in the year 1984.

Particulars	No. of Accidents	Percentage
Ist Shift	115	38.33
IIInd Shift	128	42.67
IIIrd Shift	57	19.00
Total	300	100.00 %

This table shows the classification of accidents into three shifts in which the production activities are carried on. It was observed that more accidents were happened in the 1st and IIInd Shifts. Comparatively less no. of accidents were happened in the Third Shift i.e. 57.

However it was observed that, the main reasons for the increased rate of accidents in the First and Second Shift were that, the large no. of workers were engaged in these two shifts. It has also been seen that the accidents have no much relation with the shifts but it is simply the incidence which determines the occurrence of hazards. Further it has also been found that during the period of Ist and IInd shifts, workers are frequently moving to their friends and thus lack of concentration takes place.

Table No.8: Age-Group as the basis of classification of accidents in the year 1984.

Sr.No.	Age Group	No.of Accidents	Percentage
1	Below 25 years	78	26.00
2	26 to 35 years	149	49.67
3	36 to 45 years	44	14.67
4	46 to 55 years	22	7.33
5	Above 55 years	07	2.33
Total		300	100.00 %

This table shows the classification of accidents on the basis of Age-Group. For this purpose the classification is made into four categories of Age-Group. In the age-group of below 25 years 78 accidents took place and the percentage is 26% . For the workers who were at the age of 36 to 45 years the rate is 14.67% . But it was observed that highest no of accidents i.e.149 ( 49.67% ) occurred in the age-group of 26 to 35 years of workers and this group is more accident prone than others.

It may be because of the lack of experience and expertise as they are newly recruited.

Table No.9: Part of the body involved in 300 selected accidents and their percentage.

Sr.No.	Description of the part	No.of Accidents	Percentage
1	Hand(Finger, thumb, palm and wrist )	138	46.00 %
2	Foot ( Leg, ankles and toe )	72	24.00
3	Head	24	8.00
4	Eye	20	6.67
5	Face	18	6.00
6	Knee	16	5.33
7	Whole body	12	4.00
Total		300	100 %

This table reveals the total break-up of the accidents according to the parts of body involved in the accidents. All parts of the body that meet with accidents are segregated into 7 classes. Thus the above table shows that the rate of accidents which were happened to Hand and Foot i.e. 46 % and 24 % respectively, are greater in number as compared to other parts. Particularly it was observed that this was due to the process of Ring Spinning and in some jobs of Weaving Section.

Next involved parts were Eye and Head which stood second in the accident occurrence. The rate of accidents of these two parts were 6.67% and 8 % respectively.

Table No.10 : Selected Workers meeting with  
accidents in the year 1984-1985.

Nature of Accidents	No.of Workers involved	Percentage
No Accident	33	55.00
Minor Accident	19	31.67
Temporary disablement	08	13.33
Major Accident	Nil	-
	-----	-----
	60	100 %

Table No.10 indicates the selected workers meeting with accidents during 1984-85 and it reveals that 50 % of workers had not met with accidents at all. Whereas 31.67% had met with minor accidents and very few had temporary disablement.

Table No.11 : Workers attitude towards working conditions  
in the Mill.

Classification of working conditions	Satisfactory.		Unsatis- factory		No opinion		Total percen- tage
	No.of Workers	%	No.of Workers	%	No.of Workers	%	
Illumination	52	86.66	4	6.67	4	6.67	100%
Ventilation	46	76.67	12	20.00	2	3.33	100%
Temperature	50	83.33	8	13.34	2	3.33	100%
Dust	48	80.00	7	11.67	6	8.33	100%
Smokes and Fumes	47	78.33	9	15.00	4	6.67	100%
Over Crowding	40	66.67	17	28.33	3	5.00	100%
Noise	45	75.00	10	16.67	5	8.33	100%
Cleanliness	44	73.33	12.	20.00	4	6.67	100%
<b>Total</b>							

This table indicates the opinion of the workers regarding the working conditions existing in the mill. Out of the 60 interviewed workers majority of the workers satisfied with all working conditions. Very few had responded negativey and they were unsatisfactory about it. Particularly in case of ventilation,overcrowding and cleanliness relatively greater no.of respondents were unsatisfied and the percentage is 20 % ,28.33% and 20 % respectively.

Table No.12: Spread of literacy among selected workers,  
departmentwise.

Level of literacy	Spinning deptt.	Weaving deptt.	Process deptt.	Engl.& Gen. Total	Total no. of Respond.	%
Illiterate	2	3	1	1	7	11.67
Read and Write	4	6	3	2	15	25.00
Upto 8th	3	5	4	4	16	26.67
S.S.C.	7	4	2	1	14	23.33
Technical I.T.I.etc.	4	2	-	2	08	13.33
<b>Total</b>	<b>20</b>	<b>20</b>	<b>10</b>	<b>10</b>	<b>60</b>	<b>100%</b>

This table indicates the presence of literacy among the selected number of workers. In all 60 workers from different categories representing the cross section were interviewed. Out of them 15 workers i.e. 25% can read and write while 16 workers i.e. 26.67% were reached the level of 8th Std. There are about 14 workers who were passed S.S.C. However it was observed that 8 workers i.e. 13.33 % were completed technical trades like I.T.I. and they were working in spinning and weaving maintenance deptts., mechanical and electrical etc.

It may be maintained that due to the lack of education, the workers are inclined to think about the accident benefits in otherwise terms. This may lead them to involve in accidents intentionally in order to avail the benefits.

Table No.13: Feeling stressment and period of work among selected workers.

Particulars	No. of Respondents.				Total	%
	Spin. Wvy.	Fold and Enggi.& Process. Gen.				
Before lunch	2	1	-	-	3	5.00
After lunch	8	7	3	3	21	35.00
At End	8	10	6	5	29	48.33
Never	2	2	1	2	7	11.67
<b>Total</b>	<b>20</b>	<b>20</b>	<b>10</b>	<b>10</b>	<b>60</b>	<b>100 %</b>

This table indicates the opinion of the selected workers regarding the stress of work at different period of timings. Out of 60 workers, 29 workers said that they were feeling strain of work at the end of the work. About 35 % of workers said that they were feeling stress of work after lunch. However it was observed that very few workers were feeling stress before lunch and 7 were not at all feeling.

It shows that the majority of accidents must have been occurring in between after lunch and at the end of the shift.

Table No.14: Opinion of the workers regarding, occurrence of the accidents.

Opinion	No. of Respondents.				Total	%
	Spin. Wvy.	Fold & Process.	Enggi. & Gen.			
God wish	-	2	-	-	2	3.33
Human fault	5	8	6	5	24	40.00
Mechanical fault	7	6	3	4	20	33.34
Work Environ - ment	8	4	1	1	14	23.33
<b>Total</b>	<b>20</b>	<b>20</b>	<b>10</b>	<b>10</b>	<b>60</b>	<b>100 %</b>

Table No.14 reveals the relationship between fault and occurrence of accident. Out of 60 workers interviewed, 24 workers i.e. ( 40 % expressed their opinion regarding the accidents due to the unawareness and carelessness, lack of knowledge on the part of workers i.e. known as human fault. Where as about 33.34 % of workers expressed their opinion regarding accidents due to Mechanical fault i.e. unguarded, improperly guarded and dangerous machinery.

About 23.33% of workers said that the real cause behind the accidents was Work Environment, which prepared the workers to meet with accidents.

Table No.15: Attitude of the workers regarding their work.

Opinion	No.of Respondents				Total	%
	Spinn- ing	Weav- ing.	Process & Fold- ing	Enggi.& General		
Laborious	9	10	2	5	26	43.33
Monotonous	6	6	3	4	19	31.67
Interesting	3	2	4	1	10	16.67
Don't like it	2	2	1	-	05	8.33
<b>Total</b>	<b>20</b>	<b>20</b>	<b>10</b>	<b>10</b>	<b>60</b>	<b>100 %</b>

This table reveals the psychology of the workers regarding their work. Out of 60 workers interviewed, majority of the workers i.e. 75 % said that work is laborious enough and also monotonous. Very few workers were interested in the work assigned to them.

So it has been observed that most of the workers felt that the work is laborious and tedious because of which they get themselves fatigued which ultimately leads them to get into accident.

Table No.16: Workers' opinion regarding supervisors instructions about safety work doing.

Opinion	No. of Respondents				Total	%
	Spin.	Wvy.	Fold & Process	Engg. & Gen.		
Useful	15	12	7	8	42	70.00
Misleading/ Confusing.	1	2	1	1	5	8.33
No. instructions	4	6	2	1	13	21.67
	20	20	10	10	60	100 %

This table reveals the opinion of the workers towards the supervisors instructions. It is always true that, supervisor plays key role in minimising accidents. So his instructions should be practical and useful. This has been proved true from the opinion expressed by the workers. Most of the workers i.e. 70 % were said that instructions received were useful and practical. Very few workers said that, some times instructions were confusing. However 21.67 % workers said that they were not instructed about safety methods.

**Table No.17: Opinion of the workers regarding their relationship with co-workers and supervisors.**

Opinion	No.of Respondents	Percentage
Friendly	38	63.33
Unfriendly	6	10.00
Dan't know	4	6.67
Co-operative	12	20.00

This table represents the relationship between workers and co-workers and relationship of workers with their supervisors. Out of 60 respondents, 12 workers expressed that they are co-operative with their workers and supervisors also. However greater percentage of workers i.e. 63.33% said that they have friendly and good relations with co-workers and others said that they have got very few friends.

In case, it is to be agreed that if there is no good relationship between the supervisor and the workers working under him there may be unrest among them causing them to involve again intentionally in committing accidents and avail leave benefits.

Table No.18: Supervisors' opinion regarding attitude of workers in using safety equipments and devices.

Opinion	No.of Respondents	Percentage
Using	2	16.67
Not using	8	66.66
Carelessly using	2	16.67
	12	100 %

The above table shows that most of the workers don't care for the instructions given to them by the supervisors regarding security measures to be taken by them. This leads towards the development of negligence, carelessness, lazyness among the workers which causes the frequency of accidents.

Table No.19: Workers opinion regarding the facilities provided by the Mill.

Sr. No.	Particulars of	Satisfactory		Unsatisfactory.		No. Opinion		TOTAL
		No. of workers,	%	No. of workers,	%	No. of workers	%	
1.	Drinking Water	53	88.33	6	10.00	1	1.67	100 %
2.	First Aid and Medical benefit (Preventive & Curative)	38	63.33	20	33.34	2	3.33	100 %
3.	Canteen Services	42	70.00	14	23.33	4	6.67	100 %
4.	ESI Scheme	40	66.67	15	25.00	5	8.33	100 %
5.	Sanitary facilities	46	76.67	14	23.33	-	--	100 %
6.	Rest Rooms	34	56.67	24	40.00	2	3.33	

In the above table, the reactions of the selected workers are classified as satisfactory or unsatisfactory regarding the facilities provided by the mill, which must always be present for safety and health maintenance of workers. Thus the table shows that out of 60 interviewed workers, comparatively greater no. of workers have expressed their opinion satisfactory in case of items like Drinking Water, Canteen and Sanitary facilities, etc. While less number of workers are not satisfied with the above items.

However it was observed that, as regards First-aid and medical benefit, ESI Scheme and Rest Room facility etc.,

comparatively more number of workers have expressed unsatisfactory result i.e. 20, 15 and 24 respectively.

Whereas very few workers have remained neutral in all cases. The above noted inadequacy in sanitary and other such facilities may bring down the health of workers which certainly affects the required efficiency resulting in greater number of accidents.

Table No.20: Opinion of the workers regarding performance of the safety committee in avoidance of accidents.

Opinion	No. of Respondents				Total	Percentage
	Opn.	Wvy	Process & Fold.	Engg.& Gen.		
Good	13	12	5	7	37	61.67
Not Good	4	6	4	3	17	28.33
Don't know	3	2	1	--	06	10.00
	20	20	10	10	60	100 %

In this table opinion of the selected workers regarding the working of the safety committee are shown departmentwise. In general it has been found that 61.67 % of workers are satisfied about the working of the safety committee.

However, the workers who have raised their objections about the working of the safety committee, are also considerable ( i.e. 28.33 % ) though they are less in number. It may be stated that the irregularity in the meetings of

Safety Committees are not desired. This leads to the unawareness of the workers and Officers both as to what possible precautions can be taken in order to minimise the number of accidents in the respective departments. It may be suggested that the meetings must be held regularly at the end of every month or as is required.

**Table No.21: Opinion of the workers about work environment and General conditions.**

Particulars	Satisfactory		Unsatisfactory.		No.Opinion		Total %	
	No.of Worke rs.		No.of Worke rs.		No.of Worke rs.		No. Worke rs.	%
1. General Plant Layout.	42	7.00	16	26.67	2	3.33	60	100%
2. Passage Ways (Obstructed or Clear)	43	71.67	12	20.00	5	8.33	60	100%
3. Tools & equipment. (Properly placed or not)	50	83.33	7	11.67	3	5.00	60	100%
4. Machinery (Properly guarded or not)	54	86.67	8	13.33	--	--	60	100%
5. Working Surfaces (Clean or slippery)	44	73.33	14	23.34	2	3.33	60	100%
6. Safety devices and equip. (provided or not)	52	86.67	7	11.67	1	1.66	60	100%
7 Safety Inspections (Conducted or not)	38	63.33	18	30.00	4	6.67	60	100%
8. Safety exhibits & Posters (Properly placed or not)	37	61.67	20	33.33	3	5.00	60	100%
9. Fire extinguishers and alarms. (Present or not)	40	66.67	15	25.00	5	8.33	60	100%

The above table shows the different items which must be considered in checking the Safe Work environment. There are major nine items considered and opinions of the selected workers are estimated against the same. In all 60 workers were interviewed for each of the above items and their views are collected.

Thus from the opinion expressed by the respondents, it seems that, most of the working conditions are not so satisfactory. The important among them are: Passage Ways, Safety devices and equipment, Safety Inspections, Safety posters and exhibits etc.

All other factors are also not upto the satisfaction as it is contended and contemplated according to the provisions laid down in the various labour laws. So it is observed that due to all such insufficient and inadequate conditions the workers have been suffering from various occupational disorders.

The above table reveals that these disorders are not looked after in time, as a result of which the workers become diseased affecting their speed and efficiency. They perform poorly and involve in unsafe acts which causes frequent accidents by them.