Addis Ababa University School of Commerce

Department of Business Administration & Information System

Practices of Occupational Health and Safety Management in Oromiya Steel Pipe Mil PLC

By: Mekonnen Lenjisa

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ABBREVIATIONS

ANSI	American national Standard Institute
BSI	Basic Skills Instruction
GTP	Growth and Transformational Plan
ILO	International Labor Organization
ISO	International Organization for Standardization
MOH	Ministry of health
MOLSA	Ministry of Labor and Social Affairs
NIOSH	National Institute for Occupational Safety and Health
OHS	Occupational Health and Safety
OHSMP	Occupational Safety and Health management practice
OSHA	Occupational Safety and Health Administration
OSHMS	Occupational Safety and Health and Management System
PLC	Private Limited Company
TVET	Technical and Vocational Education Training
VPP	Voluntary Protection Program
WHO	World Health Organization

Abstract

Occupational diseases and hazards are always been a major concern for many industries. Occupational Health and Safety management system protects the safety, health and welfare of people at the work place. Management and the government should promote and maintain high safety standards through some measures to reduce frequency of accidents and occupational hazards. Hence, the main objective *of this study was to explore the Practices of Occupational Health and Safety Management in Oromiya Steel Pipe Mil PLC* by *assessing the magnitude of occupational injury, accidents and diseases and by identifying factors for its causes. To address this objective, a descriptive research design adapted to the situation was implemented. The study population considered as respondent were employees and management of Oromiya Steel Pipe Mill Company staffs that have direct engagement with the issue. As a result primary data was collected through questionnaires from 48 operational and technical staffs and 11 officials in addition to referring secondary data from different documents. The data was analyzed using SPSS version 20. Moreover, there was no availability of written health and safety policy and manuals in the organization. Most employees also revealed that the company management did not effectively communicate its workers about health and safety goals and expectation to its staff. The participation of employee on OSHMS activities is also very poor. About 14.6% of employee did not know what activities to be taken when they observe injuries, illness and other work related hazards and about 47.9% of employees do not know about safety elements. Finally, it is recommended to conduct detail occupational hazard assessment as soon as possible by company, implementing basic OSHMS is important for sustainable and effective reduction occupational hazards in line with developing occupational safety and health policy manual and providing training on OSHMS as urgent as possible to familiarize with OSHMS standards.*

Key Terms:- Occupational Hazards, OSH Management system

CHAPTER ONE

Introduction

1.1. Background of the Study

From global point of view, it has been recognized that industry play a vital role in economic development, as they have been the main sources of employment creation, output growth and the central focus of the technology development strategy in both developing countries and developed countries. This can be achieved if the health and safety of workers in the work place is well managed and maintained. Occupational diseases and hazards are always been a major concern for many industries. Occupational Health and Safety management system protects the safety, health and welfare of people at the work place. Management and the government should promote and maintain high safety standards through some measures to reduce frequency of accidents and occupational diseases.

Studies conducted by J.M. Stallman (1998) shows that development and industrialization have made immense positive contributions to health, social wealth and improved education service. However, industrialization has also had adverse health consequences on work places. These effects have been caused by directly exposure to safety hazards and harmful agents or indirectly through environmental degradation.

According to the study of Abugad (2009) the work environment is the most important strategy to ensure workers‘ health that contributes positively to the national economies through improving productivity, product quality, work motivation, job satisfaction and overall quality of the worker‘s life and society. The above statement clearly shows the significant role of industry for the development of one country as occupational safety and health practices properly applied. The occupational health and safety services are essential services for the protection of people‘s health at work, for promotion of health, well-being and

work ability, as well as for prevention of ill-health and accidents. Occupational safety and health is an important issue for industries and has important implications for cost, delivery, quality and social responsibility. Minor accidents can interfere with production in a variety of ways and a serious accident can shut down an entire operations. Hence studies on the magnitude, causes, level of implementation of OSHMS and barriers of implementation are very crucial for organizations.

In Ethiopia, there is scarcity of comprehensive data and nationwide researches on rate of occupational injuries and its factors in large scale metal manufacturing industries (MOLSA and MOH, 2008). The recent studies in small and medium scale industries showed that the occupational injury rate was 335/1000 workers exposed per year. Of these, 17.1% of them being hospitalized with 40% of them for greater than 24 hours, 53.9% absent from work and; 191 days were lost due to injuries (Tadesse, and Kumie, 2007).

Another study in Afar national regional state showed that the overall prevalence rate of Occupational injuries was 783 per 1000 workers with the severity of 11% hospitalized and 6153 days were lost due to injuries (Osman, and Kumie, 2007).

The Oromiya Still Pipe Mill P.L.C is one of the industries that use huge and sophisticated machines in their operations. It is also an industry which makes the environment prone to accidents and injuries looking at the movements of machines and other heavy equipment‘s. This means that it is necessary for this organization to put in place health and safety management system that will safeguard their workers from work- related accidents and illness. Though law commitment or implementation most of these measures put in place by this industry, yet others are based on the fact that the employer wants to increase productivity by limiting man hours lost due to accidents and injuries that occur at the workplace.

There are many hazards that could cause employee injuries and illnesses in Steel Pipe Mil Company like in Oromiya. An effective way to control hazards in any organizations including Oromiya Steel Pipe Mil Company is the implementation of an Occupational Safety and Health Management System. So far there is no study conducted on OHSMS in Oromiya Steel Pipe Mil Company.

In doing this, the researcher has selected Steel Pipe Mill Industry which is one of the biggest industries in Oromiya National Regional State as the study area. Therefore, this research intends to assess the implementation of health and safety management practice in Oromiya Steel Pipe Mil P.L.C. To achieve this objective the study aimed at collecting the personal and occupational information from employees and organization so as to study their working behavior and acquire a basic understanding of the industry‘s magnitude, type, and causes of occupational hazards and diseases and level of implementation of occupational safety and health and barriers for implementing OSHMS and putting forward suggestions that may raise the industry‘s occupational safety and health standard.

1.2. Statement of Problem

Manufacturing industries make significant contributions to the socio-economic development of most countries. The industry has a direct contribution to the nation‘s economy. That is why Federal Democratic Republic of Ethiopia gave due attention for manufacturing industries in the second GTP period. Implementation of OSH practice has significant contribution for realizations of manufacturing industry.

The due attention for manufacturing industry and the development of manufacturing sector attracts thousands of laborers to the sector. The government also considers this sector as a means for unemployment reduction. The development of heavy manufacturing industry results in major impact of OSH workers on site. The high level technology used in

manufacturing industry requires special precautions to protect the workers. Workers are not aware of the immediate and long term effect of exposure to hazards.

Globally occupational hazards are increasing as technology increases. The International Labor Organization (ILO) estimates that 270 million occupational accidents and diseases occur each year due to lack of implementing OSHMS. The annual cost for workers compensation in 2007 was $85 billion (Lund and Marriott, 2011). According to the study of Du and Leigh (2011) the economic loss related to these accidents and diseases are estimated to 4% of world gross national product.

In Sub-Saharan Africa countries, slightly more than 54, 000 fatal occupational accidents happen annually. Approximately 42 million work-related accidents took place that causes at least 3 days absence from work. The fatality rate of the region is 21 per 100,000 workers and the accident rate per 100,000 workers is 60,000 (Hamalainen et al., 2006).

In Ethiopia, over 5,596 fatal occupational accidents happen annually. Approximately 4,270,815 work-related accidents took place that causes at least 3 days absence from work. The accident rate per 100,000 workers is 16426 and the fatality rate is 21.5 per 100,000 workers (Hamalainen et al., 2006 as cited in Zemichael et.al. 2012. In order to reduce the intensity of occupational related accident and injuries, the government of Federal Democratic Republic of Ethiopia issued occupational safety and health rules in Labour Proclamation No. 377/2003(Article 12-14).

According to Proclamation No. 377/2003 employers have to take all the necessary occupational safety and health measures and to abide by the standards and directives to be given by the appropriate authorities in respect of these measures and the workers have to give all proper aid when an accident occurs or an imminent danger threatens life or property in his place of work without endangering his safety and health.

According to the study of Tadesse and Kumie (2007) in Ethiopia, like other developing countries of the world, different industries are coming up at a fast rate, however, the country is relatively unclear regarding work related injuries and hazards because of inadequate accident and disease recognition, poor recordkeeping and reporting mechanisms. As a result the work related injuries are more and more likely to arise among industry workers.

According to the above studies in Ethiopia there is a clear gap in the Practices of Occupational Health and Safety Management which is very essential in the life of any industry in making the industry productive and efficient through the utilization of its human power in appropriate and safer manner.

The level of practice of occupational safety and health management systems determines the degree of safety and health at any company. Inadequate Practice of the systems at the company exposes workers to various occupational hazards at their work site. Operations in the steel industry may expose workers to a wide range of hazards or workplace activities or conditions that could cause incidents, injury, death, ill health and diseases. General observation on hazard exposure indicates that there are hazards of various types from different sources that are encountered in Oromiya Steel Pipe Mil Company. There are cases of injuries of workers in Oromiya Steel Pipe Mil Company.

One of the best ways to prevent injuries and illnesses is to engage workers and concerned bodies in identifying and controlling hazards in their workplace. In this study, hazard assessment in Oromiya Steel Pipe Mil PLC and employee views were used to determine the effective practice of OSH program and barriers to prevent the practice of OSHMS. The researcher undertakes a systematic review of literature to see the existing research found on OSHMS in Ethiopia. There were very few studies and even the existing studies shows the low level of practice of occupational safety and health. So far no such empirical study was

conducted on Practices of Occupational Health and Safety Management in Oromiya Steel Pipe Mill P.L.C. Therefore conducting such study in Oromiya Steel Pipe Mill Company is timely and very important.

1.3. Research Questions

Corresponding to the problem statement, this study attempted to answer the following research questions:

1. What are the prevailing occupational injury, accidents and diseases that occurred in Oromiya Steel Pipe Mil PLC?
2. What are the causes of OHSM problems in Oromiya Steel Pipe Mil PLC?
3. To what extent do OHSMS practiced in Oromiya Steel Pipe Mil PLC?
4. What are the barriers for effective practice of OHSMP in Oromiya Steel Pipe Mil PLC?

1.4. Objectives of the Study

The general objective of this study was to explore the Practices of Occupational Health and Safety Management in Oromiya Steel Pipe Mil PLC

. To achieve the general objective the following specific objectives were set.

1. To assess the magnitude of occupational injury, accidents and diseases, in Oromiya Steel pipe mil P.L.C.
2. To identify causes of occupational injury, accidents and diseases, in Oromiya Steel pipe mil P.L.C.

3. To examine the level of practice of OHSMP in Oromiya Steel pipe mil P.L.C.

4. To examine OHSMP practice barriers in Oromiya Steel pipe mil P.L.C.

1.5. Significance of the Study

It is obvious that quality service delivery could be provided in place of safe working environment. Industry helps effectively for countries economic development, if proper occupational health and safety management practice is used. Safety and health principles are universal, but how much action needed will depend on the size of the organization, the hazards presented by its activities, the physical characteristics of the organization, product or service and the adequacy of its existing arrangements. There is no such empirical study was conducted in Oromiya Steel Pipe Mil factory so far.

Therefore; the researcher believed that this study is helpful in recommending organizations the need of Occupational Safety and Health management practice (OSHMP) to prevent occupational hazards and diseases and it will be important in serving as good references by adding value to existing literature on Occupational Safety and Health management practice particularly in Ethiopian context. The outcome of this study would contribute immensely towards the control of hazards in Oromiya Steel Pipe Mil Company. Safety and health of workers contributes directly or indirectly to production and to some extent the achievement of some of the Growth and Transformational Plan of the region in particular and the country in general. The management of this company would definitely benefits a lot from the output of this study.

1.6. Scope of the Study

Thematically this study focus on assess of the Practices of Occupational Health and Safety Management (OHSMP) in Oromiya Steel Pipe Mil PLC. The magnitude, types and causes of occupational disease and accidents as well as the level of implementation of OSHMS including barriers that limits the implementation of Occupational Health and Safety Management Practice were discussed. Geographically this study limited to Oromiya Steel Pipe Mil PLC in which year 2016 was the study period.

1.7. Limitations of the Study

This study focused only on one factory i.e. Oromiya Still Pipe Mil PLC due to limitation of time and available budget as well as other logistic resources. The nature of the study by itself is descriptive as there was no reference to undertake comparative analysis. The output of the analysis and proposed recommendations may not be extrapolated to similar factories or industries as the data considered for this study was focused only on a single factory. Moreover, the response of the respondents‘ percentage may seem high for a single response as the participants were only 48 out of 52 staffs that have directly related with operation.

Respondents might also give incorrect answers to impress the interviewer. This type of error is the most difficult to prevent because it results from outright deceit on the part of the responder.

1.8. Operational Definition

Accidents: is an undesirable incidental and unplanned event that could have been prevented had circumstances leading up to the accident been recognized, and acted upon, prior to its occurrence

Hazard: is a situation that poses a level of threat to life, health, property, or environment.

Occupational Health: includes occupational hygiene, occupational medicine and biological monitoring.

Occupational Health and Safety: conditions and factors that affect the well-being of employees and other persons in the work place.

Organization: in this study refers to Oromiya Steel Pipe Mil PLC

OSH management system: is a frame work that allows an organization to consistently identify and control its health and safety risks, reduce the potential for accidents, help achieve compliance with health and safety legislation and continually improve its performance

Worker: Any person who performs work, either regularly or temporarily, for an employer.

Workplace: ”Workplace” means the office, premises or work site, where the workers are habitually employed and shall include the office or place where the workers, who have no fixed or definite work site, regularly report for assignment in the course of their employment, in this study case Oromiya Steel Pipe Mil PLC

Work-related injury: Death or any personal injury resulting from an occupational accident.

Work-related injuries, ill health and diseases: Negative impacts on health arising from exposure to chemical, biological, physical and organizational factors at work.

1.9. Organization of the Study

This study was organized in to five chapters. The first chapter is introduction part where the background of the study, statement of the problem, objectives of the study, and research questions were described. It also lays out the significance of the study, the scope of the study; limitations of the study and the structure of the thesis. In chapter, two literature works pertinent to the subject are extensively and briefly described. Chapter three present detail description of the research methodology pursued in this study. It includes a description of the survey and its development; setting and selection of participants, measurement and instrument of variables, data collection procedure and the methods of analyses. In chapter four results and discussions on the findings of the study are extensively presented. Descriptive data analysis and proposed research are described here. Finally summary, conclusion and recommendation based on the findings were presented. Following references and appendices addressed here. This Thesis also contains other formal documents such as Acknowledgements, Abstract, Annexes, etc.

CHAPTER TWO

Review of Related Literature

2.1. Theoretical Literature Review

2.1.1 Introduction

This chapter presents a review of the literature. It reviews the sources and types of hazards and the control measures taken by other organizations internationally, nationally and at organizational level. The regulations that are provided by the International Labour organization (ILO) are also analysed. The chapter also examined the elements of Occupational Safety and Health Management systems as a tool for addressing occupational hazards and their risks at organizations. Further, the review discusses the developmental concepts and the hierarchy of control of hazards. Some related case studies have been cited towards the end of the chapter.

2.1.2. Concepts of Occupational Safety and Health

Occupational Health and Safety (OHS) management protects the safety, health, and welfare of people at the workplace. In 1950, the first session of the joint International Labour Organization (ILO) and the World Health Organization (WHO) Committee on Occupational Health adopted a definition of occupational health. The definition was subsequently revised in 1995.

Occupational health should aim at the promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations; the prevention amongst workers of departures from health caused by their working conditions; the protection of workers in their employment from risks resulting from factors adverse to health; the placing and maintenance of the worker in an occupational environment adapted to his physiological

and psychological capabilities and, to summarize: the adaptation of work to man and of each man to his job (Guidotti, 2011).

An Occupational Safety and Health and Management System (OSHMS) is a set of plans, actions and procedures that guide nations and organization to systematically manage safety and health risks associated with their business (ILO-OSH, 2001). The objectives of occupational safety and health are to ensure that the workplaces are safe for operations and that the operations do not impact negatively on the workers. The overall aim of an OSHMS is to continuously improve occupational safety and health (OSH) performance through the effective management of OSH risks and activities in the workplace (Benjamin, 2008). The system provides a framework that allows organizations to consistently identify and control their occupational safety and health risks, reduce the potential for accidents, aid in legislative compliance and improve overall performance of occupational safety and health management system (ILO-OSH, 2001). Occupational safety and health management systems includes provisions for systematic identification, evaluation and prevention or control of hazards and goes beyond specified requirements of the law to address all hazards. An effective OHSMS promotes consultation in the workplace and engages employees and other stakeholders in safety and health processes and issues. This leads to the proactive management of safety and health concerns (Marsh, 2009).

The International Labour Organization (ILO) defines occupational health and safety as the outcome of adequate protection for a worker from sickness, injury and disease arising from work. A focus on health and safety in the workplace is essential for ensuring that people are not harmed during work, and that pain, suffering and loss are avoided. Ensuring that people are not injured can extend the productive working lives of citizens and contribute to economic growth and prosperity. The benefits of promoting occupational health and safety

include enabling people to lead happier and longer lives, enhancing economic activity, reducing demand on health and social services, and reducing the costs of illness and injury on both individuals and communities. Improving occupational health and safety is in the best interests of all.

All occupational health and safety programs aim to foster a safe work environment, including the protection of employers, suppliers, customers, family members, nearby communities, and other members of the public who could be affected by a company‘s operations. Such programs draw on disciplines such as occupational medicine, occupational or industrial hygiene, public health, safety engineering, chemistry, health physics, ergonomics, toxicology, epidemiology, and environmental health (Guidotti, 2015).

2.1.3. Importance of OSH

Work plays a central role in people's lives, since most workers spend at least eight hours a day in the workplace, whether it is on a plantation, in an office, factory, etc. Whatever sort of business you are, there is always the possibility of an accident or damage to someone's health. All work exposes people to hazards, be they: loads which have to be manually handled; dangerous machinery; toxic substances; electricity; working with display screen equipment or even psychological hazards such as stress. Therefore, work environments should be safe and healthy. Yet this is not the case for many workers. Every day workers all over the world face with a multitude of health hazards, such as: dusts, gases, noise, vibration and extreme temperatures. Unfortunately some employers assume 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. As a result of the hazards and a lack of attention given to health and safety, work-related accidents and diseases are common in all

parts of the world. Due to these and other facts the need of occupational safety and health and its implementation at work place is indispensible.

There are sound economic, legal, moral and ethical reasons for having effective safety and health management system. Organizations devote considerable resources in protecting workers safety and ensuring healthy workplaces. For both business and financial reasons, many go beyond the minimum requirements set by occupational health and safety laws. OSH management system provides organizations with the framework to develop a solution to the increasing challenges facing them at the workplace today, from high injury and illness, lost work days, increasing occupational health and safety regulations, large citations/ penalties, rising worker‘s compensation costs, costly medical claims, worker retention and employee satisfaction (David, 2003; Ludwig, 2007). David (2003) explained further that Organizations with effective OSH management system earn positive returns and benefits on their health and safety investment by:

a. Operational cost savings through OSH management system.
b. Reducing work-related accidents and ill health and the costs associated with them.
c. Improving performance through heightened employee morale and adherence to policies and procedures.
d. Increased control of regulator issue.
e. Reinforcing a responsible and well-managed reputation with customers, stakeholders and communities.
f. Clear demonstration of legal and regulatory compliance to regulatory authorities, customers and employees.
g. Better management of health and safety risks on a planned and on-going basis.

h. Increased access to new customers and business partners through an improved corporate image.

2.1.4. Classification of Occupational Hazards and Safety Hazards

To address occupational health and safety, a business should identify the workplace hazards. Anyone who has ever worked in the steel industry recognises the potential dangers inherent in the industry‘s working environment and to which its employees may be exposed, unless suitable and stringent precautions are observed. A hazard refers to a circumstance that has the potential to cause harm. It may indicate a physical situation or it may indicate the omission of necessary preventative measures. An example of a physical situation would be exposure to equipment with sharp edges that could cause cuts, while an example of an omission would be the failure to provide a guard to prevent injury from the sharp edges on the equipment. The hazard identification must identify all major incidents and all major incident hazards that could occur at the facility, including major incident hazards relating to the security of the major hazard facility. Operations in the iron and steel industry may expose workers to a wide range of hazards or workplace activities or conditions that could cause incidents, injury, death, ill health or diseases

Modern occupational health and safety legislation usually demands that a risk assessment be carried out prior to making an intervention. Risk management requires risk to be managed to a level that is as low as is reasonably practical. This assessment should detect the hazards, identify all affected by the hazards, evaluate the risk, and offer and prioritize appropriate control measures. A review of the literature reveals a range of hypothesis about accident causes. There is a popular notion that employee‘s unsafe acts are the primary cause of workplace accidents (e.g. Burk and Smith, 1990). Other view states individual accidents are caused by an interesting system of social and technical forces.

The various workplace occupational safety and health hazards common to the industrial sectors which give rise to occupational injuries, diseases, disabilities or death through work may be classified as physical, chemical, biological, ergonomic and psychological factors.

Physical Risks

Physical hazards, which can adversely affect health, include trips, falls, noise, vibration, ionizing and non-ionizing radiation, heat and other unhealthy microclimatic conditions. Between 10 and 30% of the workforce in industrialized countries and up to 80% in developing and newly industrialized countries are exposed to a variety of these potential hazards. All workers encounter some agents of physical environment which have potential to present health hazards at work. Physical hazard has possible cumulative or immediate effects on the health of employees. Therefore, employers and inspectors should be alert to protect the workers from adverse physical hazards.

Chemical Risks

Chemicals make up the majority of workplace health hazards. They include many naturally occurring substances such as minerals, coal, cotton as well as the simple and complex manufactured chemical products. Chemical contaminates arise through direct use or as by-product contaminants. Chemical hazards can appear as: - Fire, explosions, Dusts, Mists, exposure to gases, Fumes and Vapours.

Biological Risks

Some workers are subject to specific health hazards relating to the nature of their work with biological materials or from working in environments where micro-organisms may abound. These hazards may be related to existence of animals or plant materials or sometimes the treatments of sick persons. Biological hazards exist more widely and affect members of the

general working community. Following are some biological hazards at work place: Bacterial, Fungi Allergenic agents and Viruses (Hepatitis B, HIV AIDS). Biological hazards can be transmitted to a person through: - inhalation, injection, ingestion and contact with the skin. These are presented by exposure to infectious microorganisms, to toxic substances of biological origin or animal attacks.

Ergonomic Risks

Ergonomic (human engineering) is a way of thinking and planning work so that it is organized to suit the abilities and needs of the people doing it. People are of different heights, they are built differently, and some people are stronger than others. Their ability to withstand physical or mental stress varies. These basic facts cannot be changed. It is these facts that are used as a basis for planning jobs and for planning the working conditions. Despite progress in technology, there is still a lot to be done before machinery and equipment are designed for use by people. As a result of poor design, people often suffer from lower back pain and injury to muscles and joints. Visual problems are increasing with the wide spread use of various display units and work inspection. These are among the most common health problems in working life. Ergonomic (human engineering) Hazards may occur due to the following working conditions: - Working positions- e.g. standing, sitting, visual conditions, strenuous work, controls and tools, signals and panels.

Psychosocial Hazards

Up to 50% of all workers in industrial countries judge their work to be ―mentally heavy". Psychological stress caused by time pressure, hectic work, and risk of unemployment has become more prevalent during the past decade. Other factors that may have adverse psychological effects include jobs with heavy responsibility for human or economic concerns, monotonous work or work that requires constant concentration.

Others are shift-work, jobs with the threat of violence, such as police or prison work, and isolated work. Psychological stress and overload have been associated with sleep disturbances, burn-out syndromes, stress, nervousness and depression. There is also epidemiological evidence of an elevated risk of cardiovascular disorders, particularly coronary heart disease and hypertension. Within the work environment emotional stress may arise from a variety of psychosocial factors, which the worker finds unsatisfactory, frustrating, or demoralizing.

2.1.5. Components of Occupational Safety and Health Management System

Implementing an occupational health and safety management system, which can be carried out in-house or by specialized consultants, is a reliable way of improving occupational health and safety performance in the workplace. These health and safety systems promote, facilitate, and enable consistency throughout workplace activities and processes. It is important to note that the system alone will not produce safe behaviour or a safe workplace. System effectiveness comes from complete commitment to the health and safety system. This includes proper implementation, follow-up, and training.

A management system specific to occupational health and safety is comprised of four interrelated components. These include management leadership and employee involvement; worksite analysis; hazard prevention and control; and safety and health training (OSHA, 2008).

Management Commitment and Leadership

Management of each organization must provide clear direction and support for the occupational health and safety program, and specifically the program elements targeted to reduce the risk of injury and illness as a result of hazards. Management demonstrates their

commitment to improve safety and health, by establishing goals and objectives, and providing adequate resources and support and reviewing and approving policies that related to hazards. .

Worldwide and in different countries organizations such as: OSHA, ANSI, VPP, NIOSH, BSI, ISO and etc. assists private and government organizations to prevent work-related accident and illnesses in the workplace and implement effective safety and health management systems. ISO 9001 and ISO 14001 management system standards are not directly related to OHS, however, ISO 9001 helps organizations to implement quality management system and ISO 14001 helps implement environmental management system. These standards are models for continual improvement, satisfying internal and external customers and other. Therefore, the goal of ISO 9001 and ISO 14001 is to improve the product quality and work environment. These can be implemented by the companies easily with other safety based standards.

Employee Involvement

As the most direct beneficiaries of OHS outcomes/ conditions, employees should have a major say and hence employee participation should be an integral part of OHS management (Frick 1999). Management actively involves employees in the program — for example, identifying and reporting hazards and investigating incidents. Employees are encouraged to communicate openly with management and report safety and health concerns.

Weinstein (1997) suggests that employee involvement provides the means through which workers could develop and express their own commitment to safety and health protection both for themselves and their co-workers. Sutherland, Makin & Cox (2000) suggested that empowerment of workers at all levels in the organisation leads to ownership of the safety process- shop floor driven. A similar view was held by ISO (2000) that full involvement of

people at all levels could lead to ownership and accountability. Indeed, safety practitioners found that inaction or unsafe actions of people are more important in causing injuries than unsafe conditions and hence participation by employees is critical for better OHS (Pierce, 1995).

Safety practitioners and academics in general agreed that employee should be involved in such activities as job hazard analysis for works, OHS committees, safety inspection, OHS training, OHS programs, accident investigation and development of safety working procedures (Noble, 2000; Weinstein, 1997).

Worksite Analysis/ Hazard Identification and Assessment

The hazard identification and assessment must consider all types of hazards which may results to injuries or illness. Processes and procedures are put in place to continually identify and assess workplace hazards and evaluate risks. Once hazards are identified they are then assessed based on risk in order to identify the relative priority of specific hazard for control. Workers and managements who participated in hazard identification and assessment should be trained.

Hazard Prevention and Control

To identify occupational health hazards, to provide appropriate advice on their control and prevention, to contribute to the development of healthy and safe workplaces and to follow up and take the necessary actions for the health of workers, a comprehensive and competent occupational health service is necessary. Such a service should be available at each workplace and accessible by each worker. Comprehensive occupational and health services are understood as front-line services, active at the workplace, containing preventive, curative and promotional elements and using, where appropriate, the primary health care approach. In

their most advanced forms, comprehensive OHS focus on workers and working populations, to the work environment and its hazardous factors, exposures and structures, and work organization. Such OHS contain preventive, control, curative, treatment, rehabilitation and promotion activities for the improvement of working conditions, protection of health and for the maintenance and promotion of working capacity. Processes and procedures are created and implemented to control workplace hazards.

Safety and Health Training

Safety training could increase safety awareness and improve the workers‘ safety know-how (McCutcheon, 1995). In particular, the workers could be trained to know and understand the hazards at work as well as the control measures for preventing the harms (Krafcisin, 1997; Litske, 1999). Safety practitioners also agree that training, especially the competence based training, could change the workers‘ behaviours to make them work safely (Evans, 1995). Apart from workers, OHS training should also be provided to managers and supervisors so that they could understand their OHS responsibilities (Krafcisin, 1997; McCutcheon, 1995).

Training and education equip people to work safely due to the fact that education increases the awareness of occupational diseases and accidents and the importance to create safe and healthy environment in working sites. Education also creates better personal characteristics, which help to create healthy environment.

Program Evaluation and Improvement

Processes are established to monitor the program performance, verify implementation, and identify deficiencies and opportunities for improvement. Employers take necessary actions to improve the program.

2.1.6. The Barriers in OHSMS Implementation

The ultimate goal and safety programme should be to eliminate accidents. No unplanned or uncontrolled activity with the potential to cause injury should happen. An accident free working environment may be an idealistic goal, but is certainly achievable. In organizations, there are different kinds of factors or barriers that hinder the achievement of occupational safety and health. The potential barriers and ways to overcome those barriers should be identified to implement an effective OSHMS. The barriers can be related to management, workers, authority and accountability, training, workplace environment.

The possible barriers in the workplace are:-

- Lack of management attendance to safety program: - Management is directly responsible for preventing injuries and illness, with each level accountable to the one above and responsible for the level below.
- Ignorance of the continuous process improvement. Continuous Improvement by working together with long-term views of safety and health, environment, economy, and social integration. Benchmarking activities, utilisation of sound science, risk assessment and cost/benefit analysis to establish priorities and standards for continuous and fundamental improvement of safety and health are recommended.
- Lack of employee involvement to OSHMS: - Each employee should assume responsibility for working safely. Professionalism in safety is as important as professionalism in production, quality and cost control.
- Insufficient government regulations and guidelines. Government Regulations must be recognised where applicable. Co-operation with government in a responsible manner fosters safety benefit and cost effective legislation that is based on sound technical evidence and true safety and health priorities meeting total community need.

- Lack of government audits and/or inspections. Safety audits should be conducted. Management should audit performance in the workplace.
- Inadequate resources (for example, inadequate training of workers, and job tools and/or facilities, inefficient old procedures etc.). Training is an essential element for safe workplaces. Total safety awareness does not come naturally - management should teach, motivate and sustain employee safety knowledge to eliminate injuries.

2.1.7. OSHMS in Ethiopia

According to labour proclamation No. 377/2003, the Ministry of Labour and Social Affairs of Ethiopia is the organ charged with the responsibility to inspect labour administration, labour conditions, occupational health and safety. Talking about labour Law in Ethiopia means to basically review the history of the last 40-50 years. Present-day labour law, as a specialized law designed to protect employees' welfare, only came into existence as a result of the modern industrial development and with the rise of the status of the employee as wage earner. Until recently, the main source of labour law, the Labour Proclamation, Proclamation No. 42/1993, was developed in the post-socialist time, marking the overcoming of the centralized state-economy towards a market oriented, pluralistic society.

Ethiopia was criticized for several years by the ILO Committee of Experts, which noted serious discrepancies between the national legislation and the Freedom of Association and Protection of the Right to Organize Convention, 1948 (No. 87). It was partly in response to the observations made by the House of People's Representatives adopted Labour Proclamation No. 377/2003, effective since 26 February 2004. This text repealed Labour Proclamation No. 42/1993 (as amended by Proclamation 88/1994). It has become the principal source of labour law in Ethiopia. So far the Committee of Experts has not published its comments on the new law.

2.1.7.1. OSHMS Policy in Ethiopia

International Labour Office (ILO-2001) guide lines on occupational safety and health management system states that the employer, in consultation with workers and their representatives, should set out in writing an OSH policy, which should be: (a) Specific to the organization and appropriate to its size and the nature of its activities; (b) Concise, clearly written, dated and made effective by the signature or endorsement of the employer or the most senior accountable person in the organization; (c) Communicated and readily accessible to all persons at their place of work; (d) Reviewed for continuing suitability; and (e Made available to relevant external interested parties, as appropriate. The guideline further states that OSH policy should include, as a minimum, the following key principles and objectives to which the organization is committed: (a) protecting the safety and health of all members of the organization by preventing work-related injuries, ill health, diseases and incidents; (b) complying with relevant OSH national laws and regulations, voluntary programmes, collective agreements on OSH and other requirements to which the organization subscribes; (c) ensuring that workers and their representatives are consulted and encouraged to participate actively in all elements of the OSH management system; and (d) continually improving the performance of the OSH management system.

Requirements of the safety and health policy reflect the workers and management commitment towards good organization‘s safety and health. Policy contains the elements of OSH policy and worker participation. It is the basis of the OSH management system as it sets the direction for the organization to follow.

There were very few studies on OSH in Ethiopia particularly on manufacturing industry. The development of manufacturing sector in Ethiopia is of course the recent phenomenon. Even though there is legislation and regulations, there is no strong body to reinforce the

implementation of legislation. Therefore this study relies on other developed countries study for empirical review.

2.2 Empirical Literature Review on OHS

2.2.1 Empirical Studies of OHS in other Countries

Bohle and Quinlan. (2000). find, in a study that the combination of physical, chemical, and organizational hazards can make seemingly ordinary tasks injurious to workers, particularly through the body stressing that can result from repetitive movements and constrained postures that may be required to carry out the same task for hours on end.

According to the study of Tombs and Whyte (2007). reported that Occupational stress is another hazard, particularly for jobs that are boring, monotonous, machine-paced, and where workers have very little control over the tasks they perform (list of hazards adapted from OHS sociologists have argued that modern workplaces and their economic, legal, and institutional underpinnings –produce violence structurally and systematically in the context of work" because of the prioritization of profit and production over the health and safety of workers and unequal power relations between workers and employers.

According to the study of Walters and Nichols (2009) found that participation is critical to improving OHS. However, workers, their organizations, sociologists, and historians have disputed the claim that workers and employers have a natural identity of interest on safety.

In addition to the above study, Walters et al. (2011) in his study found that the effectiveness of worker participation in improving safety depends on the presence of autonomous worker organization at a workplace level and on support from unions – which employers frequently oppose, and without which consultation can become a token exercise A comprehensive approach to reducing work related harm requires workers‟ participation in processes for

recognizing and modifying organizational and other hazards, supported by independent union organization and properly resourced OHS inspectorates.

2.2.2 Empirical Studies of OHS in Ethiopian

Mesfin Abera (2011) study on health policy and the extent of health information use in woreda health care system of arsi zone, oromia region in Ethiopia. In this study, the general utilization rate of information was found to be 32.1% in the case of general utilization of information the result support the idea of survey done on the integration of HMIS and M&E; information generation and use in line with guidelines improved over time, and their might have contributed to sustained improvement in health services coverage. The result of the study also showed data processing, analyzing, interpretation and problem solving are usually not given due attention and this affects the ability to use information.

According to the study of Sara Alemayehu(2010) on the title of Problems and Prospects of the Routine Health Information System in Ethiopia: the case of government health institutions in Addis Ababa. The result of this study was routine Health Information System processes such as data transmission, processing and analysis (47.6%), display of information (31.5%), data accuracy check (22.6%), and feedback (31.5%), which all help for the development of indicators that lead to information use are found to fall inadequate which implies that the level of use of information will also be inadequate.

According to the study of Seifedin sermoloa(2014) in his study entitled study of occupational safety and health in Ethiopian construction industry: a case study on Addis Ababa and Welkite. Discussion of Results shows that the standard of safety and health in the construction sector is very poor. The frequency of responses for the OSH questions by the engineers/foremen show that most of the construction companies do not have written safety policy. Similarly, the attention is not given by the construction companies regarding safety

officer and safety committee; unlike, the Article (60-61) of the labor proclamation no. 377/2003 of the FDRE that states the employer has an obligation to assign safety officer as well as establish an occupational safety and health committee. This implies that the construction companies do not implement the proclamation. The analysis also reveals that safety meetings are not conducted frequently and there is also poor provision and use of safety equipment_s. Because of the fact that there is weak safety and health condition in the construction industry, the engineers/foremen suggest strong government regulation for the implementation of safety and health standards (74% strongly agree).

In addition to the above study, Dagnachew Mohammed(2014) in his study entitled assessment of occupational health risks, outcomes and associated factors among floriculture farm workers, east showa, oromia region. The result finding showed that three hundred thirty workers participated in this study where 249(75.6%) of the workers had primary education or below. Two hundred seventy eight workers (84.24%) had at least one sign of occupational health symptoms. The most prevalent occupational health symptoms were fatigue 260(79.3%) followed by musculoskeletal health problems 209(63.3%), headache 193(58.7%), skin problems 189(57.3%), respiratory problems 148(45.5%), dizziness 86(26.2%), sleepiness 78(23.6%), kidney problem 77(23.3%), fainting 45(14%) and reproductive problems 10(3.4%). ix There was no job safety training given for workers at employment. This study found that workers who work as sprayers [AOR = 6.6, 95% CI (1.11-39.19)] had higher risk of occupational health symptoms and workers who were not satisfied by their job were less likely [AOR = 0.11, 95% CI (0.03-0.43)] to have had those disease symptoms. Conclusion: There were inadequate health and safety provisions such as health and safety education programs, personal protective equipments, health and safety instructions and first aid facilities, which make the workers at risk of occupational hazards.

Takele tadesse (2005) also, conducted the study to assessment of prevalence of work related injuries among small and medium scale industrial workers in north Gondar zone, Amahara regional state. In this study the results showed the overall annual prevalence rate of work related injury was 335/1000 exposed workers, with 355/1000 and 324/1000 among small and medium sale industrial workers, respectively. Fifty five (17.1%) of the injured respondents were hospitalized, accounting for 40% hospitalization more than 24 hours. One hundred and three (53.9%) of the injured respondents were absent from work for more than 3 days. There were 2 deaths as result of work related injuries in the last 12 months. The significant contributing factors for work related injuries in both industries were young age(<30 years) [adjusted OR: 1.41, 95 % CI: (1.03-1.93)],job categories, 5 years or less in the present job [OR: 1.53, 95 % CI: (1.12-2.08)] , working 48 hours or less per week [OR: 0.68, 95 % CI: (0.49, 0.94)] ,workplace supervision [OR: 0.61, 95 %CI: (0.45, 0.83)] ,sleep disorder[OR: 1.49, 95 %CI: (1.04,2.14)] and job satisfaction [OR: 0.59, 95 %CI: (0.43,0.83)] . Conclusion: Young age, job category, lack of experience, and sleep disorders were increased the risk of work related injuries. Working 48 hours or less, workplace supervision, and job satisfaction decreased the occurrence of work related injuries. Preventive measures concerning health and safety training, regular workplace supervision and establishment of vii active and functional occupational health and safety programmes are essential to safeguard the health and safety condition of workforce in small and medium scale industries.

CHAPTER THREE

3. Research Methodology

The purpose of this chapter is to describe and justify the detail of research design and methodological procedures used to collect and analyze the data to address research questions. It presents the instruments and methods that were used in evaluating the implementation of Occupational Safety and Health Management Systems in Oromiya Steel Pipe Mil Company. The study sought to identify the magnitude, the sources and types of hazards, the level of practices of Occupational Safety and Health Management Systems and to investigate the factors that influenced implementation of the system in Oromiya Steel Pipe Mil Company.

3.1. Data Sources

To undertake this research, the researcher used both primary and secondary sources of data. In order to realize the target, the study used well-designed questionnaire as best instrument. This was completed by the managers/or employees of the company. Secondary data were collected from published and unpublished reports were referred to.

3.2. Data Collection Techniques

In this study, primary data were collected from employees /management of company, management member and director of Oromiya Steel Pipe Mil Company officials. The researcher has collected the primary data at the time of field survey.

To collect necessary information from the population, senses was carried out using questionnaire. One set of questionnaire containing both open-ended and close- ended types were designed and administered to a total of 11 managements of the company. The questionnaires prepared in English. Of course, the comment of experienced people was conducted prior to the survey. This has helped the researcher to see whether or not there were

any difficulties in relation to questionnaire and to modify based on the feedback of the comment to check the validity of the data that the researcher collected.

The secondary sources of data were gathered from files, pamphlets, office manuals, circulars and policy papers were used to provide additional information where appropriate. In addition, variety of books, journals, published and/or unpublished government documents, websites and reports were reviewed to make the study fruitful.

3.3. Study Design

This study adopted a descriptive research design. The advantage of this case study method is that it provided a great amount of description and detail about a particular case. This helps to set the groundwork for future studies. The other advantage is to offer more opportunities for the researcher that they would not have otherwise gotten.

3.4. Study Population

The target population for this study is employees and management working in Oromiya Steel Pipe Mill PLC. The total population of employees in Oromiya steel pipe mil were 138 of which 30 are females. The target population of this study are those at the management position, technicians and operation sections. There are 52 employees in operation and technicians sections and 11 on management positions. Since the target population are small the researcher considers all target employees for the study.

3.5. Data Collection procedure and Instruments

Both qualitative and quantitative data were collected during this course study. Primary data were collected through questionnaires from employees and managers of the industry. Secondary data were also collected from different documents. Open ended and close ended survey questionnaires were prepared and distributed for data collection. Data collection

instruments were adopted from different literature in the area. The data collection questionnaires have five parts. General information, magnitude of occupational hazards, causes of occupational hazards, level of implementation of OHSMS, and barriers in implementation of OHSMS.

3.6. Validity of Data collection Instrument

In order for results to be used in further research steps they must be valid and reliable. The researcher tested the validity of data collection instruments in the following ways:-

Validity

The researcher tried to adapt the instrument from different literatures which helps to assess OSHMS. To test the validity of survey questionnaire the researcher used content validity test. Five subject matter specialists in the area (Inspectors from MOLSA and University instructors) were provided to check for its validity.

Generally, in this approach, the panelists were invited to rate the items on a three-point scale (1= not necessary, 2= useful but not essential, and 3= essential), where ‗essential' items were the one that best represent the goal. The formula for computing the CVR, as originally proposed by Lawshe (1975), is expressed as:

$$\textbf{CVR}= \frac{ne- N/2}{N/2}$$

Where ne= number of panelists indicating ‗essential' and N= total number of panelists.

According to Lawshe (1975) minimum content validity ratio for 5 numbers of panellists CVR of 0.99 was acceptable. The survey measuring instrument for this research was 0.99 and is

valid. However based on comments of panellists some statements were rephrased and the layout of the questionnaires was modified so as to make easy for understanding.

3.7. Data Processing and Analysis

The findings of results of the study were interpreted with different statistical data analysis methods. The data processing was supported by SPSS statistical software version IBM 20. For the analysis of objective examinations of data which was derived from questionnaires descriptive statistical methods such as distributions, frequency, averaging mean and standard deviations were used. The findings were also compared with different standards for interpretations.

Chapter Four

Results and Discussion

4.1. Response Rate

The study was conducted in Oromiya Steel Pipe Mill PLC. The survey questionnaire was given to 63 respondents, of which 11 were distributed to employees at management position and 52 were distributed for subordinate. Among 63 questionnaires distributed 59 were returned which make response rate of 93.6%.

Table 1. Demographic Characteristics of employees at technician level

Variables	Categories	Frequency	Percent	Valid Percent	Cumulative Percent
Gender of Respondents	Male	33	68.8	68.8	68.8
	Female	15	31.3	31.3	100
Age of Respondents	Below 20	2	4.2	4.2	4.2
	20-30	32	66.7	66.7	70.8
	31-40	8	16.7	16.7	87.5
	41-50	4	8.3	8.3	95.8
	51 and above	2	4.2	4.2	100
Respondents educational level	Secondary	16	33.3	33.3	33.3
	Certificate	6	12.5	12.5	45.8
	Diploma or TVET	21	43.8	43.8	89.6
	Degree	5	10.4	10.4	100
Marital Status	Single	25	52.1	52.1	52.1
	Married	23	47.9	47.9	100
Respondents level of Income	2000-3000	18	37.5	37.5	37.5
	3001-5000	21	43.8	43.8	81.3
	5001-7000	6	12.5	12.5	93.8
	7001-9000	3	6.3	6.3	100
Nature of employment	Full time	46	95.8	95.8	95.8
	Part Time	2	4.2	4.2	100

Source: - own survey, 2016

4.2. Respondents Demographic Characteristics

The demographic characteristics of the sample respondents are presented in order to understand the work force of the industry in more detail and analysis the differences of OSH as a function of employee demographic variables. Out of 59 respondents, 27 % are female and 72 % are male. Respondents were also asked to indicate their age. Majority of the respondents‘ were in the range of age group 20-30 years (66.7%) for technicians and operators while the age category for management and OSH representatives is in the range of 41-50 years (54.5%). The detail was given in Table 1. When participants were asked about their highest level of education they have achieved, 43.8% of the respondents are TVET or diploma levels followed by the 33.3%. High school level completed. But the majority of employees working in management and OHS related (45.5%) holds first degree while 27.3% and 18.2% were Diploma/TVET and second degree holders respectively. Among respondents 47.9 % are married and the remaining 53.1% are single. However, 81.8% of the respondents from top management OSH representatives are married while 18.2% of them were single.

Regarding income level of technicians and operation staffs, about 43.8% earn salary ranges between 3001 and 5000 Ethiopian Birr per month while 37.5% earns salary ranges between 2000 and 3000 Ethiopian Birr per month. The remaining employees earn above 5000 Birr per month. When we conceder the income level of Management staffs and OHS representatives, 45.5% of them earns salary within the range of 5,000 and 7,000 while the same percentage earns above 11,000 ETB per month. Only one staffs in the management category earn salary within the range of 7,000 and 9,000 ETB per month. Almost above 95% of technician and operation staffs as well as 100% of management and OHS representatives working in this organization are full time workers. The details are shown in Table 1.

One can generalize that there are more male than female in this organization due to the nature of work as it need excess energy and capacity to stand with it. Moreover, majority of the staffs working in operation and technical areas were very productive age group and the young staffs while managers were more occupied by adults having long experience to take action. Oppositely, the qualification of staffs working in operation and technical areas need attention as most of them were below first degree holders while managers and OHS representatives were first degree and above. In addition to these one can conclude that majority of the staffs earns good salary level even though they did not get married. This needs other investigation. Especially, the salary of managers and OSH representatives are attractive to maintain them in the organization for longer period of time according to the national standards.

Table 2:- Magnitude of Occupational Hazards

Variables	Categories	Frequency	Percent	Valid Percent	Cumulative Percent
Have you ever fallen ill at your work place	Yes	16	33.3	33.3	33.3
	No	32	66.7	66.7	100
If Yes for question number 1, do you relate the encountered illness to the work you do	Yes	13	81.3	81.3	81.3
	No	3	18.8	18.8	100
Did you face previous industrial injuries	Yes	23	47.9	47.9	47.9
	No	25	52.1	52.1	100
What Measures were taken by Employer?	First aid given	1	4.3	4.3	4.3
	Taken to Hospital	16	69.6	69.6	73.9
	No action Taken	6	26.1	26.1	100
Do hazardous substance are used in the work process	Yes	16	33.3	33.3	33.3
	No	32	66.7	66.7	100
Does the organization has a system to manage hazardous substance	Yes	16	33.3	33.3	33.3
	No	32	66.7	66.7	100
How do rate the efficiency of your working Machines /Tools /equipment	Fair	8	16.7	16.7	16.7
	Good	25	52.1	52.1	68.8
	Excellent	15	31.3	31.3	100
Do first aid room available in your organization?	Yes	19	39.6	39.6	39.6
	No	29	60.4	60.4	100

Source: - own survey, 2016

4.3. Magnitude of Occupational Hazards

Among the total experts working in this company 33.3% (n=16) exposed to different health problems while they were on work. Of those who faced challenge, more than three fourth (81.3% n=13) encountered illness related to the work they engaged in. According to the responses of the respondents 47.9% (n=23) faced industrial injuries in the previous period. Out of 23 those faced injuries, 60.9% (n=14) fallen sick again in their work place.

When the staffs working in this organization faced health problem related to the work, nearly about two third (69.6%, n=16) were taken to hospital, one person was given first aid at work place by trained staff and the remaining 26.1% (n=6) did not get any response that expected to be given for injured person.

In relation to using hazardous substances in the work place, about two third (66.7% n=32) responded that the company did not use hazards substance while the remaining responded that there is hazardous substances used in the factory in class they assigned to work. However, most respondents indicated that the organization has systems that enable to manage hazardous substances. In order to reduce the impact of injuries availability of first aid rooms was interrogated. More than half of the respondents responded that there is no room for first aid services in the company while 39.6% (n=19) feel that there is rooms for first aid in the company. This descipancy might have been due to lack of awareness and knowledge about first aid.

Moreover, when respondents were asked to rate the efficiency of their working machines /tools /equipment to assess its lack contributing to increase 16.7% (n=8) rated efficiency of their working machine as fair, 52.1% (n=25) rate the efficient of their tool as good while the remaining 31.3% rated the efficient of their machine as excellent.

In relation to this, company‘s top management and OHS representatives were requested about whether the company has a formal system of reporting, recording and investigation of incidents, injuries and illness or not. About 54.5% of the management reported that the company has a formal system of reporting, recording and investigation of incidents, injuries and illness while 45.5% reported that the company has no formal system of reporting, recording and investigation of incidents, injuries and illness. This shows that even within the company, there is different level of understanding and can be conclude that the company has very poor formal system of reporting, recording and investigation of incidents, injuries and illness. Hence, it needs to enhance the system for effective reporting, recording and investigation of incidents, injuries and illness. Moreover, only 36.4% of the top management and OHS representatives involved in various types of OHS management. This indicates that there is limited participation of top management and OHS representatives on the issues.

Table 3:- Cross tabulation of ever fallen ill at work place vs face previous industrial injuries

			Did you face previous industrial injuries		Total
			Yes	No	
Have you ever fallen ill at your work place	Yes	Count	14	2	16
		% of Total	29.2%	4.2%	33.3%
	No	Count	9	23	32
		% of Total	18.8%	47.9%	66.7%
Total		Count	23	25	48
		% of Total	47.9%	52.1%	100.0%

Source: - own survey, 2016

As shown in table 3 above, 29.2% (n=14) who previously injured also experienced injury in this organization too while 4.2 %(n=2) developed injury in this organization having not injured in previous industries. However, 18.8% (n=9) who injured in previous industry did

not develop any injury in this company. On the other hand about half that did not injured in previous industries also were not exposed to any injuries while there were in this company. This confirmed that hiring previously injured technician and operation staffs have higher risk of having injuries in this organization too. Therefore, the organization is advised to check previous history of staffs before hiring them as their staff.

Table 4:- Cross tabulation efficiency rate the working Machines /Tools /equipment vs Gender of Respondents

			Gender of Respondents		Total
			Male	Female	
How do rate the efficiency of your working Machines /Tools /equipment	Fair	Count	7	1	8
		% of Total	14.6%	2.1%	16.7%
	Good	Count	15	10	25
		% of Total	31.2%	20.8%	52.1%
	Excellent	Count	11	4	15
		% of Total	22.9%	8.3%	31.2%
Total		Count	33	15	48
		% of Total	68.8%	31.2%	100.0%

Source: - own survey, 2016

4.3. Level of engagement of top management and OSH representatives in Hazard Identification and Management

Top management and OSH representatives asked on hazard identification and management of the hazards in the company. Accordingly, when top managements asked whether the company has a system to manage hazardous substance or not, about 54.5% of them responded that the company do not have system to manage hazardous substances. In addition to this, not all the interviewed top management and OHS representatives carry out examinations to identify not only the existing hazards but also conditions and operations

where changes might occur to create hazards. Similarly, a question was raised to them whether safety inspection program is in place for the organization's of the respondents 81.8% (n=9) reported that there is no any safety inspection program in place for the organization's work activities and work places.

One major concern from top management and OSH representatives was job hazard analysis for work. According to response obtained from this category 54.5% were engaged in job hazard analysis for work while 45.5% have no direct engagement in it. In addition to this, top management and OSH representatives are expected to assess safety inspection in work areas. As per the response obtained from the higher officials 90.9% of them reported not participating on safety inspection while only 9.1% (n=1) participated on it. Furthermore, the officials were asked whether they have engaged in facilitating or providing safety training for newly revised safety work procedures or not. As per the direct response obtained from them, only 18.2% (n=2) of the top officials were participated on facilitating or providing safety training for newly revised safety work procedures while majority of the higher officials participated on the interview were not participated on facilitating or providing safety training for newly revised safety work procedures. Moreover, higher officials were also asked whether they have expected level of participation in developing and implementing plans for improving OHS or not. As per the result of the question, less than half (45.5%) of the higher officials have the expected level of participation in developing and implementing plans for improving OHS while 54,5% have no any participation in this regard. Hence, it is required to take necessary action to increase participation of higher officials in developing and implementing plans for improving OHS. Never the less, higher officials of the company were not promoting occupational safety and health training for employees as 72.7% of the respondents said that they were not engaged in it.

To cross check the existence of health and safety policy and manual, management and OHS representatives were asked on the issue. Majority of the respondents (n=9, 81.8%) responded that there were no any written health policy and safety and manual in the company. Moreover the top managements replied that there was no any health and safety committee established in the company to promote health and safety policy issues. In addition to this majority of management and OHS representatives (81.8%) said that they did not communicate to the employees and other interested parties about OHS policy issues.

The researcher also tried to investigate the commitment of higher officials in the organization for the improvement of OHS performance. As per the response obtained from respondents, about 72.7% of the higher officials were committed for continuous improvement of OHS performance while 27.3% (n=3) were not. Likewise, the higher officials were asked their engagement in providing the employees with prescribed means and personal proactive medical examination. All of them were engaged in providing the employees with prescribed means and personal proactive medical examination. Not only this but also the higher officials were asked how they refer employees at work place with high risk earlier and periodic medical examination. Only 36.4% (n=4) refer employees with high risk earlier and periodic medical examination while the remaining did not do it as early as possible.

As the company has high risk of treating life provision and availability of first aid necessary. Top management and officials were expected to guide employees working in the organization to be trained on first aid provision. When the higher officials were asked about provision of the first aid and appropriate number of employees trained in first aid, only 27.3% of them played significant role in provision of the first aid and appropriate numbers of employees were trained in first aid while the rest did not participate in the training. Besides, when the higher officials were asked whether labor union and employees representatives have a role in

OSHMS or not only 30.0% were engaged in promoting labor union and employees' representatives to have a role in OSHMS. But the majority of officials did not take the leading role in this aspect. Detail of this is given in annex 1.

4.4. Cause of Occupational Hazards

Occupational hazards are hazards that encounter employees on their job while executing or implementing occupation. Especially in the areas of industries, many hazards occurred. As a result, probability of exposure to hazards is high in those areas. Therefore, identifying possible hazards and take appropriate measures is important. Hence, this part would try to identify potential hazards and outline measures to be taken to reduce the impact of those hazards on employees working in Oromiya Steel factory. The following hazards were taken into consideration.

Table 5:- Assessment of Physical Hazards

Variables	Categories	Frequency	Percent	Valid Percent	Cumulative Percent
Too much Noise	Yes	24	50	50	50
	No	24	50	50	100
Too Much Vibrations	Yes	7	14.6	14.6	14.6
	No	41	85.4	85.4	100
Too Much or Low light	Yes	8	16.7	16.7	16.7
	No	40	83.3	83.3	100
Too much heat	Yes	8	16.7	16.7	16.7
	No	40	83.3	83.3	100
Too much cold	Yes	9	18.8	18.8	18.8
	No	39	81.3	81.3	100
Too much pressure	Yes	5	10.4	10.4	10.4
	No	43	89.6	89.6	100
Too much Hazards	Yes	6	12.5	12.5	12.5
	No	42	87.5	87.5	100
Too much dust	Yes	40	83.3	83.3	83.3
	No	8	16.7	16.7	100

Source: - own survey, 2016

4.4.1. Physical Hazards

One of the causes of occupational hazards is physical hazards. Among the physical hazards Noise, vibration, much or low light system, much heat or cold, industrial pressures, dusts and others were taken into account to know their impact on employees in this factory. According to the respondents‘ response, too much noise is 50-50 percent while too much vibration is not the physical hazards for about 85.4% of the respondents. Similarly, too much or low light, too much heat or cold, too much pressure and too much hazards are not considered as physical hazards for 83.3%, 83.3%, 81.3%, 89.6% and 87.5% of the respondents respectively. However, too much dust is the major concern of physical hazard for 83.3% (n=40) employees of the organization. Hence, the organization is expected to improve and implement dust controlling mechanism in the company. The survey results also indicate that because of light injuries yearly there were workers who were absent from their duties.

Table 6:- Assessment result of Chemical hazards

Variables	Categories	Frequency	Percent	Valid Percent	Cumulative Percent
Presence too much dusts	Yes	35	72.9	72.9	72.9
	No	13	27.1	27.1	100
Presence of Mist	Yes	6	12.5	12.5	12.5
	No	42	87.5	87.5	100
Toxic Gas Hazards	Yes	4	8.3	8.3	8.3
	No	44	91.7	91.7	100
Fumes	Yes	18	37.5	37.5	37.5
	No	30	62.5	62.5	100
Vapors	Yes	5	10.4	10.4	10.4
	No	43	89.6	89.6	100
Dangerous Chemicals	Yes	5	10.4	10.4	10.4
	No	43	89.6	89.6	100
X-rays ,or radiation	Yes	20	41.7	41.7	41.7
	No	28	58.3	58.3	100

Source: - own survey, 2016

4.4.2. Chemical Hazards

In industries using chemicals for producing outputs, chemical hazards are considered as vital occupational hazards as the impact resulted in death if not utilized properly. Among others, the following chemical hazards were assessed in this research: - Present of mists, toxic gas hazards, fumes, vapors, dangerous chemicals, X-ray or radiation.

Accordingly, the presence of mist, toxic gas hazards, fumes vapors, dangerous chemicals and X-ray or radiation is not chemical hazards for about 87.5%, 91.7%, 62.5%, 89.6%, 89.6% and 58.3% respectively. On contrary, presence of much dust is concern for 72.9% of the respondents. In addition to this, fume hazards also need to take into consideration as 37.5% of the respondents have fear of its impact in the company.

Table 7:- Assessment result of Biological hazards

Variables	Categories	Frequency	Percent	Valid Percent	Cumulative Percent
Bacteria	Yes	3	6.3	6.3	6.3
	No	45	93.8	93.8	100
Fungal	Yes	3	6.3	6.3	6.3
	No	45	93.8	93.8	100
Viral	Yes	3	6.3	6.3	6.3
	No	45	93.8	93.8	100
Lack of adequate toilet Facility	Yes	32	66.7	66.7	66.7
	No	16	33.3	33.3	100
Biological agents of infectious disease	Yes	7	14.6	14.6	14.6
	No	41	85.4	85.4	100

Source: - own survey, 2016

4.4.3. Biological Hazards

In many industrial companies, biological hazards are common due to the fact that all industries use biochemical reagents to facilitate reaction and speed up the production. As Oromiya Steel Pipe Mil PLC is one of the industrial companies, using biochemical reagents was mandatory. The researcher tried to identify biological hazards that may relate to the process of the company and raised a number of questions to the respondents. The respondents‘ response has been summarized in Table 7 as given above. As shown in Table 7, all biological hazards are not the concern of the majority of the respondents‘ except lack of adequate toilet facilities reported by 66.7% (n=32).

Table 8:- Assessment result of Ergonomic hazards

Variables	Categories	Frequency	Percent	Valid Percent	Cumulative Percent
Visual Conditions	Yes	19	39.6	39.6	39.6
	No	29	60.4	60.4	100
Strenuous Work	Yes	21	43.8	43.8	43.8
	No	27	56.3	56.3	100
Control and Tools	Yes	24	50	50	50
	No	24	50	50	100
Bad work design shift of work	Yes	10	20.8	20.8	20.8
	No	38	79.2	79.2	100
Risk of physical strain	Yes	27	56.3	56.3	56.3
	No	21	43.8	43.8	100

Source: - own survey, 2016

4.4.4. Ergonomic Hazards

An ergonomic hazard is a physical factor within the environment that harms the musculoskeletal system. Ergonomic hazards include themes such as repetitive movement, manual handling, workplace/job/task design, uncomfortable workstation height and poor body positioning. As Oromiya Steel Pipe Mil PLC is one of the industrial companies, it is

exposed to many kinds of Ergonomic hazards. The researcher tried to identify ergonomic hazards that may relate to the process of the company and include the questionnaire responded by respondents. According to the response obtained from respondents, all identified ergonomic hazards are not the concern of the company as more than half of the respondents said ***No*** for those factors except risk of physical strains which is responded Yes by 56.3% (n=27)of the respondents. Even though the respondents' response that says No is above 50%, the percentage did not exceed 60% for majority of the variables. Hence, the company is advised to work on ergonomic hazards to reduce the impact before it resulted in critical situation. Detail response of respondents' is summarized by Table 8.

Table 9:- Assessment result of Psychological factors

Variables	**Categories**	**Frequency**	**Percent**	**Valid Percent**	**Cumulative Percent**
Awkward pressure and/or repetitive motion	Yes	14	29.2	29.2	29.2
	No	34	70.8	70.8	100
Unsafe Equipment's or machinery	Yes	18	37.5	37.5	37.5
	No	30	62.5	62.5	100
Too much work outside working hours	Yes	5	10.4	10.4	10.4
	No	43	89.6	89.6	100
Lack of facilities or access	Yes	30	62.5	62.5	62.5
	No	18	37.5	37.5	100
Mental stress due to work	Yes	8	16.7	16.7	16.7
	No	40	83.3	83.3	100
Risk of eye strain	Yes	29	60.4	60.4	60.4
	No	19	39.6	39.6	100

Source: - own survey, 2016

4.4.5. Psychological factors

Work-related stress has the potential to negatively affect an individual's psychological and physical health, as well as an organization‘s effectiveness. Therefore, it is recognized world-wide as a major challenge to workers' health and the health of their organizations.

For many working people it is all too frequent that the working environment is where they spend most of their working hours. According to a number of surveys, many perform activities that they perceive as demanding, constraining, and otherwise stressful. Mental health problems and other stress-related disorders are recognized to be among the leading causes of early retirement from work, high absence rates, overall health impairment, and low organizational productivity.

As Oromiya Steel Pipe Mil PLC is one of the industrial companies, psychological, stress is one of health related factors. The researcher tried to identify psychological hazards that may relate to the process of the company and interrogate serious questions of respondents. The respondents‘ response is summarized by Table 9 given above. As shown in the Table 9, all psychological hazards are not the concern of the majority of the respondents‘ except lack of facilities or access and Risk of eye strain reported by 66.7% (n=32) and 60.4% (n=29) respectively.

4.5. Level of Implementation of OHSMS

5. Table 10:- Result of leadership

Variables	Categories	Frequency	Percent	Valid Percent	Cumulative Percent
Top Management implements a written policy supporting and mandating the safety and health management system	No action	18	37.5	37.5	37.5
	Strongly Disagree	7	14.6	14.6	52.1
	Disagree	5	10.4	10.4	62.5
	Agree	11	22.9	22.9	85.4
	Strongly Agree	7	14.6	14.6	100
Company management defines effective worker health and safety goals and expectation for the program	No action	12	25	25	25
	Strongly Disagree	13	27.1	27.1	52.1
	Disagree	8	16.7	16.7	68.8
	Agree	9	18.8	18.8	87.5
	Strongly Agree	6	12.5	12.5	100
Top and company management assigns responsibility and accountability for implementation and maintenance of the program	No action	13	27.1	27.1	27.1
	Strongly Disagree	10	20.8	20.8	47.9
	Disagree	8	16.7	16.7	64.6
	Agree	10	20.8	20.8	85.4
	Strongly Agree	7	14.6	14.6	100
Company management effectively communicates its worker health and safety goals and expectations to all those working for or on behalf of the organization	No action	14	29.2	29.2	29.2
	Strongly Disagree	15	31.3	31.3	60.4
	Disagree	5	10.4	10.4	70.8
	Agree	8	16.7	16.7	87.5
	Strongly Agree	6	12.5	12.5	100
When supervisors see an employee working in an unsafe manner , they immediately take action to correct the employee	No action	4	8.3	8.3	8.3
	Strongly Disagree	13	27.1	27.1	35.4
	Disagree	6	12.5	12.5	47.9
	Agree	17	35.4	35.4	83.3
	Strongly Agree	8	16.7	16.7	100

6. Source: - own survey, 2016

6.1.1. Management of Leadership

In any organization, management of leadership is very important for good result or output of the products. In relation to this, a number of questions were posed to employees working in Oromiya Steel Pipe Mil PLC. The results are summarized in Table 10. Accordingly, 37.5% of

the respondents replied that there is no action from top management about implementing a written policy supporting and mandating the safety and health management system. About 25.0% (14.6% strongly disagree and 10.4% disagree) did not agree about using or implementing a written policy supporting and mandating the safety and health management system from top management whereas the remaining 37.5% agree (22.9% agree and 14.6% strongly agree) about using or implementing a written policy supporting and mandating the safety and health management system from top management in the company. This shows that majority of the workers in this company are not aware about using or implementing a written policy supporting and mandating the safety and health management system from top management.

Similarly, when we assess how the company management defines effective worker health and safety goals and expectation for the program, about 25% did not know how it is defined or has no knowledge about the action on the issue. But about 27.1% and 16.7% of the respondents strongly disagree and disagree with definition about effective worker health and safety goals and expectation for the program respectively while the remaining 18.8% and 12.5% of the respondents agree and strongly agree with the definition respectively.

In addition to the aforementioned facts, the employees of the company also asked about assignments of responsibility and accountability for implementation and maintenance of the program by the top and company management. According to the respondents‘ response, 27.1% of them said that the industry has not taken the required action-in this regards. But 20.8% and 16.7% of the respondents reported that they strongly disagree and disagree respectively about assignments of responsibility and accountability for implementation and maintenance of the program by the top and company management while 20.8% and 14.6% of the respondents agree and strongly disagree on the issues respectively. This shows that more than half of the employees in the company did not know about assignments of responsibility

and accountability for implementation and maintenance of the program by the top and company management. Hence, it requires strong commitment to aware staffs working in the organization about assignments of responsibility and accountability for implementation and maintenance of the program by the top and company management.

Besides this, the researcher also asked whether the company management effectively communicates its worker about health and safety goals and expectations to all staffs working in the organization on behalf of the company or not. According to the respondents report, 29.2% of them said that there is no action taken by the company. However, 31.3% and 10.4% of the respondents reported that they strongly disagree and disagree respectively about health and safety goals set by the company. Opposite to this 16.7% and 12.5% of the respondents reported that they agree and strongly agree respectively that the company management effectively communicate about health and safety rules on behalf of the company. Hence, the top management was expected to work strongly on health and safety goals and expectations to all staffs on behalf of the organization by company management.

In relation to management leadership, staffs of the company also asked whether the supervisors take immediate action to correct the employee when an employee is working in an unsafe manner or not. According to the respondents report, 8.3% said that the supervisors did not take any action when an employee is working in an unsafe manner. But 27.1% and 12.5% of the respondents strongly disagree and disagree about actions taken by supervisor when an employee is working in an unsafe manner. On the other hand, 35.4% and 16.7% of the respondents agree and strongly agree respectively with the action the supervisor taken when an employee is working in an unsafe manner. This shows that more than half of the staffs agree with the supervisors that they have taken immediate actions when an employee is working in an unsafe manner. Detail information about management of leadership is given in table 10 above.

Table 11:-Employees participation

Variables	Categories	Frequency	Percent	Valid Percent	Cumulative Percent
The company involves employees in defining and developing the worker health and safety program structure	No action	13	27.1	27.1	27.1
	Strongly Disagree	12	25	25	52.1
	Disagree	5	10.4	10.4	62.5
	Agree	12	25	25	87.5
	Strongly Agree	6	12.5	12.5	100
Employees are active in participating in hazard detection , prevention and control activities	No action	13	27.1	27.1	27.1
	Strongly Disagree	11	22.9	22.9	50
	Disagree	7	14.6	14.6	64.6
	Agree	7	14.6	14.6	79.2
	Strongly Agree	10	20.8	20.8	100
Employees know how to report and consistently report observed injuries ,illness ,hazards and concerns including good catches /near misses	No action	7	14.6	14.6	14.6
	Strongly Disagree	9	18.8	18.8	33.3
	Disagree	14	29.2	29.2	62.5
	Agree	11	22.9	22.9	85.4
	Strongly Agree	7	14.6	14.6	100
The company acknowledges reports of injuries ,illnesses ,hazards or other concerns promptly	No action	4	8.3	8.3	8.3
	Strongly Disagree	18	37.5	37.5	45.8
	Disagree	4	8.3	8.3	54.2
	Agree	14	29.2	29.2	83.3
	Strongly Agree	8	16.7	16.7	100
The company involves employees representatives in workplace health and safety risk assessment ,inspection and incident investigation	No action	22	45.8	45.8	45.8
	Strongly Disagree	5	10.4	10.4	56.3
	Disagree	9	18.8	18.8	75
	Agree	3	6.3	6.3	81.3
	Strongly Agree	9	18.8	18.8	100

Source: - own survey, 2016

6.1.2. Employee Participation

The researcher also investigates about employees‘ participation in the implementation of occupational health and safety management system (OHSMS). Among question raised to the respondents to reply was to whether the company involves employees in defining and developing the worker health and safety program structure or not. About 27.1% of the respondents report that they did not know about the action the company‘s has taken in defining and developing the workers health and safety program structure. However, 25.0% and 10.4% of the respondents strongly disagreed and disagreed that the company did not involve them in defining and developing the worker health and safety program structure respectively. But 25% and 12.5% of the respondents reported that they agreed and strongly agreed that the company involves them in defining and developing the worker health and safety program structure.

To know how the employees of the company are actively participating in hazard detection, prevention and control activities, a question related to this issue was included in the questionnaire. As per the respondents‘ report, 27.1% of them said that no action was taken by the company to actively participating in hazard detection, prevention and control activities. But 22.9% and 14.6% of the respondents reported that they strongly disagreed and disagreed respectively that the company did not play a significant role in participating the employee in hazard detection, prevention and control activities. However, 14.6% and 20.8% agreed and strongly agreed that employees are active participate in hazard detection, prevention and control activities respectively. From this one can realize that majority of the staffs agreed with that they are actively participating in hazard detection, prevention and control activities.

Employees working in this company were also asked whether they know how to report consistently when they observed injuries, illness and other hazards including good catches

/near misses. According to the responses obtained from respondents about 14.6% said that they do not know what action to be taken when they observe injuries, illness others hazards in their work place. On the other hand, 48% disagree (18.8% strongly disagreed and 29.2% disagreed) that they did not know how to report consistently when they observed injuries, illness and other hazards including good catches where as 37.5% (22.9% agreed and 14.6% strongly agreed) that they know how to report consistently when they observed injuries, illness and other hazards including good catches. This shows that majority of the staffs working in the company did not know how to report consistently when they observed injuries, illness and other hazards including good catches.

Moreover, participants were also asked whether the company acknowledges reports of injuries, illnesses, hazards or other concerns promptly based on the report they received. Accordingly, 8.3% of the staffs working in this company replied on the action the company takes when they received reports of injuries, illnesses, hazards or other concerns. On top of this, 45.8% did not agree with the fact that the company acknowledges reports of injuries, illnesses, hazards or other concerns promptly. But similar proportions (45.9%) of the staffs agree with that the company acknowledges reports of injuries, illnesses, hazards or other concerns promptly. Hence, the company has to work strongly to bring those do not know the issues through trainings.

On top of the aforementioned issues, technician and operation staffs also asked about the involvement of the employees‘ representatives in workplace on health and safety risk assessment, inspection and incident investigation processes. The result of the interview shows that 45.8% of the respondents did not know what action the company has taken during health and safety assessment as well as during inspection and incident investigation process. But only 29.2% disagree (10.4% strongly disagreed and 18.8% disagreed) with the issues while only 25.1% in general agree (6.3% agreed and 18.8% strongly agreed) with the fact that the

company involves employees representatives in workplace on health and safety risk assessment, inspection and incident investigation. Therefore, the company is advised strongly to work on how to involve employees‘ representatives in workplace on health and safety risk assessment, inspection and incident investigation.

Table 12:-Assessment result of Hazard Identification

Variables	Categories	Frequency	Percent	Valid Percent	Cumulative Percent
The company regularly inspects the work place physical environment to identify conditions that pose or could pose a worker safety or health concern and informs workers of hazards happened	No action	6	12.5	12.5	12.5
	Strongly Disagree	23	47.9	47.9	60.4
	Disagree	10	20.8	20.8	81.3
	Agree	4	8.3	8.3	89.6
	Strongly Agree	5	10.4	10.4	100
Managers ask employees about workers hazards and safety concerns in their work areas during round	No action	5	10.4	10.4	10.4
	Strongly Disagree	21	43.8	43.8	54.2
	Disagree	7	14.6	14.6	68.8
	Agree	9	18.8	18.8	87.5
	Strongly Agree	6	12.5	12.5	100
Company investigates incidents to identify any hazards previously unrecognized or inadequately controlled.	No action	11	22.9	22.9	22.9
	Strongly Disagree	20	41.7	41.7	64.6
	Disagree	6	12.5	12.5	77.1
	Agree	6	12.5	12.5	89.6
	Strongly Agree	5	10.4	10.4	100
Company conducts all inspections and exposures assessments required by OSHA standard	No action	16	33.3	33.3	33.3
	Strongly Disagree	11	22.9	22.9	56.3
	Disagree	11	22.9	22.9	79.2
	Agree	3	6.3	6.3	85.4
	Strongly Agree	7	14.6	14.6	100
Company identifies hazards associated with emergencies and non-routine operations	No action	21	43.8	43.8	43.8
	Strongly Disagree	14	29.2	29.2	72.9
	Disagree	4	8.3	8.3	81.3
	Agree	6	12.5	12.5	93.8
	Strongly Agree	3	6.3	6.3	100

Source: - own survey, 2016

Hazard Identification

Identifying hazards enable the company to take measures on it to safeguard the staffs working there. In relation to this, the following questions were administered accordingly. Respondents were asked how regularly the company inspects the work place physical environment to identify conditions that pose or could pose a worker safety or health concern and informs workers about hazards happened. As per the reports of the respondents, 12.5% of the respondents said that the company did not take any action on the issue. But about 47.9% strongly disagree while 20.8% also disagreed about regularly inspecting of the work place physical environment to identify conditions that pose or could pose the workers safety. However, only 8.3% and 10.4% of the respondents agree and strongly agree with regularly inspecting the work place physical environment to identify conditions that pose or could pose the workers safety respectively. This shows that majority of the respondents disagree with regularly inspecting the work place physical environment to identify conditions that pose or could pose the workers safety. Hence, it needs the guidance from top management to regularly inspect the work place physical environment to identify condition that may pose work safety and health issues.

On top of this, the respondents were also asked whether the managers ask employees about workers hazards and safety concerns in their work areas. According to respondents report, about 10.4% did not know what action the managers are taking about hazards and safety concern in their work areas. On the contrary, about 43.8% of the respondents strongly disagree while 14.6% disagree with the actions the managers take place about hazards and safety concern in their work areas. But 31.3% of the respondents (18.8% agree and 12.5% strongly agree) are in favor of the actions being taken by the managers on hazards and safety concern related issues in their work areas. Anyone can conclude from the above information

that managers may not ask or discuss with the employees about work hazards and safety concern in their work areas.

Respondents were also asked how incidents were investigated to identify any hazards previously unrecognized or inadequately controlled in the company. As per the respondents report, 22.9% did not know what actions to be taken by company to investigate incidents and any hazards previously unrecognized or inadequately controlled. But 41.7% did strongly disagree while 12.5% disagreed how the company investigate incidents and any hazards previously unrecognized or inadequately controlled. Opposite to this only 12.5% and 10.4% agreed and strongly agreed on how the company investigates incidents and any hazards previously unrecognized or inadequately controlled. One can generalize that majority of the staff members working in this company were not aware of how the company investigate incidents and any hazards previously unrecognized or inadequately controlled.

On top of this, the researcher also tried to address how company conducts all inspections and exposures assessments required by OSHA standard. Accordingly, 33.3% of the respondents did not know or what action the company would undertake while conducting all inspections and exposures assessments required by OSHA standard. But 22.9% of the respondents strongly disagree that the company is not conducting it well following by OSHA standard while the same proportion also disagreed with it. Opposite to this only 6.3% and 14.6% agreed and strongly agreed with all inspections and exposures assessments required is conducted as per the OSHA standard. From this we can conclude that more than three fourth of the company staff members reported disfavor of the fact that all inspections and exposures assessments required is not conducted as per the OSHA standard.

In relation to hazard identification, the researcher also included question about how company identifies hazards associated with emergencies and non-routine operations. According to respondents report 43.8% of them do not know how the company identifies hazards

associated with emergencies and non-routine operations or actions taken. Moreover, 29.2% and 8.3% of the respondents reported that they strongly disagreed and disagreed respectively on how company identifies hazards associated with emergencies and non-routine operations. But 12.5% and 6.3% respectively agreed and strongly agreed with the method the company identifies hazards associated with emergencies and non-routine operations. This shows that there is a major gap on creating awareness between company‘s staffs‘ to identify hazards associated with emergencies and non-routine operations.

Table 13:-Assessment result of Hazard Prevention and Control

Variables	Categories	Frequency	Percent	Valid Percent	Cumulative Percent
Company has a hazard control plan in place and we keep it up to date	No action	12	25	25	25
	Strongly Disagree	16	33.3	33.3	58.3
	Disagree	10	20.8	20.8	79.2
	Agree	3	6.3	6.3	85.4
	Strongly Agree	7	14.6	14.6	100
All controls required by applicable OSHA standards are in place.	No action	15	31.3	31.3	31.3
	Strongly Disagree	15	31.3	31.3	62.5
	Disagree	7	14.6	14.6	77.1
	Agree	6	12.5	12.5	89.6
	Strongly Agree	5	10.4	10.4	100
The company promptly installs controls when a hazard is identified.	No action	16	33.3	33.3	33.3
	Strongly Disagree	13	27.1	27.1	60.4
	Disagree	10	20.8	20.8	81.3
	Agree	3	6.3	6.3	87.5
	Strongly Agree	6	12.5	12.5	100
The company has informed employees of the controls implemented and planned for hazards they may face	No action	11	22.9	22.9	22.9
	Strongly Disagree	18	37.5	37.5	60.4
	Disagree	9	18.8	18.8	79.2
	Agree	4	8.3	8.3	87.5
	Strongly Agree	6	12.5	12.5	100
Employees are provided with prescribed means and personal protective gear	No action	11	22.9	22.9	22.9
	Strongly Disagree	17	35.4	35.4	58.3
	Disagree	8	16.7	16.7	75
	Agree	7	14.6	14.6	89.6
	Strongly Agree	5	10.4	10.4	100

Source: - own survey, 2016

Hazard Prevention and Control

Hazards might occur suddenly or gradually. Even though it is not possible to eradicate any hazards, it is possible to prevent or minimize the impact and control it if there is strong prevention and controlling mechanisms. Especially, in industry areas, hazards are common. As a result, the researcher includes hazard prevention and control assessment questions. Among others, the following were asked and the result is summarized in Table 12.

Respondents were asked that whether the company has a hazard control plan in place and keep it up to date. As per the respondents report, 25% didn‘t know whether the company has a hazard control plan in place and keep it up to dated. Besides this 33.3% and 20.8% of the respondents strongly disagreed and disagreed respectively with the statement saying that the company has a hazard control plan in place and keep it up to date. On contrary, 6.3% and 14.6% of the respondents agreed and strongly agreed with the company has a hazard control plan in place and keeps it up to date.

Similarly, respondents were asked whether all applicable OSHA standards and required control were in place to reduce the impact of hazards. According to the response of the respondents, 31.3% did not know whether all applicable OSHA standards and required control were in place to reduce the impact of hazards. About 31.3% and 14.6% of the respondents strongly disagree and disagree respectively that all applicable OSHA standards and required control in place to reduce the impact of hazards. However, 12.5% and 10.4% of the respondents agree and strongly agree that all applicable OSHA standards and required control were in place to reduce the impact of hazards respectively. The responses obtained from respondents‘ shows that the majority do not know whether all applicable OSHA standards and required control were in place or not. Therefore strong awareness creation is required.

As it is impossible to totally avoiding hazards, there is a need to install controlling mechanisms to reduce the impact. In relation to this, respondents were asked whether the company promptly installs controls when a hazard is identified or not. According to respondents report, 33.3% did not know whether the company promptly installs controls when a hazard is identified**.** About 27.1% and 20.8% of the respondents strongly disagree and disagree respective with the statements saying that the company promptly installs controls when a hazard is identified. However, 6.5% and 12.5% of the respondents agree and strongly agree respectively with the statements saying that the company promptly installs controls when a hazard is identified.

As hazard prevention and controlling mechanisms, the company is expected to inform employees how controlling mechanism is implemented and also planned for hazards they may face. When the staffs were asked about the issues, 22.9% of them did not know how controlling mechanism is implemented and planned for hazards they may face. On top of this, 37.5% and 18.8% of the respondents reported that they strongly disagree and disagree respectively with that controlling mechanism is implemented and planned for hazards they may face. On the other hand, 8.3% and 12.5% respectively agree and strongly agree with the fact that controlling mechanism implemented and planned for hazards they may face. We can see that higher proportion of the respondents were not aware about controlling mechanism the company is implementing and planned for hazards they may face.

In relation to hazard prevention and control, employees of Oromiya Steel pipe mil PLC are requested to describe how the company provided for them with prescribed means and personal protective gear. According to the respondents report, 22.9% of the respondents do not know whether there is prescribed means and personal protective gear in the company. On top of this 35.4% and 16.7% strongly disagree and disagree respectively with the statements saying that employees are provided with prescribed means and personal protective gear.

Oppositely, about 14.6% and 10.4% are agree and strongly agree respectively with the statements saying that employees are provided with prescribed means and personal protective gear. From the above statement, one can conclude that majority of the employees working in this organization are not aware about existence of prescribed means and personal protective gear in the company.

Table 14:-Assessment result of Employee Training

Variables	Categories	Frequency	Percent	Valid Percent	Cumulative Percent
Company employees understand the elements of the worker safety and health management system and how to participate in it.	No action	23	47.9	47.9	47.9
	Strongly Disagree	10	20.8	20.8	68.8
	Disagree	2	4.2	4.2	72.9
	Agree	7	14.6	14.6	87.5
	Strongly Agree	6	12.5	12.5	100
Employees understand the employers' role and responsibility in the safety and health management system.	No action	12	25	25	25
	Strongly Disagree	14	29.2	29.2	54.2
	Disagree	5	10.4	10.4	64.6
	Agree	12	25	25	89.6
	Strongly Agree	5	10.4	10.4	100
Employees receive appropriate safety and health training.	No action	21	43.8	43.8	43.8
	Strongly Disagree	11	22.9	22.9	66.7
	Disagree	5	10.4	10.4	77.1
	Agree	7	14.6	14.6	91.7
	Strongly Agree	4	8.3	8.3	100
Company employees understand the procedures for reporting injuries, incidents, hazards, and concerns	No action	9	18.8	18.8	18.8
	Strongly Disagree	22	45.8	45.8	64.6
	Disagree	5	10.4	10.4	75
	Agree	7	14.6	14.6	89.6
	Strongly Agree	5	10.4	10.4	100
The training we receive on the use of personal protective equipment such as respirators, eye, face and hand protection, motivates us to use our personal protective equipment as required.	No action	14	29.2	29.2	29.2
	Strongly Disagree	11	22.9	22.9	52.1
	Disagree	11	22.9	22.9	75
	Agree	7	14.6	14.6	89.6
	Strongly Agree	5	10.4	10.4	100

Source: - own survey, 2016

Employee Training

Enhancing capacity of employees working in any organization will increase the capacity of producing the output. As a result, training in relation to Steel pipe Mil PLC is required for staffs working in the company. Based on this fact, the researcher asked a series of question related to steel pipe mil industries.

Among the questions, the first question provided to the respondents was whether company employees understand the elements of the worker safety and health management system and how to participate. Based on the respondents report, nearly about half (47.9%) of the respondents did not know the elements of the worker safety and health management system and how to participate in it. In addition to this, 20.8% and 4.2% of the respondents strongly disagreed and disagreed respectively with the statement saying company employees understand the elements of the worker safety and health management system and how to participate in it. However, 14.6% and 12.5% of the respondents agreed and strongly agreed respectively with the statement saying company employees understand the elements of the worker safety and health management system and how to participate in it. This indicates that only quarter of the employees understand the elements of the worker safety and health management systems.

Employees were also asked whether they have trained on understanding the employers‘ role and responsibility in the safety and health management system**.** According to the responses obtained from respondents, 25% of them did know their role and responsibility in the safety and health management system. On top of this, about 29.2% and 10.4% of the respondents strongly disagree and disagree respectively with the statements stating that employees understand their role and responsibility in the safety and health management system. On the other hand, 25% and 10.4% of the respondents agreed and strongly agreed respectively that

employees understand their role and responsibilities in the safety and health management system. From the above statements, one can conclude that only one third of the employees understood their roles and responsibility in the safety and health management system.

Respondents were also asked whether they received appropriate safety and health training organized by the company or any else. The summary of responses obtained shows that about 43.8% of the respondents did not receive any training on safety and health management system. Likewise, 22.9% and 10.4% strongly disagree and disagree with the statement saying that employees received appropriate safety and health training. Conversely, 14.6% and 8.3% of the respondents agree and strongly agree with the statement –employees received appropriate safety and health training." Among the employees working in this company only one fourth of the employees receive appropriate safety and health training.

In relation to the capacity building respondents also asked about the procedures for reporting injuries, incidents, hazards, and concerns. As per the summary report of the respondents, about 18.8% of the respondents did not know the procedures for reporting injuries, incidents, hazards, and concerns**.** Furthermore, 45.8% and 10.4% strongly disagree and disagree respectively with the statements saying that company employees understand the procedures for reporting injuries, incidents, hazards, and concerns. Nevertheless, 14.6% and 10.4% of the respondents agree and strongly agreed that they understood the procedures for reporting injuries, incidents, hazards, and concerns. This shows that only one fourth knew and understood the procedures for reporting injuries, incidents, hazards, and concerns. Hence it required to aware all to bring them on board.

All respondents were asked whether they received training on how to use personal protective equipment such as respirators, eye, face and hand protection, motives to use personal protective equipments as required. The summary of the respondents showed that 29.2% did not receive training on how to use personal protective equipment such as respirators, eye,

face and hand protection, motives to use personal protective equipment as required. Similarly, about 22.9% and 22.9% strongly disagree and disagree respectively with that the training they received on the use of personal protective equipment such as respirators, eye, face and hand protection, motivates them to use their own personal protective equipment as required. Positively 14.6% and 10.4% respectively agree and strongly agree with the training they received on the use of personal protective equipment such as respirators, eye, face and hand protection, motivates them to use their own personal protective equipment as required. Overall, any kind of the training expected to motivate them to protect from hazards are below 50%. Hence, the company strongly advised to work on different training to safe guard the employees. Information related to employee training is given by table 13.

Table 15:-Assessment result of Program evaluation and Improvement

Variables	Categories	Frequency	Percent	Valid Percent	Cumulative Percent
Company conduct formal an annual review of the worker safety and health management program	No action	17	35.4	35.4	35.4
	Strongly Disagree	13	27.1	27.1	62.5
	Disagree	8	16.7	16.7	79.2
	Agree	7	14.6	14.6	93.8
	Strongly Agree	3	6.3	6.3	100
Company involves employees in the program reviews.	No action	17	35.4	35.4	35.4
	Strongly Disagree	15	31.3	31.3	66.7
	Disagree	7	14.6	14.6	81.3
	Agree	4	8.3	8.3	89.6
	Strongly Agree	5	10.4	10.4	100
Company have established appropriate measures of data to evaluate its progress	No action	22	45.8	45.8	45.8
	Strongly Disagree	9	18.8	18.8	64.6
	Disagree	9	18.8	18.8	83.3
	Agree	3	6.3	6.3	89.6
	Strongly Agree	5	10.4	10.4	100
Program reviews determine if progress is being made toward established goals	No action	22	45.8	45.8	45.8
	Strongly Disagree	12	25	25	70.8
	Disagree	4	8.3	8.3	79.2
	Agree	5	10.4	10.4	89.6
	Strongly Agree	5	10.4	10.4	100
Company modifies the program as needed to correct deficiencies.	No action	19	39.6	39.6	39.6
	Strongly Disagree	10	20.8	20.8	60.4
	Disagree	7	14.6	14.6	75
	Agree	5	10.4	10.4	85.4
	Strongly Agree	7	14.6	14.6	100

Source: - own survey, 2016

Program evaluation and Improvement

Program performance evaluation is used to know how the achievement was obtained and how it is close enough to the outlined or stated goals. Hence, it is a tool for taking measures and improves the result. Therefore, the researcher interrogates questions related to program evaluation and improvement. As per the respondents report, 35.4% of the respondents said that they did not know whether the company conduct formal annual review of the worker safety and health management program while 27.1% and 16.7% of the respondents strongly disagree and disagree respectively with that the company conduct formal an annual review of the worker safety and health management program. But 14.6% and 6.3% agreed and strongly agreed with that the company conduct formal an annual review of the worker safety and health management program.

On top of this, respondents were also asked whether the company involves employees in the program reviews or not**.** As per the respondents report, about 35.4% of the employees working in this company were not know about the issues. Furthermore, about 31.3% and 14.6% of the respondents strongly disagree and disagree respectively with the statement saying that company involves employees in the program reviews. Contrary to this, about 8.3% and 10.4% of the respondents agree and strongly agree respectively with the statements saying that the company involves employees in the program reviews. This shows that only few staffs were involved in program review arranged by the company.

In relation to program evaluation and improvement, respondents also asked how company has established appropriate measures of data to evaluate its progress. According to the respondents obtained from employee, 48.5% of them did not know how company has established appropriate measures of data to evaluate its progress. Additionally, 18.8% and 18.8% of the respondents strongly disagree and disagree respectively with the statements

saying that the company has established appropriate measures of data to evaluate its progress. Oppositely, 6.3% and 10.4% of the respondents agree and strongly agree with the statements saying that the company has established appropriate measures of data to evaluate its progress. This shows that more than 85% of the respondents were unaware how company has established appropriate measures of data to evaluate its progress. Hence, it required special attention to aware all staffs on the issues as soon as possible.

In order to know how the company undertook program evaluation and improvement, the respondents were asked how program reviews determined and progress is being made toward established goals. Based on the respondents report, about 48.5% of the respondents did not know how program reviews determined and progress is being made toward established goals. Never the less about 25.0% and 8.3% strongly disagreed and disagreed respectively with the statements saying that program reviews determined and progress is being made toward established goals in consultation with the staffs. However, about 10.4% and 10.4% of the respondents agreed and strongly agreed with the statement saying that program reviews determined and progress is being made toward established goals is conducted in consultation with staffs working in the organization. Based on this fact, only one fifth of the respondents agree with the statement outlined. Hence, the top managements are advised to work strongly in consultation with the staffs when program reviews determined and progress is being made toward established goals.

To achieve the outlined goals, it required to modify the program as needed to correct deficiencies. Based on this, the staffs are requested to respondent on the issues. The summary of the response obtained show that 39.6% were unaware whether the company modifies the program as needed to correct deficiencies. Likewise about 20.8% and 14.6% of the respondents were strongly disagree and disagreed respectively with the statement saying that the Company modifies the program as needed to correct deficiencies. However, 10.4%

and 14.6% of the respondents agreed and strongly agreed with the statement. In general, only 25% of the respondents agreed with the subject. Hence, the company advised to strongly work on awareness creation to bring all staffs to the board. Overall, response on the issue was summarized in table 14.

Table 16:-Assessment result of Barriers for implementing OHSMS in the company

Variables	Categories	Frequency	Percent	Valid Percent	Cumulative Percent
There is lack of awareness	Strongly Disagree	7	14.6	14.6	14.6
	Disagree	13	27.1	27.1	41.7
	Neutral	14	29.2	29.2	70.8
	Agree	12	25	25	95.8
	Strongly Agree	2	4.2	4.2	100
Lack of trained human resource	Strongly Disagree	10	20.8	20.8	20.8
	Disagree	11	22.9	22.9	43.8
	Neutral	10	20.8	20.8	64.6
	Agree	14	29.2	29.2	93.8
	Strongly Agree	3	6.3	6.3	100
Inadequate health and safety institutions	Strongly Disagree	5	10.4	10.4	10.4
	Disagree	14	29.2	29.2	39.6
	Neutral	10	20.8	20.8	60.4
	Agree	16	33.3	33.3	93.8
	Strongly Agree	3	6.3	6.3	100
Insufficient budget for carrying out regular inspections	Strongly Disagree	10	20.8	20.8	20.8
	Disagree	12	25	25	45.8
	Neutral	10	20.8	20.8	66.7
	Agree	16	33.3	33.3	100
The characteristics of workers (poor, illiterate, uneducated)	Strongly Disagree	6	12.5	12.5	12.5
	Disagree	13	27.1	27.1	39.6
	Neutral	18	37.5	37.5	77.1
	Agree	10	20.8	20.8	97.9
	Strongly Agree	1	2.1	2.1	100
Poor work environment	Strongly Disagree	3	6.3	6.3	6.3
	Disagree	6	12.5	12.5	18.8
	Neutral	21	43.8	43.8	62.5
	Agree	11	22.9	22.9	85.4
	Strongly Agree	7	14.6	14.6	100

Variables	Categories	Frequency	Percent	Valid Percent	Cumulative Percent
No specific regulations/legislations on OHS issues	Strongly Disagree	6	12.5	12.5	12.5
	Disagree	11	22.9	22.9	35.4
	Neutral	11	22.9	22.9	58.3
	Agree	7	14.6	14.6	72.9
	Strongly Agree	13	27.1	27.1	100
Poor information exchange on OHS	Strongly Disagree	5	10.4	10.4	10.4
	Disagree	13	27.1	27.1	37.5
	Neutral	9	18.8	18.8	56.3
	Agree	9	18.8	18.8	75
	Strongly Agree	12	25	25	100
Absence of integration of OHS with general health service	Strongly Disagree	5	10.4	10.6	10.6
	Disagree	18	37.5	38.3	48.9
	Neutral	2	4.2	4.3	53.2
	Agree	9	18.8	19.1	72.3
	Strongly Agree	13	27.1	27.7	100
	Total	47	97.9	100	
	System	1	2.1		
	Total	48	100		

Source: - own survey, 2016

6.2. Barriers in Implementing OHSMS

In any operation there are barriers and boosters that hinders and accelerators for the program implementations respectively. In this research, the researchers intended to identify barriers of implementing OHSMS. Accordingly, variables related to barriers were asked the respondents to respond on it and summarized by Table 15.

The first question the respondents were asked was whether there is lack of awareness or not. Accordingly to the respondents report, 14.6% strong disagreed, 27.1% disagreed, 29.2% were neutral, 25.0% agreed and 4.2% were strongly agreed with lack of awareness about OHSMS. This shows that only 29.2% were aware of OHSMS in the company.

On top of this, respondents were also asked whether there is lack of trained human resources as barriers. As per the respondents report, 20.8% of the respondents, strongly disagreed 22.9%, disagreed 20.8% were neutral, 29.2% agreed and 6.3% strongly agreed with that lack of trained human resources were barrier for implementing OHSMS. As per this analysis, trained man power is not the barrier for implementing OHSMS in the company. Strongly motivation is expected from top management.

Additionally, the respondents were asked whether there are inadequate health and safety institutions or not. According to the summary of the response obtained from respondents, 10.4% strongly disagreed, 29.4% disagreed, 20.8% were neutral, 33.3% agreed and 6.3% strongly agreed with inadequacy of health and safety institutions in the organization as a barrier. As per this data nearly 40% acknowledge that inadequate health and safety institutions are the barriers for implementing OHSMS in the company.

The other barriers considered in implementing the OHSMS in Oromiya Steel Pipe Mil PLC company is insufficient budget for carrying out regular inspections. As per the respondents report, 20.8% of the respondents strongly disagreed, 25.0% of the respondents were disagreed, 20.8% were neutral and 33.3% of the respondents were agreed with insufficient budget for carrying out regular inspections in the company. Insufficient budget for carrying out regular inspections is not barrier for about 45.8% of the respondents. Hence, insufficient budget for carrying out regular inspections may not be considered as barrier for implementing OHSMS in the organization.

The researcher also tried to identify characteristics of workers (poor, illiterate,) to know whether it could be barriers for implementing OHSMS in the company. According to this assessment, 12.5% of the respondents strongly disagreed, 27.1% of the respondents disagreed, 37.5% of the respondents were neutral, 20.8% agreed and 2.1% strongly agreed with characteristics of workers (poor, illiterate, uneducated). Among the respondents majority

of them are neutral. Hence, if we consider the neutrals as those agreed with the statement, about 60% of the respondents considered characteristics of workers (poor, illiterate, uneducated) as barrier for implementing OHSMS in the company.

Besides the aforementioned factors, the researcher also interrogated the respondents whether poor working environment is a barrier for implementing OHSMS in the company or not. The respondents‘ response shows that 6.3%, 12.5%, 43.8%, 22.9% and 14.6% were strongly disagreed, disagree, neutral, agreed and strongly agreed with poor working environment respectively. Hence, one can understand that poor working environment is a barrier for implementing OHSMS in the organization.

Among factors considered as barrier is lack of having specific regulations/legislations on OHS issues is one. According to the respondents‘ response 12.5%, 22.9%, 22.9%, 14.6% and 27.1% strongly disagreed, disagreed, neutral, agreed and strongly agreed with lack of having specific regulations or legislations on OHS issues respectively. This result shows that about 40% agreed with the barrier. Hence, the researchers would like to advise the company to take remedial action to solve lack of specific regulations/legislations on OHS issues.

One of the factors considered as barrier is poor information exchange on OHS. Respondents report shows that 10.4%, 27.1%, 18.8%, 18.8% and 25% were strongly disagreed, disagreed, neutral, agree and strongly agree respectively with poor information exchange on OHS. This result shows that majority of the respondents confirmed that poor information exchange on OHS is one of the major barriers for implementing OHSM in the company. Hence, the researcher would like to recommend the company‘s higher officials to work strongly on information exchange on OSH using information technologies for addressing the issue in better condition or states.

As one of the barriers, the researcher included absence of integration of OHS with general health service in the questions to be responded by the respondents. According to the respondents report, 10.6%, 38.3%, 4.3%, 19.1% and 27.7% of the respondents strongly disagreed, disagreed, neutral, agree and strongly agree respectively with absence of integration of OHS with general health service. This shows that about half the respondents disagreed that absence of integration of OHS with general health service is not the barrier for implementing OHSMS in the company. But about 47% agree with absence of integration of OHS with general health service as barrier for implementing OHSMS. Hence, it required to work strongly on integrating OHS with general health service.

Chapter Five

Summary, Conclusion and Recommendations

5.1. Introduction

This chapter deals with the summary, conclusions and recommendations. For transparency purpose, the summary from Major Findings and the conclusions are based on the research objectives of the study. Recommendations are made to government bodies, to operators of OHSMS and suggestion for other researchers.

5.2. Summary

Based on the research objectives the following were summarized and concluded from the study findings

5.2.1. Magnitude of Occupational Hazards

One major objectives of the study were to identify the magnitude of occupational hazards in Oromiya Steel Pipe mil PLC. As the results revealed 81.3% of employee relate their illness to their occupation of which 47.9% reported industrial injuries. From this we can summerize that the magnitude of occupational hazards in Oromiya Steel Pipe PLC is significantly high.

5.2.2. Causes of Occupational Hazards

As study result showed too much dust and noise are the major physical hazards in the company. The finding indicated that the effect of chemical hazard in the company is less. Biological hazard is also not the major concern as indicated by most of the respondents. Similarly more than 56% of respondents indicate that there is no cause of ergonomic hazards

in the company. From this it can be concluded that physical hazards are the major causes of occupational hazards in this company.

5.2.3. Level of Implementation of OSHMS

Most of the respondents confirmed that the non-availability of written health and safety policy and manuals is crucial. This shows the majority of employees have no knowledge about OSHMS. Most employees also revealed that the company management did not effectively communicate its workers about health and safety goals and expectation.

The participation of employees on OSHMS activities is also very poor. About 14.6% of the employee said that they do not know what activities to be taken when they observe injuries, illness and other work related hazards. This indicates that the majority of staffs working in this company did not know how to report when they observed injuries, illness and other hazards.

The efforts to identify, preventing and controlling hazards in this company was also very poor. There is almost no control plan. More than 70% of employee either does not know or are not provided with personal protective instruments.

One can conclude from the results of the study that identifying, preventing and control of hazards in this company is poor and needs attention. Even though it was impossible to fully control hazard the company is expected to inform employees how controlling mechanism is implemented and plan for hazards they face. Implementing an effective OSH Management system requires, among other things, clear assignment of roles and responsibility to key stakeholders and training programmes to provide employees with the tools to execute their responsibilities which were lacking in Oromiya Steel Pipe Mil PLC.

There was also no adequate training provided on OSHMS to the employees. From the result 47.9% of employees do not know about elements of safety indicated the lack of training on the subject.

5.2 Conclusion

The major findings summarized above indicate the problem of occupational safety and health in Oromia Steel Pipe PLC. The presence of occupational illness and injuries indicate the magnitude of occupational hazards in Oromiya Steel Pipe PLC is significantly high.Physical hazards are the major causes of occupational hazards in this company. The level of implementation of OSHMS in this company is low. Identifying, preventing and control of hazards in this company are poor and needs attention. Even though it was impossible to fully control hazard the company is expected to inform employees how controlling mechanism is implemented and plan for hazards they face. Implementing an effective OSH Management system requires, among other things, clear assignment of roles and responsibility to key stakeholders and training programmes to provide employees with the tools to execute their responsibilities which were lacking in Oromiya Steel Pipe Mil PLC.

5.1.Recommendations

The main interest of this paper was assessing Practices of Occupational Health and Safety Management in Oromiya Steel Pipe Mil PLC On the basis of the major findings of the study; the following recommendations have been drawn with the view to improve the contributions of OHS in Oromia in general and in the study area in particular.

- It is better if Oromiya Steel Pipe Mil PLC management have to apply OSH. This can be done by using principle of OSHMS.
- The Oromiya Steel Pipe Mil PLC managemen should strengthen the OHSMS capacity to play a major role in positively influencing the development of the company.

- Responsible bodies should act to tackle the lack of knowledge of workers by providing training
- Based on the findings of this study implementing basic OSHMS is important for sustainable and efficiency of this company. Based on national occupational safety and health policy the company should develop its own policy manual and guide line which helps to implement OSHMS
- The company should fulfil all occupational safety and health materials which prevents employees from hazards and provide appropriate training on
- Providing training on OSHMS is very urgent issue as most employees indicate they have no knowledge about OSHMS

Finally, investigating different OHS practice based on the right information is vital for the good performance of company business venture. This can be achieved by conducting more researches in related areas. The focus for this study was on the Practices of Occupational Health and Safety Management in Oromiya Steel Pipe Mil PLC. It is the researcher‘s view that future research could come up with specific findings which will potentially contribute a lot in the development of OHSMS in the country in general. The field of OHS is large and very diverse. It is an interesting area with many unresolved issues. It would be encouraging to get more solutions to many issues arising.

5.2. Future Research Area

Over all, this study has indicated the major occupational hazards and OSHMS implementation status in Oromiya Steel Pipe Mil PLC. However, this study has its own limitation which should be addressed in future research. The researcher recommends the following for future:

- Such study is the first in this company. Employees do not have awareness about such issues before. Hence the company should conduct detail survey for the reliability of the findings.
- This study is limited to one company Oromiya Steel Pipe Mil PLC. For generaliz ability of the finding further research should be conducted in other private and governmental organizations.

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Appendixes

Appendix 1. Survey Questionnaire for employees

Information letter to Participant

Date March/2016

Dear Sir/Madam

I have been undertaking a MA Thesis work on the topic **"Implementation of Occupational Health and Safety Management Practices in Oromiya Steel Pipe Mil PLC"**. I would much appreciate it, if you could kindly take a little of your time to complete the attached questionnaires. Your Company has been contacted and I have been permitted to contact all employees directly. There is no anticipated risk in your participation. The information supplied by you will be held in strict confidence and your answer will in no way jeopardize the status and security of your position. The data will only be used for the specific purpose of the research study.

You and your organization will all benefit from this research study. The result may be utilized as an input to improve occupational safety and health management system in you company.

The questionnaire has five parts: -

Part A. General Information;**Part B. Magnitude of Occupational Hazards in the company**; **Part C. Cause of Occupational Hazards**; Part **D.Level of Implementation of OHSMS** and Part E. **Barriers in implementing OSHMS.**

- **I kindly request you to read the instruction of each section before responding**
- **Please complete each section and answer all the questions**
- **Do not identify your name**
- **Please hand in the completed questionnaire to the researcher or the person he appoints**

I take this opportunity of thanking you in advance for your kind participation and timely return of your completed questionnaire.

If you have any queries, please do not hesitate to contact me and I am available as per your convenience at **(Tele0911407482 or e mail- ----------)**

Thank you again for agreeing to take part in this survey.

Sincerely Yours,

A. **General information**

You are required to provide X signs where required and give specific answer on space provided

1. What is your gender? M ☐ F ☐

2. What is your age?

18-28yrs ☐ 29-39yrs ☐ 40-49yrs ☐ >50yrs ☐

3. What is your marital status? Married ☐ Single ☐ Divorced ☐

widowed ☐ separated ☐

4. Educational back ground of workers: - Elementary school ☐ , High school ☐ ,

Certificate/Diploma ☐ , BSc/BA degree and above ☐

5. Nature of employment. Full- time ☐ part –time ☐

B. Magnitude of Occupational Hazards in the company (Answer questions stated by putting X signs in the box provided where required)

1. Have you ever fallen ill at your work place? YES ☐ NO ☐
2. If yes do you relate the illness to the work you do? YES ☐ NO ☐
3. Did you face Previous industrial injuries YES ☐ NO ☐
4. What measures were taken by the employer?

a) First aid given ☐ b) taken to hospital ☐ c) no action taken ☐

5. Do hazardous substances are used in the work process? YES ☐ NO ☐
6. Does the company have a system to manage hazardous substances?

Yes ☐ No ☐

7. How would you rate the efficiency of your working Machines/Tools/ equipment‘s?

Fair ☐ Good ☐ Excellent ☐

8. Do first aid room available in the company?

YES ☐ NO ☐ No need ☐

C. Cause of Occupational Hazards (Answer questions stated by writing YES or NO in the box provided where required)

1. According to you what are the potential risks for health and safety in this company?

Physical hazards	**Write YES if you agree and NO if you do not agree**	**chemical hazards**	**Write YES if you agreeand NO if you do not agree**
Too much noise		Dusts	
Too much vibration mists		Mists	
Too much or low light		Toxic gases hazards	
Too much heat		Fumes	
Too much cold		Vapors	
Too much pressure		Dangerous chemicals	
Too much hazards		X-rays, or radiation	
Too much dust			
Biological hazards	**Write YES if you agreeand NO if you do not agree**	**Ergonomic hazards**	**Write YES if you agreeand NO if you do not agree**
Bacterial		Visual conditions	
Fungal		Strenuous work	
Viral		Control and tools	
Lack of adequate toilet facilities		Bad work design shift of work	
Biological agents of infectious disease		Risk of physical strain	
Psychological factors	**Write YES if you agreeand NO if you do not agree**		
Awkward pressure and/or repetitive motions			
Unsafe equipment‘s or machinery			
Too much work outside			

working hours			
Lack of facilities or access			
Mental stress due to work			
Risk of eye strain			

2. Rate in order the causes of most industrial accidents and industrial illnesses

_____

_____

D. Level of Implementation of OHSMS

Please put an –X" sign in the box to assign a score that best describes your agreement with the action item statement. You will have four options:

. No action- indicates that the industry has not taken the action (**No point awarded.)**

• **Strongly disagree**—indicates that the industry has taken very few action but has done so ineffectively or infrequently **(one point awarded.)**

. Disagree- indicate that the industry has taken few action but has done so ineffectively or infrequently **(Two points awarded)**

• **Agree—**indicates that the industry has taken the action and it has been effective some of the time. **(Three points awarded.)**

• **Strongly agree—**indicates that the industry routinely takes the action described and does so effectively. **(Four points awarded.)**

Occupational Health and Safety Implementation assessment Questionnaires

S.n	Items	0	1	2	3	4
A	**Management of leadership**					
1	Top company management implements a written policy supporting and mandating the safety and health management system.					
2	Company management defines effective worker health and safety goals and expectations for the program.					
3	Top company management assigns responsibility and accountability for the implementation and maintenance of the program.					
4	Company management effectively communicates its worker health and safety goals and expectations to all those working for or on behalf of the organization.					
5	When supervisors see an employee working in an unsafe manner, they immediately take action to correct the employee.					
B	**Employee participation**					

1	The company involves employees in defining and developing the worker health and safety program structure.					
2	Employees are active in participating in hazard detection, prevention and control activities.					
3	Employees know how to report and consistently report observed injuries, illnesses, hazards, and concerns, including good catches/near misses.					
4	The company acknowledges reports of injuries, illnesses, hazards, or other concerns promptly.					
5	The company involves employees representatives in workplace health and safety risk assessment, inspections and incident investigations					
C	**Hazard identification**					
1	The company regularly inspects the workplace physical environment to identify conditions that pose or could pose a worker safety or health concern and informs workers of hazards happened.					
2	Managers ask employees about worker hazards and safety concerns in their work areas during rounds.					
3	Company investigates incidents to identify any hazards previously unrecognized or inadequately controlled.					
4	Company conducts all inspections and exposure assessments required by OSHA standards.					
5	Company identifies hazards associated with emergencies and non-routine operations.					
D	**Hazard prevention and control**					
1	Company has a hazard control plan in place and we keep it up to date.					
2	All controls required by applicable OSHA standards are in place.					
3	The company promptly installs controls when a hazard is identified.					
4	The company has informed employees of the controls implemented and planned for hazards they may face.					
5	Employees are provided with prescribed means and personal protective gear					
E	**Employee Training**					

1	Company employees understand the elements of the worker safety and health management system and how to participate in it.					
2	Employees understand the employers‘ his role and responsibility in the safety and health management system.					
3	Employees receive appropriate safety and health training.					
4	Company employees understand the procedures for reporting injuries, incidents, hazards, and concerns.					
5	The training we receive on the use of personal protective equipment such as respirators, eye, face and hand protection, motivates us to use our personal protective equipment as required.					
F	**Program evaluation and Improvement**					
1	Company conduct formal an annual review of the worker safety and health management program					
2	Company involves employees in the program reviews.					
3	Company have established appropriate measures of data to evaluate its progress					
4	Program reviews determine if progress is being made toward established goals					
5	Company modifies the program as needed to correct deficiencies.					

E. Barriers in implementing OSHMS

Rate the following expected hindrance in implementing OSHMS in this company out of four options Put ―X signs if

1= Strongly disagree, 2. Disagree 3=neutral, 4 = Agree, 5= Strongly agree

s.n	Items	1	2	3	4	5
1	There is lack of awareness					
2	Lack of trained human resource					
3	Inadequate health and safety institutions					
4	Insufficient budget for carrying out regular inspections					
5	The characteristics of workers (poor, illiterate, uneducated)					
6	Poor work environment					
7	No specific regulations/legislations on OHS issues					
8	Poor information exchange on OHS					
9	Absence of integration of OHS with general health service					

Shortly explain/list main problems or challenges faced to implement OSHMS in your organization?

1. ----------
2. ----------
3. ----------
4. ----------

Thank you for your participation in this survey.

Appendix 2 . Survey Questionnaires for Management

Information letter to Participant

Date March/2016

Dear Sir/Madam

I have been undertaking a MA Thesis work on the **topic "Implementation of Occupational Health and Safety Management Practices in Oromiya Steel Pipe Mil PLC".** I would much appreciate it, if you could kindly take a little of your time to complete the attached questionnaires. There is no anticipated risk in your participation. The information supplied by you will be held in strict confidence and your answer will in no way jeopardize the status and security of your position. The data will only be used for the specific purpose of the research study.

You and your organization will all benefit from this research study. The result may be utilized as an input to improve occupational safety and health management system in you company.

I take this opportunity of thanking you in advance for your kind participation and timely return of your completed questionnaire.

If you have any queries, please do not hesitate to contact me and I am available as per your convenience at (Tele09---------- or e mail- ----------)

Thank you again for agreeing to take part in this survey.

Sincerely Yours,

Questionnaires filled by Management and OSH representative

These questionnaires will be filled by HRM department head and/or occupational safety and health focal persons in the company.

1. Total number of employees: _____
   Full Time_____
   Part Time _____
   Women _____ Men _____
   Employee number with occupational disabilities and other disable people _____

2. Employee Structure by age

Age No		AgeNo		Age No	
<18	-------	26-30	------	41-45	--------
18-20	--------	31-35	--------	46-50	--------
21-25	--------	36-40	---------	>50	--------

3. Organization of the work
   a). work in one shift time from --------to -------
   b). work in two shift time from ----- to ----- and from ---- to -------
4. Does the company have a written health and safety policy and manual?
   YES ☐ NO ☐
5. Is there a health and safety committee? YES ☐ NO ☐
6. Has the OHS policy been communicated to the employees and other interested parties? YES ☐ NO ☐
7. Does the company have a formal system of the reporting, recording and investigation of incidents, injuries, and illnesses? YES ☐ NO ☐
8. Do management personally involved in the various types of OHS management activities? YES ☐ NO ☐
9. Does the company have a system to manage hazardous substances?
   YES ☐ NO ☐
10. Do you carry out examinations, to identify not only existing hazards, but also conditions and operations where changes might occur to create hazards

YES ☐ NO ☐

11. Is there any safety inspection program in place for the Organization's work activities and workplaces? YES ☐ NO ☐

12. Are employees involved in each of the following activities?

Circle 1. If YES and circle 2. If NO

(i) Job hazard analysis for work **1** **2**

(ii) Safety inspection **1** **2**

(iii) Safety training provision for newly revised safety work procedures **1** **2**

(iv) Development and implementation of plans for improving OHS **1** **2**

13. Employees are trained for occupational safety and health

YES ☐ NO ☐

14. Has the Organization committed itself to continuous improvement of OHS performance? YES ☐ NO ☐

If yes, how?

15. Data on occupational accidents, professional and related illnesses

Number of injuries at workplace, for a three year period:

Year	Occupational injuries				Number of the lost working days
	light	heavy	deadly	Total	
2013					
2014					
2015					

16. Total number of employees with diagnosed work-related illness ____,

Indicate most frequent work-related illnesses types_____

17. Employees are provided with prescribed means and personal protective equipment at work YES ☐ NO ☐
18. Employees at workplaces with high risk are referred to earlier and periodic medical examinations. YES ☐ NO ☐
19. Provision of the first aid is enabled and appropriate number of employees trained in first aid YES ☐ NO ☐

20. Do Trade union and employee representatives have a role in OSHMS

YES ☐ NO ☐

Thank you for your participation in this survey

Appendix 3. Responses obtained from Management and OSH representatives

Variables	Categories	Frequency	Percent	Valid Percent	Cumulative Percent
Gender of Respondents	Male	10	90.9	90.9	90.9
	Female	1	9.1	9.1	100
Age bracket of Respondents	20-30	1	9.1	9.1	9.1
	31-40	4	36.4	36.4	45.5
	41-50	6	54.5	54.5	100
Educational Levels	Certificate	1	9.1	9.1	9.1
	Diploma or TVET	3	27.3	27.3	36.4
	Degree	5	45.5	45.5	81.8
	MA/MSc	2	18.2	18.2	100
Marital Status	Single	2	18.2	18.2	18.2
	Married	9	81.8	81.8	100
Income level of Respondents	5001-7000	5	45.5	45.5	45.5
	7001-9000	1	9.1	9.1	54.5

Variables	Categories	Frequency	Percent	Valid Percent	Cumulative Percent
	above 11000	5	45.5	45.5	100
Does company has a written health and safety policy and Manuals?	Yes	2	18.2	18.2	18.2
	No	9	81.8	81.8	100
Do OHS policy communicated to the employees and other interested parties?	Yes	2	18.2	18.2	18.2
	No	9	81.8	81.8	100
Does the company has a formal system of reporting, recording and investigation of incidents, injuries and illness?	Yes	6	54.5	54.5	54.5
	No	5	45.5	45.5	100
Do management personally involved in various types of OHS management?	Yes	4	36.4	36.4	36.4
	No	7	63.6	63.6	100
Does the company has a system to manage hazardous substance	Yes	5	45.5	45.5	45.5
	No	6	54.5	54.5	100
Is there any safety inspection program in place for the organization's work activities and work places	Yes	2	18.2	18.2	18.2
	No	9	81.8	81.8	100
Job Hazard analysis for work	Yes	6	54.5	54.5	54.5
	No	5	45.5	45.5	100
Safety inspection	Yes	1	9.1	9.1	9.1
	No	10	90.9	90.9	100
Safety training provision for newly revised safety	Yes	2	18.2	18.2	18.2
	No	9	81.8	81.8	100

Variables	Categories	Frequency	Percent	Valid Percent	Cumulative Percent
work procedures					
Development and implementation of plans for improving OHS	Yes	5	45.5	45.5	45.5
	No	6	54.5	54.5	100
Employees are trained for occupational safety and health	Yes	3	27.3	27.3	27.3
	No	8	72.7	72.7	100
Has the organization committed itself to continuous improvement of OHS performance?	Yes	8	72.7	72.7	72.7
	No	3	27.3	27.3	100
Employee are provided with prescribed means and personal proactive medical examination	Yes	11	100	100	100
Employees at work place with high risk are referred to earlier and periodic medical examination	Yes	4	36.4	36.4	36.4
	No	7	63.6	63.6	100
Provision of the first aid is enabled and appropriate number of employees are trained in first aid	Yes	3	27.3	27.3	27.3
	No	8	72.7	72.7	100
Do labor Union and employees representatives have a role in OSHMS	Yes	3	27.3	30	30
	No	7	63.6	70	100
	Total	10	90.9	100	
	System	1	9.1		

DECLARATION

I, the undersigned, declare that this study entitled **"Practices of Occupational Health and Safety Management in Oromiya Steel Pipe Mil PLC"** is my original work. I have undertaken the research work independently with the guidance and support of the research advisor. This study has not been presented for a degree in any other University, and that all the sources of materials used for the thesis have been duly acknowledged.

Declared by:

Name: Mekonnen Lenjisa Birate

Date: _____

Signature: _____

Advisor: Worku Mekonnen (PhD)

Signature: _____

Date: _____

Place and Date of Submission: Department of Business Administration & Information System, Master of Human Resource Management June, 2016