

Dissertation Report

On

*“To review the health, safety and risk management strategies employed by any large oil and gas company”*

Submitted in partial fulfilment of the requirements for the award of

**Master of Business Administration**

In

**Oil and Gas Management**



Submitted By

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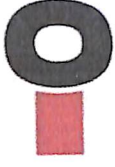
I also place on record my appreciation of the support provided by Mr. SURESH PHUKAN and other staff of Learning & Development Department, Oil India Limited, Duliajan.

I am heartily thankful to all the Managers, Engineers and all Shift Operators working under them to give me direction and valuable inputs on each and every sections of the company.

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**ACCEPTANCE LETTER**

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Dear Sir,

Madhurjya Buragohain is registered for Master of Business Administration (Oil and Gas), with the University of Petroleum and Energy Studies, Dehradun in 2018 batch.

I hereby give my acceptance to guide the above student through the Dissertation work '**To review the health, safety and risk management strategies employed by any large oil and gas company**', which is a mandatory requirement for the award of EMBA degree.

Thanking you

Yours sincerely,

Pankaj Kumar Das

Date: 18-11-2019

Place: Duliajan

## DECLARATION BY THE GUIDE

This is to certify that the Mr. MADHURJYA BURAGOHAIN, a student of Master of Business Administration (Oil and Gas), SAP ID: 500068932 of UPES has successfully completed this dissertation report on “To review the health, safety and risk management strategies employed by any large oil and gas company” under my supervision.

Further, I certify the work is based on the investigations made, data collected and analysed by him and it has not been submitted in any other University or Institution for award of any degree. In my opinion it is fully adequate, in scope and utility, as a dissertation towards partial fulfilment for the award of degree of Master of Business Administration (Oil and Gas).



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# CONTENTS

<b>TITLE</b>	<b>PAGE</b>
Acknowledgement	ii
Declaration by the guide	iii
Contents	iv
List of Tables	v
Executive summary	vi
Chapter 1: Introduction	1
1.1: Overview	1
1.2 Introduction	1
1.3 Purpose of study	1
1.4 Research hypothesis	2
Chapter 2: Literature review	3
Chapter 3: Research design, methodology and plan	5
3.1: Title of the research study	5
3.2: Significance of the study	5
3.3: Scope and coverage of research study	5
3.4: Objectives of the research study	5
3.5: Research design	6
3.6: Sources of data	6
3.7: Sampling decisions	6
3.8: Limitations of the proposed research study	6
Chapter 4: Data analysis and interpretation	7
Chapter 5: Findings	20
Chapter 6: Conclusion	21
6.1: Recommended suggestions	21
6.2: Conclusion	22
Bibliography	23
References	25
Appendix: Questionnaire	28

## **List of Tables**

<b>TITLE</b>	<b>PAGE</b>
Table 1: Table showing the age of respondents	7
Table 2: Table showing the experience (in years) of the respondents	7
Table 3: Table showing the awareness of health and safety	8
Table 4: Table showing the effective arrangements for communicating health and safety measures	8
Table 5: Table showing the medical facility	9
Table 6: Table showing the health and safety training	9
Table 7: Table showing the frequency of training offered	10
Table 8: Table showing the drinking water facility	10
Table 9: Table showing the stress towards work	11
Table 10: Table showing the awareness about the first aid activities and the contents of the first aid kit	11
Table 11: Table showing the effective disciplinary procedures implementations	12
Table 12: Table showing the working temperature is reasonable to work	12
Table 13: Table showing the enough space to work	13
Table 14: Table showing the latrines and urinals are cleaned and maintained properly	13
Table 15: Table showing the environment is safe to work	14
Table 16: Table showing the enough training given to the employees for handling the machines	14
Table 17: Table showing the health check-up for workers	15
Table 18: Table showing the machines are maintained properly	15
Table 19: Table showing the accidents happened	16
Table 20: Table showing the ranking of accidents by their occurrence	16
Table 21: Table showing the company providing the safety requirements	17
Table 22: Table showing the safety committee formed	17
Table 23: Table showing the safety inspections held by the company	18
Table 24: Table showing the satisfactory level of workers towards health and safety measures	18
Table 25: Table showing the role of management implementing health and safety	19

## EXECUTIVE SUMMARY

Safety, health and risk management is one of the vital constituents of Oil and Gas industry activities because most of the operational conditions, chemicals and end products (hydrocarbons and other compounds) associated with Oil and Gas production are well-known to pose serious safety, health and risk threats to the workers as well as to the industry. This present chapter gives a brief introduction on the health, safety and risk management strategies and/or policies employed by any large Oil and Gas company.

The risk identification work and analysis was performed using publicly available information and data. Therefore, the risks were identified and prioritised based on their description in the questionnaire used for this case study. To refine both risk prioritisation and modelling methodology, the risks could be discussed with industry professionals.

This case study highlights some of the areas where actuaries could help companies in the oil gas industry to comply with the new health, safety and risk management reporting guidelines by working with other professionals to build and analyse certain risks and overcome them.

The specific objectives of the study are:

- Is the Safety Statement clear and concise so that it can be read and understood by those who may be at risk?
- Is the Safety Statement available at the workplace to which it relates and are workers given relevant extracts where they are at specific risk?
- Is the overall safety and health policy of the organisation and the internal structure for implementing it adequate?
- Does the Safety Statement contain a systematic identification of hazards and an assessment of risks for the workplace(s) it covers?
- Are Risk Assessments being carried out on a regular basis as risks change and are the necessary improvements made to keep the safety and health management system up to date?
- Are the necessary safety control measures required for a safe workplace identified and implemented?
- Are written safe procedures for those operations that require them available?
- Are procedures available for monitoring the implementation of safety systems and control measures?
- Is safety and health training being carried out and does the training give adequate information to workers on risks they might be exposed to?

# Chapter 1

## Introduction

### 1.1 Overview

Safety, health and risk management is one of the vital constituents of Oil and Gas industry activities because most of the operational conditions, chemicals and end products (hydrocarbons and other compounds) associated with Oil and Gas production are well-known to pose serious safety, health and risk threats to the workers as well as to the industry. This present chapter gives a brief introduction on the health, safety and risk management strategies and/or policies employed by any large Oil and Gas company.

### 1.2 Introduction

Due to rapid industrialization, industrial workers are exposed to several types of hazards and accidents. Every year lakhs of workers are injured due to mechanical, chemical, electrical and radiation hazards and it leads to total or partial disablement. So in recent years, greater attention is given to health, safety and risk management due to pressure from government, trade unions, labour laws and awareness of employers.

The efficiency of workers depends to a great extent on the environment in which they work. Work environment consists of all the factors, which act and react on the body and mind of the employee. The primary aim is to create an environment, which ensures the greatest ease of work and removes all causes of worries.

Successful health, safety and risk management practice requires the collaboration and participation of both employers and workers in health and safety programmes, and involves the consideration of issues relating to occupational medicine, industrial hygiene, toxicology, education, engineering safety, ergonomics, psychology, etc.

Occupational health issues are often given less attention than occupational safety issues because the former are generally more difficult to confront. However, when health is addressed, so is safety, because a healthy workplace is by definition also a safe workplace. The converse, though, may not be true – a so-called safe workplace is not necessarily also a healthy workplace. The important point is that issues of health, safety and risk must be addressed in every work place.

Work plays a central role in people's lives, since most workers spend at least eight hours a day in a workplace, whether it is on a plantation, in an office, factory, etc. Therefore, work environment should be safe, healthy and risk free. Unfortunately some employers little responsibility for the protection of workers' health and safety. In fact, some employers do not even know that they have the moral and often legal responsibility to protect workers.

### 1.3 Purpose of the study

There is a growing interest on Health and Safety in Oil and Gas companies of the Occupational Health and Safety Act, (OSHA, 2007). Most of the Oil and Gas companies which were previously operating without institutional and individual capacity for



occupational health and safety management now need to develop that capacity in order to improve the quality of the working environment and avoid expensive liabilities.

The Occupational Safety and Healthy Act (2007) came into being after several revisions to the Factories Act (1951), amending and extending its scope of application to places of work other than factories. It applies to all work places where any person is at work, whether temporary or permanently. The Act seeks to secure the safety, health and welfare of persons at work and protect persons other than persons at work against risks to safety and health arising out of, or in connection with, the activities of the persons at work. Under the Act the employer has a duty to comply with any safety and health rules, regulations instructions and procedures in the act by taking all necessary precautions to ensure his own safety and health and that of any persons in his work place and at all times use appropriate safe systems of work, preventive and control measures. The employee at work place has a duty to ensure his own safety and health and that of other persons who may be affected by his acts or omissions at work place and to comply with the safety and health procedures, requirements and instructions given. The contravention of the provisions thus constitutes an offence. The Act provides for the appointment of a director and occupational safety and health officers to oversee the implementation of the provisions, but this notwithstanding, accidents continue to happen in Oil and Gas companies plants and/or sites some with fatal implications.

The suffering caused by such accidents and illnesses to workers and their families is incalculable. In economic terms, the International Labour Organization (ILO) has estimated that 4% of the world's annual GDP is lost as a consequence of occupational diseases and accidents. Employers face costly early 5 retirements, loss of skilled staff, absenteeism, and high insurance premiums due to work-related accidents and diseases. Yet many of these tragedies are preventable through the implementation of sound prevention, reporting and inspection practices. (Engineers against poverty report, 2008).

Unfortunately many Oil and Gas companies do not follow strict health and safety guidelines as workers are more likely to be killed by fatal accident than any other type of employment. Limitations on the part of supervisory authority in the Oil and Gas industry means such guide lines exist but only on paper leaving the safety and well being of workers in Oil and Gas companies at the mercy of employers. While other sectors of the economy have strict development policies to guide them, Oil and Gas industry does not have a strict comprehensive policy frame work.

It is with such concern that this study attempted to examine the factors affecting implementation of health, safety and risk management measures in the Oil and Gas sector.

#### **1.4 Research Hypothesis**

This research examines the knowledge of safety regulations amongst employees working in the petroleum industry and enhances the importance of safety policies in organisations. The objectives of the study include: critically analysing risk and safety management systems in the context of Oil and Gas Companies operations, evaluating academic literature and regulations in relation to risk and safety requirements within oil and gas companies and determining the lessons applicable to risk and safety management systems in the case of Oil India Limited, Duliajan. This study follows an inductive approach, the researcher has assessed previous journal articles to collect the data and utilised the ethnographic analysis technique to generate the research outcomes and to achieve the objectives of the study.

## CHAPTER 2

### Literature Review

- 1) **Johannson B; Rask K; Stenberg M (2010)**, this study was to carry out a broad survey and analysis of relevant research articles about piece rate wages and their efforts on health and safety. A total of 75 research articles were examined extensively and 31 of these were found relevant and had sufficient quality to server the purpose of the study. The findings of the relevant articles are summarized and analysed in the survey. More recent research shows a clear interest for health, musculoskeletal injuries, physical workload, pains and occupational injuries. The fact that 27 of the 31 studied articles found negative effects of piece rates on different aspects of health and safety does not prove causality, but together they give very strong support that in most situations piece rates have negative effects on health and safety.
- 2) **Tompa, Emile PhD; Dolinschi; Roman MA; de Oliviera (2009)**, we received the occupational health and safety intervention literature to synthesize evidence on financial merits on such interventions. A literature search included journal databases, existing systematic reviews, and studies identified by content experts. We found strong evidence that ergonomic and other musculoskeletal injury prevention intervention in manufacturing and warehousing are worth undertaking in terms of their financial merits. The economic evaluation of interventions in this literature warrants further expansion. The review also provided insights into how the methodological quality of economic evaluations in this literature could be improved.
- 3) **Dee W. Edington; Alyssa B. Schultz (2008)**, The aim was to present the literature which provides evidence of the association between health risks and the workplace economic measures of time away from work, reduced productivity at work, health care costs and pharmaceutical costs. A strong body of evidence exists which shows that health risks of workers are associated with health care costs and pharmaceutical costs. A growing body of literature also confirms that health risks are also associated with productivity measures. The paper shows that measures of success will continue to be important as the field of worksite health management moves forward.
- 4) **David E. Cantor (2008)**, The purpose of this paper was to review the literature and call for additional research into the human, operational and regulatory issues that contribute to workplace safety in the supply chain. This paper identifies several potential research opportunities that can increase awareness of the importance of improving a firm's workplace safety practices. This paper identifies 108 articles which informs, how the logistics and transportation safety has evolved. The paper identifies 14 future research opportunities within the workplace safety in the supply chain, but have been identified can have a positive effect on practitioners confronted with safety issues.
- 5) **Simon Chapple and Tracy Mears (1996)**, Most OECCD countries rely on a mixture of market forces, tort liability, compulsory insurance and government regulation to deal with workplace health and safety issues. There are also non-efficiency reasons for government involvement in workplace safety and health. However, when marketers mat not be efficient, government intervention can fail to make any improvement and/or not satisfy cost-benefit criteria. While the empirical evidence is not clear cut, the balance of the evidence suggests that wages may include some consideration for health and safety risks. Evidence also

suggests that workers' compensation systems increase the frequency and duration of claims for non-fatal injuries, but may decrease the number of fatal injuries.

- 6) **Lucia Artacoz; Imma Cortes; Vincenta Escriba-aguir; Lorena Cascent (2007)**, To provide a framework for epidemiological research on work and health that combines classic occupational epidemiology and the consideration of work in a structural perspective focused on gender inequalities in health. Gaps and limitations in classic occupational epidemiology, when considered from a gender perspective, are described. Classic occupational epidemiology has paid less attention to women's problems than men's. Research into work related gender inequalities in health has rarely considered either social class or the impact of family demands on men's health. The analysis of work and health from a gender perspective should take into account the complex interactions between gender, family roles, employment status and social class.
- 7) **L Ala-Mursula; J Vahtera; A Kouvenon; A Vaananen; A Lina (2006)**, The associations of working hours (paid, domestic, commuting and total) with sickness, absence, and to examine whether these associations vary according to the level of employee control over daily working hours. The study among 25,703 full-time public sector workers in 10 towns in Finland. Long domestic and total working hours were associated with higher rates of medically certified sickness absences among both genders. In combinations, high control over working hours reduced the adverse associations of long domestic and total working hours with medically certifies absences.
- 8) **A Baker; K Heiler; S A Ferguson (2002)**, The occupational health and safety implications associated with compressed and extended work periods have not been fully explored in the mining sector. Absenteeism and incident frequency rate data were collected over a 33 month period that covered three different roster schedules. The only significant change in absenteeism rate was an increase in the maintenance sector in the third data collection period. The current study did not find any significant effects of a 12-hour pattern, when compared to an 8-hour system. However, when unregulated and excessive overtime was introduced as part of the 12-hour/5-day roster, absenteeism rates were increased at the maintenance sector.
- 9) **N. Haworth; C. Tingvall & N. Kowadlo (2000)**, In response to an increasing awareness of the role of work-related driving in crashes and the related costs, many private and government organisations have developed programs to improve fleet safety. The purpose of this project is to investigate the potential to introduce road safety based initiatives in the corporate environment. From the review, that the fleet safety initiatives which are potential to be effective are, selecting safer vehicles, some particular driver training and education programs, incentives, company safety programs. It is assumed that the degree of influence is likely to decrease as the type of vehicle moves from the fleet towards the private end of the continuum.
- 10) **Peter Hasle and Hans Jorgen Limborg (1995)**, The scientific literature regarding preventive occupational Health and Safety Activities in Small Enterprises has been reviewed in order to identify effective preventive approaches and to develop a future research strategy. There is a lack of evaluation of intervention studies, both in terms of effect and applicability. However, there is sufficiently strong evidence to conclude that workers of small enterprises are subject to higher risks than in larger ones, and the small enterprise have difficulty in controlling risks. The most effective preventive approach seems to be simple and low cost solutions disseminated through personal touch.

## **CHAPTER 3**

### **Research Design, Methodology and Plan**

#### **3.1 Title of the research study**

“To review the health, safety and risk management strategies employed by any large oil and gas company”

#### **3.2 Significance of the study**

Based on the problem statements above, few research questions have been developed for this research in addressing the issues and problems in the Oil and Gas sector, as the followings: What is the level of awareness in Safety, Health and Risk management among the Oil and Gas companies? What is the level of attitude of the Oil and Gas companies towards safety provision for their workers on site and attitude towards self regulations of Occupational Health and Safety Act (OSHA, 2007)? What is the level of compliance of the Oil and Gas companies at various sites? What is the health and safety management process at various sites? What are the problems concerning safety, health and risk issues faced by the Oil and Gas companies? And How does it all affecting the labourers job performance? All of the questions are the fundamental questions that need to be addressed and answer in order to understand the perspectives on safety and health at various Oil and Gas company sites.

The research will become a fundamental ground for researchers to understand the exact happenings in various sites of Oil and Gas companies, on matters pertaining to safety and health, problems that faced by the management, problems faced by the companies, problems that faced by the employees (the workers themselves) and level of awareness with compliances in various facets may also being identified for future direction of the safety and health in Oil and Gas companies. On top of all, the study will also determine to examine the relationship between HR, safety and health practices towards work safety of Oil and Gas companies.

#### **3.3 Scope and coverage of research study**

This study was given an overview of the health, safety and risk management measures existing at Oil India Limited, Duliajan. Since health and safety are two important elements essential for improving the productivity of an organisation, a study on the existing health and safety measures would help the organisation to perform better. This study was highlight on the perception of the workers regarding health, safety and risk management. This study would also help to analyse the satisfaction level of the workers towards health, safety and risk management measures and suggest provision to improve health, safety and risk management.

#### **3.4 Objectives of the research study**

- To ascertain the health, safety and risk management measures adopted in any large oil and gas company.
- To study the awareness of the workers about health, safety and risk in the workplace.
- To find the occurrence of accidents happened at workplace and other sites.

- To identify the role of management in implementing health and safety.
- To find out satisfaction level of respondents towards health, safety and risk measures.
- To give suggestions to improve the health and safety in the organisation.

### 3.5 Research Design

The research design of this study considering its objectives, scope and coverage was exploratory as well as descriptive in nature.

### 3.6 Sources of Data

- **Primary Data:** The primary data will be obtained from the selected employees and senior executives of Oil India Limited, Duliajan through circulation of the structured non-disguised questionnaire.
- **Secondary Data:** The secondary data has been obtained from published literature on the topic and from Books, News Papers, Research Articles, Thesis, Websites, Magazines, etc.

### 3.7 Sampling Decisions

- **Sampling size:** Appropriate number of sample size (i.e. 50-60) will be put to use for the purpose of collecting primary data from the selected employees of Oil India Limited, Duliajan.
- **Sampling instrument:** A structured non-disguised questionnaire has been prepared to get the relevant information from the respondents. The questionnaire consists of variety of questions presented to the respondents for their responses.
- **Sampling media:** Sampling media has been in the form of filling up the questionnaire.

### 3.8 Limitations of the proposed research study

- The sample size used by the researcher is limited.
- The study is applicable only to Oil India Limited, Duliajan. Therefore, the results cannot be generalised for the whole oil and gas industry.
- The time factor in collecting the responses as in conducting the research study would be limiting factor.
- The respondents might be unable or unwilling to give the response.

## CHAPTER 4

### Data Analysis and Interpretation

**Table 1:** Table showing age of Respondents

Sr. No.	Range	No. of Respondents	%
A	Below 25	10	17
B	26-30	18	30
C	31-35	22	36
D	36-40	4	7
E	Above 40	6	10
TOTAL		60	100

**Interpretation:** The chart depicts that:

- 17% respondents tends to age below 25
- 30% respondents tends to age between 26-30
- 36% respondents tends to age between 31-35
- 7% respondents tends to age between 36-40
- 10% respondents tends to age above 40

Majority of the respondents tend to age between 31-35

**Table 2:** Table showing the experience (in years) of the respondents

Sr. No.	Range	No. of Respondents	%
A	Below 5	05	08
B	6-10	12	20
C	11-15	22	37
D	15-20	18	30
E	Above 20	03	05
TOTAL		60	100

**Interpretation:** From the above table, 8% of the respondents have experience below 5 years, 20% respondents have experience of 6-10years, 37% of the respondents have experience 11-15 years, 30% of the respondents have experience of 15-20 years and 5% of the respondents have experience above 20 years.

**Table 3:** Table showing the awareness of health and safety

Sr. No.	Range	No. of Respondents	%
A	YES	48	80
B	NO	12	20
TOTAL		60	100

**Interpretation:** In the survey, 80% of the respondents are aware of the health and safety measures but 20% of the respondents are not aware of the health and safety measures adopted by the organisation.

**Table 4:** Table showing the effective arrangements for communicating health and safety measures

Sr. No.	Range	No. of Respondents	%
A	YES	24	40
B	NO	36	60
TOTAL		60	100

**Interpretation:** In this survey, only 40% of the respondents say that they have effective arrangements for communicating health and safety measure but nearly 60% of the respondents say that they have no effective arrangements for communicating health and safety measures.

**Table 5:** Table showing the medical facility

Sr. No.	Range	No. of Respondents	%
A	YES	48	80
B	NO	12	20
TOTAL		60	100

**Interpretation:** In the survey, 80% of the respondents say that medical facilities are provided to the workers but 20% of the respondents say that the company is not providing medical facilities to the workers.

**Table 6:** Table showing the health and safety training

Sr. No.	Range	No. of Respondents	%
A	YES	42	70
B	NO	18	30
TOTAL		60	100

**Interpretation:** In the survey, 70% of the respondents say that they have attended the health and safety training conducted by the company but 30% of the respondents say that they have not attended any health and safety training conducted by the company.



**Table 7:** Table showing the frequency of training offered

Sr. No.	Range	No. of Respondents	%
A	Once in 3 years	14	23
B	Once in 2 years	36	60
C	Yearly once	10	17
D	Monthly	-	-
E	Rarely	-	-
TOTAL		60	100

**Interpretation:** In the survey, 23% of the respondents say that the training is offered once in 3 years, 60% of the respondents say that the training is offered once in 2 years and 17% of the respondents say that the training is offered yearly once. No respondents say that the training is offered in monthly or rarely.

**Table 8:** Table showing the drinking water facility

Sr. No.	Range	No. of Respondents	%
A	Always	32	53
B	Sometimes	10	17
C	Often	12	20
D	Rarely	06	10
E	Not at all	-	-
TOTAL		60	100

**Interpretation:** In the survey, 53% of the respondents say that they have proper drinking water facility, 17% of the respondents say that they sometimes have proper drinking water facility, 20% of the respondents say that they often have proper drinking water facility and 10% of the respondents say that they rarely have proper drinking water facility. No respondents say that they do not have proper drinking water facility at all.

**Table 9:** Table showing the stress towards work

Sr. No.	Range	No. of Respondents	%
A	Always	08	13
B	Sometimes	16	27
C	Often	32	53
D	Rarely	04	07
E	Not at all	-	-
TOTAL		60	100

**Interpretation:** In the survey, 13% of the respondents say that they always have stress, 27% of the respondents say that they sometimes have stress towards, 53% of the respondents say that they often have stress towards work and 07% of the respondents say that they rarely have stress. No respondents say that they do not have stress towards work at all.

**Table 10:** Table showing the awareness about the first aid activities and contents of the first aid kit

Sr. No.	Range	No. of Respondents	%
A	Strongly Agree	46	77
B	Agree	14	23
C	Neutral	-	-
D	Disagree	-	-
TOTAL		60	100

**Interpretation:** In the survey, 77% of the respondents strongly agrees that they are aware about the first aid activities and contents of the first aid kit but 23% respondents simply agrees that are aware of the first aid activities and first aid kit. No respondent say that they were unaware of the first aid activities and its contents.

**Table 11:** Table showing the effective disciplinary procedures implementation

Sr. No.	Range	No. of Respondents	%
A	Strongly Agree	36	60
B	Agree	24	40
C	Neutral	-	-
D	Disagree	-	-
TOTAL		60	100

**Interpretation:** In the survey, 60% of the respondents say that they strongly agree about the effective disciplinary procedures implementation but 24% of the respondents say that they simply agree that the company implements effective disciplinary procedures to maintain health and safety in the organization. No respondents say that they do not implement effective disciplinary procedures in the company.

**Table 12:** Table showing the working temperature is reasonable to work

Sr. No.	Range	No. of Respondents	%
A	Strongly Agree	17	28
B	Agree	43	72
C	Neutral	-	-
D	Disagree	-	-
TOTAL		60	100

**Interpretation:** In the survey, 28% respondents strongly agree that the working temperature is reasonable to work but 72% respondents simply agree that the working temperature is reasonable to work. No respondents say that the working temperature is not reasonable to work.

**Table 13:** Table showing the enough space to work

Sr. No.	Range	No. of Respondents	%
A	Strongly Agree	13	22
B	Agree	28	46
C	Neutral	19	32
D	Disagree	-	-
TOTAL		60	100

**Interpretation:** In the survey, 22% respondents strongly agree that they have enough space to work, 46% respondents simply agree that they have enough space to work and 32% respondents say that they no idea about the overcrowding. No respondents say that they do not have enough space to work.

**Table 14:** Table showing the latrines and urinals are cleaned and maintained properly

Sr. No.	Range	No. of Respondents	%
A	Strongly Agree	14	23
B	Agree	36	60
C	Neutral	10	17
D	Disagree	-	-
TOTAL		60	100

**Interpretation:** In the survey, 23% respondents strongly agree that the latrines and urinals are cleaned and maintained properly, 60% respondents simply agree that the latrines and urinals are cleaned and maintained properly but 17% respondents say that they have no idea about the maintenance of latrines and urinals. No respondents say that the latrines and urinals are not cleaned or maintained properly.

**Table 15:** Table showing the environment is safe to work

Sr. No.	Range	No. of Respondents	%
A	Strongly Agree	33	55
B	Agree	14	23
C	Neutral	13	22
D	Disagree	-	-
TOTAL		60	100

**Interpretation:** In the survey, 55% of the respondents strongly agree that their environment is safe to work but 23% respondents simply agree that their environment is safe to work and 22% of the respondents say that they no proper idea whether their environment is safe to work. No respondent say that their environment is not safe to work.

**Table 16:** Table showing the enough training given to the employees for handling the machines

Sr. No.	Range	No. of Respondents	%
A	Strongly Agree	42	70
B	Agree	12	20
C	Neutral	06	10
D	Disagree	-	-
TOTAL		60	100

**Interpretation:** In the survey, 70% of the respondents strongly agree that enough training is given to the employees for handling the machines but 20% simply agrees that enough training is given to the employees and 10% of the respondents have no proper idea about the training conducted by the company. No respondent say that they were not given enough training for handling the machines.

**Table 17:** Table showing the health check-up for workers

Sr. No.	Range	No. of Respondents	%
A	Yearly	-	-
B	Half Yearly	11	18
C	Quarterly	45	75
D	Monthly	04	07
E	Rarely	-	-
TOTAL		60	100

**Interpretation:** In the survey, 18% of the respondents say that the company provides health check-up for workers half yearly, 75% of the respondents say that the company provides health check-up for workers quarterly and 7% of the respondents say that the company provides health check-up for workers monthly. No respondents say that the company do not provide health check-up for workers at all.

**Table 18:** Table showing the machines are maintained properly

Sr. No.	Range	No. of Respondents	%
A	Always	04	7
B	Sometimes	21	35
C	Often	28	46
D	Rarely	07	12
E	Not at all	-	-
TOTAL		60	100

**Interpretation:** In the survey, 7% of the respondents say that always they are maintaining the machines properly, 35% of the respondents say that sometimes they are maintaining the machines properly, 46% of the respondents say that they are often maintaining the machines properly and 12% of the respondents say that rarely they are maintaining the machines properly. No respondents say that they are not maintaining the machines properly.

**Table 19:** Table showing the accidents happened

Sr. No.	Range	No. of Respondents	%
A	Always	04	7
B	Sometimes	17	28
C	Often	29	48
D	Rarely	10	17
E	Not at all	-	-
TOTAL		60	100

**Interpretation:** In the survey, 7% of the respondents say that always the accidents are happened, 28% of the respondents say that sometimes the accidents are happened, 48% of the respondents say that often the accidents are happened and 17% of the respondents say that rarely the accidents are happened.

**Table 20:** Table showing the ranking of accidents by their occurrence

Sr. No.	Range	No. of Respondents	%
A	Fallen from height	02	3
B	Finger injuries	22	37
C	Electric shocks	32	53
D	Fire accidents	04	7
TOTAL		60	100

**Interpretation:** In the survey, 3% accidents happened due to falling from height, 37% accidents happened causing finger injuries, 53% accidents happened due to electric shocks and 7% accidents occurred due to fire accidents.

**Table 21:** Table showing the company providing safety requirements

Sr. No.	Range	No. of Respondents	%
A	YES	52	87
B	NO	08	13
TOTAL		60	100

**Interpretation:** In the survey, 87% of the respondents say that the company is providing proper safety requirements for work and 13% of the respondents say that the company do not provide proper safety requirements for work.

**Table 22:** Table showing the safety committee formed

Sr. No.	Range	No. of Respondents	%
A	YES	17	28
B	NO	43	72
TOTAL		60	100

**Interpretation:** In the survey, 28% of the respondents say that the safety committee is formed by the company but 72% of the respondents say that no safety committee is formed by the company.



**Table 23:** Table showing the safety inspections held by the company

Sr. No.	Range	No. of Respondents	%
A	Yearly	03	5
B	Monthly	48	80
C	Weekly	09	14
D	Daily	-	-
E	Rarely	-	-
TOTAL		60	100

**Interpretation:** In the survey, 5% of the respondents say that yearly safety inspections are held by the company, 80% of the respondents say that monthly safety inspections are held by the company and 14% of the respondents say that weekly safety inspections are held by the company.

**Table 24:** Table showing the satisfactory level of workers towards health and safety measures

Sr. No.	Range	No. of Respondents	%
A	Very Satisfied	-	-
B	Satisfied	52	87
C	Neutral	08	13
D	Dissatisfied	-	-
E	Highly Dissatisfied	-	-
TOTAL		60	100

**Interpretation:** In the survey, 87% of the respondents are simply satisfied with the health and safety measures adopted by the company but 13% of the respondents say that have no proper idea of the health and safety measures adopted by the company. No respondents are very dissatisfied with the health and safety measures adopted by the company.

**Table 25:** Table showing the role of management in implementing health and safety

Sr. No.	Range	No. of Respondents	%
A	Excellent	-	-
B	Best	11	18
C	Better	33	55
D	Good	16	27
E	Poor	-	-
TOTAL		60	100

**Interpretation:** In the survey, 18% respondents says that the role of management in implementing health and safety is best, 55% respondents says that the role of management in implementing health and safety is better and 27% respondents says that the role of management in implementing health and safety is good. No respondents say that the role of management in implementing health and safety is poor.

## Chapter 5

### Findings

- Only 20% of the respondents respond that they were not aware of the health and safety measures and 80% of the respondents were aware of the health and safety measures.
- 60% of the respondents say that they have no effective arrangements for communicating health and safety measures and 40% of the respondents say that they have effective arrangements for communicating health and safety measures.
- 70% of the respondents respond that they attended the health and safety training program but 30% of the respondents says that they had not attended or made aware of any such health and safety training program by the company.
- Most of the respondents respond that sometimes they have proper drinking water and some of the respondents says that often they have proper drinking water and very few of the respondents say that they always have proper drinking water facility in the company.
- 77% of the respondents strongly agree that they were aware about the first aid activities and content of the first aid kit and 23% of the respondents simply agree that they are aware about the first aid activities and content pf the first aid kit.
- Majority of the respondents strongly agree that the company implements effective disciplinary procedures and few of the respondents simply agree that the company implements effective disciplinary procedures.
- 55% of the respondents strongly agree that their environment is safe to work and the remaining 45% had simple ideas about safe working environment.
- Majority of the respondents says often they are maintaining the machines properly and some of the respondents respond that sometimes they are maintaining the machines properly and only very few respondents says rarely they are maintaining the machines.
- 48% of the respondents says often the accidents happened and 17% of the respondents say that rarely the accidents happened, 28% of the respondents say that only sometimes the accidents happened and 7% of the respondents say that always accidents happened.
- 87% of the respondents say that they are simply satisfied with the health and safety measures and 13% of the respondents say that they no idea about the satisfaction level by the health and safety measures.
- 55% of the respondents say that the role of management is better, 18% respondents say that the role of management is best and 27% of the respondents responded that the role of management in implementing health and safety is good.

## **Chapter 6**

### **Conclusion**

#### **6.1 Recommended Suggestions**

- The company has to create the awareness for the workers regarding health and safety.
- They have to provide effective arrangements to the workers for communicating their health and safety matters.
- It is better to provide frequent health and safety training, at least once in a year.
- The company has to provide enough drinking water facility available at all the time.
- The management has to take necessary steps to reduce the stress level of the workers.
- Orientation programs have to be conducted to make the workers to feel that their work environment is safe to work.
- The maintenance department has to maintain the machines properly to reduce lead-time.
- Proper training has to be given to the workers to avoid frequent accidents.
- Meditation practices can be given to avoid electric shocks; finger injuries etc. due to lack of concentration.
- Safety committee has to take regular and strict steps to monitor the health and safety issues.
- The company has to conduct the regular inspections to ensure higher level of safety in the workplace.
- Cordial relationship has to be maintained between the management and the workers to implement the health and safety policies and measures in a smooth manner.

## **6.2 Conclusion**

The study revealed that, the health and safety measures adopted in the companies are provided to the workers according to the provisions of the factory act. Suitable ideas were discussed to avoid the accidents and to improve the health and safety measures. The role of management as well as involvement of the workers in implementing health and safety in the organisation should be adequate and effective. Most of the workers were satisfied with the health and safety measures adopted in the company but were also eager to help and practice more advanced procedures or strategies in minimizing the number of accidents or any other problems associated with health, safety and risk management. If any company implements effective disciplinary procedures, it will help the company to go with their policies and also maintain health and safety in any organisation.

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## Appendix

### Questionnaire

#### A. Identification

Name (optional) :  
Position :  
Department and Organisation :

#### B. Questions

1. Age :  
a. Below 25    b. 26-30    c. 31-35    d. 36-40    e. Above 40
  
2. Experience (in years) :  
a. Below 5    b. 6-10    c. 11-15    d. 16-20    e. Above 20
  
3. Are you aware of the health and safety measures adopted in the company?  
a. Yes    b. No
  
4. Do you have effective arrangements for communicating health and safety matters?  
a. Yes    b. No
  
5. Does the company provide medical facilities to the workers?  
a. Yes    b. No
  
6. Have you attended any health and safety training in your company?  
a. Yes    b. No
  
7. How frequent training is provided in the company?  
a. Once in 3 years    b. Once in 2 years    c. Yearly    d. Monthly    e. Rarely

8. Do you have proper drinking water facility in your workplace?  
 a. Always    b. Sometimes    c. Often    d. Rarely

9. Do you have any stress towards work?  
 a. Always    b. Sometimes    c. Often    d. Rarely    e. Not at all

Q. No.	Parameters	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
10.	Do you know the first aid activities and the contents of the first aid kit?					
11.	The company implements effective disciplinary procedures to maintain health and safety?					
12.	The working temperature is reasonable to work?					
13.	Do you have enough space to work?					
14.	The latrines and urinals are cleaned and maintained properly?					
15.	Do you think that your environment is safe to work?					
16.	Is enough training is given to workers before handling the machines?					

17. How often the company provides health check-up for the workers?

- a. Yearly    b. Half yearly    c. Quarterly    d. Monthly    e. Rarely

18. Are the machines maintained properly?

- a. Always    b. Sometimes    c. Often    d. Rarely    e. Not at all

19. How often the accidents happen?

- a. Always    b. Sometimes    c. Often    d. Rarely    e. Not at all

20. Rank the accidents by their occurrences:

Accidents	Ranking
Fallen from height	
Finger injuries	
Electric shocks	
Fire accidents	

21. Are they providing the safety requirements for work?

- a. Yes      b. No

22. Whether safety committee formed in the company?

- a. Yes      b. No

23. How often the safety inspections are held in your company?

- a. Yearly      b. Half Yearly      c. Monthly      d. Weekly      e. Rarely

24. Satisfactory level of the health and safety measures taken by the company?

- a. Very much satisfied  
b. Satisfied  
c. Neutral  
d. Dissatisfied  
e. Highly dissatisfied

25. The role of management in implementing health and safety?

- a. Excellent      b. Best      c. Better      d. Good      e. Poor

*Thank You for Your Time and Experience*