

***Organizational Safety culture Influencing Employee Safety  
Practice:***

*A Case of Ethiopian Electric Utility Company, Western Region*

*A Thesis Submitted to the School of Graduate Studies of Jimma University in  
Partial Fulfillment of the Requirements for the Award of Degree of Master  
of Business Administration (MBA)*

**BY:**

**BEKALU HAILEMARIAM GEBRU**



**JIMMA UNIVERSITY**

**COLLEGE OF BUSINESS & ECONOMICS**

**MBA PROGRAM**

**OCTOBER 13, 2015**

**JIMMA, ETHIOPIA**

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**OCTOBER 2015**

**JIMMA**

## DECLARATION

I hereby declare that this thesis entitled “*Organization Safety Culture influencing Employee Safety Practice: A study on Ethiopian Electric Utility, Western Region*”, has been carried out by me under the guidance and supervision of Mr. Ashenafi Haile and Mr. Hayelom Nega.

The thesis is original and has not been submitted for the award of any degree or diploma to any university or institutions.

Researcher's Name

Signature

Date

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# CERTIFICATE

This is to certify that the thesis entitled “*Organization Safety Culture influencing Employee Safety Practice: A study on Ethiopian Electric Utility, Western Region*”, submitted to Jimma University for the award of the Degree of Master of Business Administration (MBA) and is a record of bonafide research work carried out by Mr. Bekalu Hailemariam Gebru, under our guidance and supervision.

Therefore, we hereby declare that no part of this thesis has been submitted to any other university or institutions for the award of any degree or diploma.

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## ***Abstract***

*Employee safety practice is a function of safety management systems operating within the organizational safety culture. Organizations with positive safety culture are likely to have employees with good safety practice. Ethiopian electric utility company is engaged with generation, transmission, distribution and sale of electricity. Employees of this company, especially the electricians and engineers deal with electricity which is hazardous and risky. Due to the risks involved in such occupations, the creation and improvement of safety culture is of paramount importance to inculcate practice of safety to workers. Therefore, the objective of this study was to assess and determine whether five organizational safety culture dimensions described herein were predictors of employee safety practice. A sample size of 240 out of 642 employees was taken. Out of the targeted 240 respondents, only 194 completed the questionnaire representing a response rate of 80.8%. Statistical Package for Social Science (SPSS) version 20 was used to analyze the data collected and generate results. Accordingly, descriptive statistics and inferences were made. It was found out that the current safety culture and safety practices at this company were inadequate and workers level of compliance to safety was also low. In summary, from the findings, there is positive correlation on the relationship between management commitment, safety training, safety communication, accident prevention, safety involvement, and employee safety practice. Based on coefficients, the adjusted  $R^2$  turned 0.323 showing that there is 32.3% of the variation in safety practice which is accounted for by the combined effects of the five predictors namely; management commitment, safety training, safety communication, accident prevention, safety involvement. The major findings of the study indicated that three independent variables i.e. safety training, safety communication and accident prevention and control measures influence significantly the compliance to safety practice. But, safety involvement and management commitment were not significantly influence compliance of employee safety practice. Therefore, In order to improve employee safety practice maintaining positive safety culture in the company is advisable.*

**Key words:** Safety culture, management commitment, employee involvement, communication, training, Accident prevention, Safety practice

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## **List of Acronyms**

DV- Dependent Variable  
EEPCO- Ethiopian Electric Power Company  
EEU-Ethiopian Electric Utility  
ESAW- European Statistics on Accidents at Work  
HR –Human Resource  
HRM- Human Resource Management  
HSC- Health and Safety Commission  
HSE- Health and safety executives  
IAEA- International Atomic Energy Agency  
ICS- Inter Connected Systems  
ILO- International Labor Organization  
IV- Independent Variable  
Kms-Kilometers  
Kv- Kilovolt  
OHS-Occupational Health and Safety  
OPM-Organizational performance metrics  
PPE-Personal protective equipment  
SCS -Self Connected Systems  
SPSS-Statistical Product for Social Science  
UK- United Kingdom  
VIF- Variance Inflation Factor  
WHO- World health Organization

# CHAPTER ONE

## 1. Introduction

### 1.1 Background of the Study

Millions of workers die or are injured or fall ill every year as a result of workplace hazards. The suffering in terms of human life is enormous, while the economic costs of the failure to ensure occupational health and safety are so great that they may undermine national aspirations for sustainable economic and social development (Benjamin, 2008)

A report by ILO indicates that approximately 100 million occupational injuries occur worldwide each year and nearly 2.2 million men and women worldwide die every year due to work place accidents (ILO, 2005). Accidents at work bring about a vast number of sick leave days. 73.4 % of the accidents at work result in a sick leave of at least one day and 22 % in at least one month. In total, it was estimated that accidents at work caused 83 million calendar days of sick leave in 2007 (Eurostat, 2010, LFS data). According to the data registered in ESAW every year more than 100,000 accidents at work lead to permanent incapacity to work.

According to Hamalainen et al., 2006 (as cited in Gizaw Z. et al, 2014) In Sub-Saharan Africa countries, slightly more than 54, 000 fatal occupational accidents happen annually. Nearly 42 million work-related accidents took place that caused 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 160,000. In Ethiopia, More than 5,596 deaths from workplace accidents happen annually. Nearly 4,270,815 work-related accidents took place that results in at least 3 days of absence from work. The accident rate is 16426 per 100,000 workers and the fatality rate is 21.5 per 100,000 workers (As cited by Gizaw Z. et al, 2014).

However, the number of studies focusing on health and safety is not enough. In the last two decades, less than 1% of organizational research has focused on issues concerning occupational health and safety (Mullen, 2004). This statistic is very low considering the

significant social and economic costs associated with occupational safety. In light of these social and economic costs resulting from workplace accidents, it is critical that researchers better understand the events preceding work-related injuries, as well as the organizational factors that may affect an individual's safety practice at work (Mullen, 2004).

Recently management has come to realize that the general likelihood of an accident occurring in their organization depends not just on the actions of individual employees but on the safety culture of the organization. Many studies has focused on the safety culture and climate in relation to safety performance, specifically if the safety culture is improved this will lead to less unsafe behavior and accidents. And if safety culture and climate consists of employee' s attitudes and beliefs, it could also affect employee practice. One can then argue that a positive safety climate will induce safe behavior to the employee' s so that employees become less likely to exhibit unsafe acts, not take unnecessary risks, and comply with rules and regulations (Clarke, 2006)

Cox and Cheyne (2000) demonstrated that, "culture in general, and safety culture in particular is often characterized as the enduring aspect of an organization and is not easily changed. Although different researchers have developed a variety of questionnaires over the years in an attempt to identify the key factors that comprise safety culture there has been little agreement concerning which dimensions should be incorporated into safety culture". They identified nine factors covering the most popular areas such as management commitment, and priority of safety, communication, safety rules and procedures, safety training, involvement, preventive work environment.

In electric generation and distribution companies as in EEU (Ethiopian electric utility co.) with all electrical equipment operations, there is the threat of burnt, shock and/or electrocution. Many electrical workers are potentially exposed to a variety of hazards such as electric shock (the most common hazard), arc flashes, falls, and thermal burns.

From Maslow's theory of needs (Geller, 2001), self preservation may be expected to override other motives so that workers will engage in practices that protect them from exposure to the hazards inherent in their workplace and hence from injuries. Contrary to this, the literatures bring evidence of recklessness, safety rule violations, indifferent attitudes toward hazards and other forms of unsafe practice among workers (Zohar and Luria, 2003). These unsafe practices have been noted to account for quite a greater percentage of occupational safety incidents. Zohar and Luria (2003) identified that about 40% of work accidents result from workers' failure to use protective equipments.

The increase in serious accidents that are related to employee unsafe practice in Ethiopian electric utility company is indicative of the need for research relative to critical component of H&S management. Implicitly, this suggests that if workers can be influenced to engage in safer rather than at-risk work behaviors, then a possible decrease in the rate of work-related injuries and diseases shall be achieved. Therefore the aim of this study is to determine the influence of safety culture dimensions on employees' safety practice based on the perception of employees towards the organization's safety culture.

## **1.2 Background of the Organization**

Ethiopian Electric Utility (EEU) is newly established by Regulation no. 303/2013 on Nov/2013. The Former name for this company was Ethiopian electric power company (EEPCO). EEU the Central Government Power Service Company of the country with the mandate to operate and maintain the Generation plants & dams, Transmission and Distribution regional and National networks to facilitate Generation, Transmission & Distribution of power within and across the regions with reliability, security and economy on sound commercial principles. EEU wheels 100% of the total power generated in the country on its transmission & distribution networks. EEU transmission lines are operated at 400 kV, 230 kV and 132 kV depending on the power transported and distance involved. This company's distribution network consist of 55 Substations and approx. 126,038 Kms of lines.



EEU currently operates two power supply system - Main Inter Connected Systems (ICS) and Self Contained Systems (SCS). The main ICS serves the major towns and industrial centers. About 90% of the generation capacity is hydropower and remaining generation is based on Wind, Geo-Thermal and Diesel. EEU has 12 hydro, 12 diesel, 1 geo-thermal and 2 wind power plants. Major part of load is concentrated around the Capital City of Addis Ababa, while generation resources are distributed throughout the country. The generation capacity which is (ICS +SCS) approx. 2,275.1(Sourced from EEU's safety policy document, 2014)

EEU has 2,000,000 customers and 13,000 man powers with different experience and educational back ground. This company is operating and Maintaining Distribution network of 126,038 km and 26,000 Distribution Transformers with 15 regional offices and 403 customer service centers spread across the country. The wide range of activities in the Operation & maintenance of Distribution system involving complex techniques have led to many new problems on safety and in such cases even minor lapses directly result in occurrence of accidents.

This study draws attention to Western region office which is the one among the 15 regional offices. Western region office has Sales, distribution and transmission units with 14 substations spreading over the western part of the country.

### **1.3 Statement of the Problem**

Provision of a safe and healthy working environment is a necessity for any organization. Whether working on any equipment or in any system or Industry, the safety of employee is always of paramount importance than anything else. Therefore all considerations should weigh heavily in favor of safety of human life. Working on electrical equipment, apparatus and overhead lines of any kind is hazardous and expose workers to accidents. Employees of EEU continue to experience occupational injuries and illnesses. Consequently, the company bears additional costs with regards to performing accident investigation, training to replace the injured employees, lost work time, administrative costs and loss of productivity. Furthermore, the victims of the accident lead employers to extensive worker compensation costs. Most utility workers perform their duties in a

variety of environments, and as a result, they tend to incur diverse occupational injuries and illnesses. Ethiopian electric utility company engages workers in electric operation and maintenance works which are very hazardous and risky. More so, Employees working in this organization perform diverse physical activities such as heavy lifting, working in extreme weather conditions, manual excavation, working at heights, and in close proximity to energized power lines. Due to the strain of the work and the risk involved workers kept victimized of frequent workplace accidents.

According to the information received from the regional human resource department coordinator office, there has been a record of number of hazards and accidents that has occurred on employees. Many of the accidents were major physical injuries while some of them were fatal or deadly. For the aim of showing the frequency of the accidents the researcher has spotted out accidents recorded over the past 5 years.

Table 1.1: Accident record of employee for five years

year	Number of accidents
2010	5
2011	10
2012	17
2013	12
2014	22

Source; compensation claims files in HR dept of regional office

Although the personal, economic and social problems of accidents are wider no research on safety has been conducted in this company. This is because organizations usually blame accidents on the victim of an injury. They assume that human error is the major cause of accidents.

Unlike those assumption literatures indicate that accidents are caused by factors, which can generally be classified as physical incidents posing hazardous situations, and incidents caused by unsafe acts. The underlying belief is that careless workers do not cause the majority of accidents but by failures in control or by organizational factors

(Mullen, 2004), which ultimately are the responsibility of management. Therefore the aim of this study focuses on determining the influence of organizational safety culture dimensions on employee safety practice.

#### **1.4 Research Basic Questions**

This research will attempt to answer the following broad questions regarding the safety culture dimensions influencing the safety practice of employees in Ethiopian electric utility company.

- ❖ How do employees feel about the company's safety culture?  
What is the level of employee safety practice in the company?
- ❖ Does management commitment influence employee safety practice?
- ❖ Does safety training influence employee safety practice?
- ❖ Does safety communication influence employee safety practice?
- ❖ Does safety involvement influence employee safety practice?
- ❖ Do accident prevention and control measures influence employee safety practice?

#### **1.5 Research Objectives**

The general objective of this research is to assess and examine the influence of safety culture on the level of employee's safety compliance in relation to their safety practice.

Specific objective of this study is to:

- ❖ Know employees perception towards company's safety culture
- ❖ Know the level of employee safety practice at workplace.
- ❖ Determine whether management safety commitment influence employee safety practice.
- ❖ Determine whether employee safety training influence employee safety practice.
- ❖ Determine whether safety communication influence employee safety practice.
- ❖ Determine employee safety involvement influences employee safety practice.
- ❖ Determine whether accident prevention and control measures influence employee safety practice.

#### **1.6 Significance of the Study**

This study will provide some insight about employees' perception of safety culture in EEU. It also helps to address and solve problems of safety culture so that employee safety practice in the company can be improved. In addition, it helps the researcher to acquire

knowledge and practical experience. Furthermore, it will help as a source document and as a stepping stone for those researchers who want to make further study on the area afterwards.

### **1.7 Scope of the Study**

The scope of this study is limited to examining the influence of the five safety culture dimensions that influence the safety practice of employees at western region office of EEU, the work units considered in this study were Retail business office, Distribution office and Transmission operation office.

### **1.8 Limitations of the Study**

As with any study, there were limitations that should be recognized. First, the results from the survey are employees' perceptions, and are hence subject to possible biases. Participants may not have responded accurately as they were concerned with what the organization would think of their answers. Second, this study was conducted at only one of the regional office of EEU. Therefore, a sample taken from only western region population might not give reliable generalization of the result to the whole company. More over, lack of access to the additional secondary data in the Company was the major constraint during the study.

### **1.9 Organization of the Study**

The research is organized into five chapters: Chapter one contains the problem and its approach dealing with research problem, Chapter two reviews the theoretical and empirical literatures on safety culture dimensions and employee safety practice. Chapter three deal with the design and methodology. Chapter four focuses on the analysis of the subject matter. Finally, Chapter five contains Conclusion and Recommendations

# **CHAPTER TWO**

## **REVIEW OF RELATED LITERATURE**

As the study proposed to know the effect of Health and Safety culture on employee safety practice this chapter reviews related literatures in two sections as theoretical and empirical as follows.

### **2.1 Theoretical Framework**

#### **2.1.1 Occupational Health and Safety**

Occupational health and safety (OH&S), as developed by the WHO and the International Labor Organization (ILO), is “the promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations” (WHO, 2002). According to these organizations, health and safety at work is aimed at: the prevention among workers of leaving work due to health problems 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 or her physiological and psychological capabilities; and, to summarize, the adaptation of work to the person and of each person to their job.

From the literature of Abdllah et al (2009) Occupational health is explained as a sound state of the body and mind of people from illness resulting from the materials, processes or procedures used in the workplace, whilst occupational safety is the protection of people from physical injury. According to these authors, occupational health refers to a general state of physical, mental, and emotional well-being of a worker. They argue that this physical, mental and social well-being can be improved by implementing human resource management (HRM) strategies that focus on employee health and safety in the workplace (known as OH&S management). OHS management is related to the improvement and maintenance of health and safety and the prevention and reduction of potential hazards and risks to workers in the workplace.

## **2.1.2 Types of Electrical Accidents**

### **2.1.2.1 Electrocutions**

Electrocution is an electric hazard involved when electric current flows through a body of a person and is believed to be the most dangerous of all electrical injuries (John et al, 2006). More than half of all electrocutions are caused by direct worker contact with energized power lines. Today, most electrocutions involving overhead power lines are caused by failure to maintain proper work distances.

Power line workers must be especially aware of the dangers of overhead lines. In the past, 80% of all lineman deaths were caused by contacting a live wire with a bare hand. Shocks and electrocutions occur where physical barriers are not in place to prevent contact with the wires. When dump trucks, cranes, work platforms, or other conductive materials (such as pipes and ladders) contact overhead wires, the equipment operator or other workers can be killed. The degree of injury in these instances depends on the path the current takes through the body and the duration of contact. If vital organs are involved, these burns may be fatal; if not, they can still result in extensive muscle damage (John et al, 2006).

### **2.1.2.2 Burns**

The most common shock-related, nonfatal injury is a burn. Burns caused by electricity may be of three types: electrical burns, arc burns, and thermal contact burns. Electrical burns can result when a person touches electrical wiring or equipment that is used or maintained improperly. Typically, such burns occur on the hands. Electrical burns are one of the most serious injuries one can receive. They need to be given immediate attention. Additionally, clothing may catch fire and a thermal burn may result from the heat of the fire.

### **2.1.2.3 Arc Blasts**

In addition to an electrical shock and burns, another danger to employees is the blast effect that can result from arcing. Arc-blasts occur when powerful, high-amperage currents arc flows through the air. Arcing is the luminous electrical discharge that occurs when high voltages exist across a gap between conductors

and current travels through the air. This situation is mostly caused by failure of equipment due to misuse or fatigue. Temperatures as high as 35,000°F have been reached in arc-blasts. A common example of arcing is the flash that we sometimes see when we turn a light switch on or off. This is not dangerous because of the low voltage

#### **2.1.2.4 Working at Heights**

Transmission and distribution works involve working on high towers and poles. Electricians are usually required to climb up to higher heights with all the necessary engineering and personal equipments to reach their working area. The risk exposure of working at height is higher due to physical fatigue which impairs human attention and concentration. Electricians when working at height may also pose hazard to their supporting lineman on the ground. Equipments such as insulator, hook and other electrical tools may fall down and can potentially cause accident on the co worker. Salentine (2011) found that a tool falling from any height is a problem as personnel below are in a considerable danger.

### **2.1.3 Causes of Electrical Accidents**

Electrical accidents, when initially studied, often appear to be caused by circumstances that are varied and peculiar to the particular incidents involved. However, further consideration usually reveals the underlying cause to be a combination of three possible factors: work involving unsafe equipment and installations; workplaces made unsafe by the environment; and unsafe work practice. The first two factors are sometimes considered together and simply referred to as unsafe conditions. Thus, electrical accidents can be generally considered as being caused by unsafe conditions, unsafe work performance or, mixture of the two (Reason 1990).

#### **2.1.3.1 Human Error**

Organizations usually blame accidents on the victim of an injury. They assume that human error is the major cause of accidents. However this view of organizations are often contested by the scientific community that human error is not as much a cause as it is a consequence of underlying organizational problems (Reason 1990). Human error is a consequence of organizational factors. Human

error is wide and can include a great variety of human behavior. The distinction between worker errors and those made by other aspects of the organization has been thoroughly explained by Reason (1990) as 'active' and 'latent' failures.

**Active Failures** are those immediate consequences and are usually made by front-line people such as drivers, control room and machine operators. These immediately precede and are the direct cause, of the accident.

**Latent Failures** are those aspects of the organization which can immediately predispose active failures. Common examples of latent failures include (HSE 2005): Poor design of plant and equipment; Ineffective training; inadequate supervision; Ineffective communications; and Uncertainties in roles and responsibilities and others. Such as;

**Overload:** Occurs when a person is loaded with excessive tasks or responsibilities. For example, the employee must not only perform his or her job, but may need to accomplish other person tasks and at the same token he must also handle excessive noise, stress, personal problems, and unclear instructions.

**Inappropriate Activities:** Is another term for human error. When individuals undertake a task without proper training, or misjudge the risks involved, they are acting inappropriately.

**Inappropriate Response:** Occurs, for example, employee face a hazardous condition but does not attempt to correct it, ignoring safety or removes a safeguard from a machine to increase productivity.

Reason (1990) has classified active failures in to intentional and unintentional error. Intentional errors are described as violations, whilst unintentional errors are classified as either slips/lapses or mistakes. According to Reason violations are any deliberate deviation from the rules, procedures, instructions and regulations, which are deemed necessary for the safe or efficient operation and maintenance of plant or equipment. Violations of these rules could be accidental/unintentional or deliberate. Violations are divided into three categories: routine, situational and exceptional (HSE 2005). Slips and lapses are unintended skill-based errors, which



are either attention or memory failures. Reason (1990) grouped error and violation together and called them as unsafe acts or human failure.

### **2.1.4 Safety Culture**

The issue of safety culture was first came in to picture when the International Atomic Energy Agency introduced it to the world following the accident that had occurred on Chernobyl nuclear power plant in 1986. During this time, some view the disaster was because of the poor health and safety culture in the company. Most of all, Human Errors and violations of operating procedures are the elements that contributed to the causation of the accident (HSE 2005).

Safety culture is an essential issue for managers in high-hazard industries. It is a component of the overall organizational culture that significantly affects the attitudes and beliefs of workers in terms of their health and safety performance (Cooper 2000). Safety culture is a priority and group value placed on worker to the extent in which individuals and groups will commit to personal responsibility for safety, act to preserve, enhance and communicate safety concerns, strive to actively learn, adapt and modify (both individual and organizational) behavior based on lessons obtained from errors or mistakes, and be rewarded in relation to these values. In this regard, the definition involve that culture of organization exists on a continuum so that organizations can have either a good or poor safety culture. Safety culture can not just be instilled at once but it is a result of long-term process of improvement (IAEA, 1986, as cited in Cox & Flin, 1998).

Given the definitions safety culture that have been proposed in the literature, yet researchers have not reached an agreement on the dimensions that constitute a safety culture. In fact, various studies have shown a number of organizational indicators that is from “2 to 19 safety culture dimensions ranging from management to risk awareness” (Flin et al., 2000) and attitudes and perceptions of the safety climate. The commonly cited dimensions of a positive safety culture presented in literatures on predictors of work-related injuries (Flin et al, 2000) include management commitment, employee involvement, safety training, safety communication and reporting systems. Suggestion by the Australian Institute of Petroleum (as cited in Industry Commission, 1995) indicate

that safety culture is of paramount benefit to better change workplace safety performance than the mere OHS legislations imposed by government. According to Industry Commission (1995) important attributes of achieving an effective safety culture are identified as top management commitment; Workplace participation and consultation and Training for competence and confidence and communicating the right message up and down the organization. These important attributes are elements of the effective safety management practices.

Safety management refers to the tangible practices, responsibility and performance related to safety (Mearns, Whitaker & Flin, 2003). They illustrated some common themes of safety management practices: namely, management commitment to safety, safety communication, health and safety objectives, training needs, rewarding performance, and worker involvement. They also maintained the associations between safety management, safety climate, and safety culture. Safety climate is considered to be the precise indicator of overall safety culture while safety management practices display the safety culture of top management and as a result, good safety management practices are reflected in the enhanced safety climate of all employees.

When management shows in practice that safety is an important value in the organization, the workers will adopt safety as a dominant value in their work as well. Perception of active commitment by management on safety issues have a positive effect on the rate of injuries in organizations by shaping behavior of workers to act in safe ways (O'Toole 2002). The importance of management commitment, involvement and communication in reducing accidents are also indicated in many literatures and studies (Smith et al. 1978). In fact, it has been well said, that “employee safety behavior is a function of management systems operating within the organizational culture”. Positive safety culture involves the following key elements (Flin et al 2000)

#### **2.1.4.1 Management Commitment**

A key element of safety management is senior management leadership and commitment. For a safety management practice to be successful in an organization, it must be driven by senior management. This is the level of

management responsible for making critical decisions in terms of organizational values, priorities and future directions. Safety management is most effective when it is integrated into the initial stages of business and strategic planning.

Within the context of safety culture, “management commitment and involvement” refers to the extent to which both upper- and middle-level managers get personally involved in critical safety activities within the organization. Management involvement in safety, therefore, is reflected, by managers’ presence and contribution to safety seminars and training, their active oversight of safety critical operations, their ability to “stay in touch” with the risks involved in everyday operations and the extent to which there is good communications about safety issues, both up and down the organizational hierarchy. Through participation in the day to day operations, both upper- and middle-level management communicate to their employees an attitude of concern for safety that subsequently influences the degree to which employees comply with operating rules and with safe operating practices. Management commitment to occupational health and safety may also be demonstrated in various ways, such as: allocating sufficient resources (financial and human) for the proper functioning of the occupational health and safety program; Designating a senior management representative to be responsible for overseeing the proper functioning of occupational health and safety management and establishing organizational structures to support managers and employees in their occupational health and safety duties; Enhancing safety performance is important to the success of health and safety management at work. Critical to this is the reciprocal relationship between safety management and safety behavior within the safety culture in the organization (Cooper, 2000).

#### **2.1.4.1.1 Occupational Health and Safety Policies:**

Organizations that are committed to health and safety have policies that guide both management and employees in ensuring that the working environment is injury free for their workers. In order for the policies to be

fully implemented and proven successful, from the literature of Armstrong (2006) it is necessary for the organization to involve its employees in the development. The policies are usually developed to protect employee lives and ensure healthy work environment so that employees can take pleasure in fine working conditions. The three major curses that still are major in developing countries are poverty, ignorance and disease. To fight these problems and promote health policies are developed.

The issue of governing safety and health at work on legal basis in Ethiopia dates back to 1940s when the first legal instrument Proclamation No. 58/1945 was promulgated. The origin of this legislation was a result of the advent of industrialization that took place in the country. This legislation and other recent laws specifies the minimum requirements for OHS and therefore employers are expected to; minimize occupational accidents, diseases and disabilities, promote good safety culture at the work place, promote a good work environment for workers and those in proximity(Dawit, 2006). All safety programs should be underwritten by a company and/or departmental safety policy. Although specific policy statements must vary from industry to industry, all policies should contain the following key statements (John et al, 2006)

1. The company is committed to safe work practices.
2. At a minimum, all company safety policies and procedures shall comply with applicable federal, state, and local standards as well as recognized consensus standards.
3. Safety is the premier consideration in performing work.
4. Employees will be required to follow all company safety procedures.
5. If a job cannot be safely done, it need not be done.
6. Each individual employee is uniquely responsible for his or her own personal safety.
7. The cooperation of all personnel will be required to sustain the safety program

#### **2.1.4.2 Employee Involvement**

The active involvement of each employee in the workplace is essential for the success of safety management practices, and helps to develop a 'safety culture' in the workplace. Consultation between management and employees assists in encouraging support and involvement in safety activities. Employees are an important source of safety information as they are in the immediate area of, identified hazards. They can offer valuable information about risks and advice on possible solutions. Employees who work on the ground level actually have firsthand knowledge of: problems with work practices and procedures (work systems); faults with machinery, plant or furniture; difficulties caused by the design and/or layout of work equipment; the type, frequency and seriousness of incidents or near-misses occurring; the safety implications of any short cuts taken in work systems in order to save time; and safety management programs after their introduction.

#### **2.1.4.3 Safety Communication**

Safety communication is another important component of positive safety culture which is achieved by fostering a co-operative and consultative relationship between employers and employees on the health, safety and welfare of employees at work". Safety consultation requires more than an exchange of information, it requires employers and employees to contribute to the pool of knowledge that can give a rise to quality decision making and improving health and safety at the workplace. Safety communication and feedback is a key factor to influence employee safety performance. Safety feed back and communication is important for the worker's performance. When safety operations rely on efficient communication and feedback the management can track the hazards to prevent accidents and injuries (Arboleda et al., 2003).

Regular feedback on performance can be good to communicate to employees through sign boards, caution signs, and other indications. The information which is collected as a feedback will not only help the organization but it will also help the organization to have the behavioral data in maintaining safety. In order to

encourage communication, it is very necessary not to blame worker for the accidents which occur as management will gain experience with the techniques utilized to increase the quality of safety (Arboleda et al., 2003).

#### **2.1.4.4 Safety Training**

Cole (2008) defined Training as any learning activity that is undertaken to obtain a specific knowledge and skills for the aim of doing a task. Training may be needed for having efficiency in safety in the operation of a particular machines or equipments; to have an effective sales force; to have competent management in the organization. Training helps people acquire the skills, knowledge and attitudes to make them competent in the safety and health aspects of their work. It includes formal off-the-job training, instruction to individuals and groups, and on-the-job coaching and counseling. It is helpful to integrate the safety and health requirements of each job into the individual job specifications. Part of this duty is to ensure that employees are adequately instructed and trained in safe systems of work. This includes safe methods for carrying out tasks; use of equipment or substances; use of health and safety control measures and personal Protective equipment; reporting and emergency procedures; and their responsibilities for health and safety. Workers and new recruits in particular, need to be instructed in the safety aspects of their work and kept under close supervision to ensure that they have fully understood the dangers and how to avoid them.

#### **2.1.4.5 Preventive and Protective Tools**

The identification and elimination of occupational accident or hazards – potential causes of accidents – is the key to accident prevention. When elimination of the risk entirely is not possible, a secondary option is to reduce the risk as much as possible.

According to Rasmussen (1997), occupational accident prevention is usually based on investigation of occurred accidents and eradication of accident causes. Still, accident investigation should not be limited merely to the identification of the direct (or apparent) causes of occurred accidents but should consider what are the underlying causes of accidents, incidents and deviations, that is, what has lead

to the accident-triggering event, behavior or error (Rasmussen 1997). The analysis of human error and especially the surrounding conditions that provoke error is an essential part of accident prevention. The measures are; Provision of safe premises, safe procedures, safe machines for workers by the employers; provide workers with adequate training on the importance and proper use of safety devices such as eye goggle, booths, ear plugs, hoes, cutlasses, hand gloves, face mask as the case may be according to company rules; provide workers with information regarding the inherent risks of any occupation before he/she is allowed to work alone on the job; effective training and encouragement of workers on proper use of safety knowledge, skill and various work procedures; there should be well defined policy guidelines on safety precautions in each plant; Prepare and display at strategic positions within the work environment bill boards, posters, sign posters indicating danger zones, safety measures, unsafe danger zones, safety measures, unsafe acts in work place, the need for compliance and disciplinary measures.

#### **2.1.4.5.1 Safety Audit**

Safety audit constitutes the "feedback loop" which enables the relevant industrial Undertakings to reinforce, maintain and develop its ability to reduce risks to the fullest extent and to ensure the continued effectiveness of the safety management system. It includes interviewing individuals to gather information about the Operation of the safety management system and the perceptions, knowledge, understanding, management practices, skills and competence of managers and employees at various levels in the organization. It also includes Examining documents to check and assess the industrial undertaking's risk control systems, performance standards, safety procedures and safety instructions and to verify the information obtained through interviews.

#### **2.1.4.5.2 Personal Protective Equipment**

Personal protective equipments are important tool to protect workers from hazards. So companies should consult workers or their representatives' on

proper personal protective equipment and clothing, having regard to the type of work and risks. Moreover, when hazards cannot be otherwise prevented or controlled, employers should provide and maintain such equipment and clothing as are reasonably necessary, without cost to the workers. The employer should provide the workers with the appropriate means to enable them to use the individual protective equipment. Indeed, the employer has a duty to ensure its proper use. Protective equipment and clothing should comply with the standards set by the competent authority and take ergonomic principles into account. Workers have the obligation to make proper use of and take good care of the personal protective equipment and protective Clothing provided for their use (Benjamin, 2008). Personal protective equipment (PPE) includes the following: Gloves, safety footwear, safety helmets, high visibility waistcoats, aprons, protective clothing for adverse weather conditions, eye protectors, hearing protectors, life-jackets, respirators, breathing apparatus including those used underwater, and safety harness.

#### **2.1.4.5.3 Hazard Identification**

Hazard identification is the process of identifying all situations or events that could give rise to the potential for injury, illness or damage to plant or property. Hazard identification should take into account how things are being done, where they are done and who is doing them, and should also consider how many people are exposed to each hazard identified and for how long. The following should be accorded top priority in the hazard identification process.

#### **High Frequency Accidents or Near Misses**

Jobs with a high frequency of accidents or near misses pose a significant threat to the safety and health of workers and should therefore be given top priority.

#### **History of Serious Accidents Causing Fatalities**



Jobs that have already produced fatalities, disabling injuries or illnesses, regardless of the frequency, should have a high priority in the hazard identification process.

### **Existence of a Potential for Serious Harm**

Jobs that have the potential to cause serious injury or harm need hazard analysis, even if they have never produced an injury or illness.

### **Introduction of New Jobs**

Whenever a new job is introduced, a hazard identification process should be conducted before any worker is assigned to it.

### **Recent Changes in Procedures, Standards or Legislation**

Jobs that have undergone a change in procedure, equipment or materials, and work affected by new regulations or standards will need risk assessment. Major methods for identification of hazards include:

#### **Direct Observation Method**

This involves observing an experienced worker with good safety awareness carrying out the work several times. The job steps and the hazards in each of these are recorded.

#### **Recall Method**

This should be done for jobs that are rarely performed. The method involves inviting the engineers, supervisors and workers involved in the jobs to attend a brainstorming session, during which they would look into the materials, machines and equipment used, and the job steps to identify the hazards inherent in such jobs.

## **2.1.5 Safety Climate**

Safety climate is clearly a sub-part of safety culture related to individual and group attitudes and behaviors related to engagement in safety practices (Cooper, 2000). Safety climate has been one of the most frequently studied backgrounds of safety performance. Although originally conceived in 1980 (Zohar, 1980), the concept of safety climate did not receive much attention in the academic research literature until recently. In general, climate can be defined as the perceptions of the events, practices, and procedures as well as the kind of behaviors that get rewarded, supported and expected in a particular

organizational setting. Given this definition, it follows that safety climate encompasses perceptions of safety-related events, practices, and procedures as well as the types of safety oriented behaviors that get rewarded, supported and expected. Thus, employees might perceive organizations in ways that its safety policies and procedures signal a strong or weak commitment to safety. Likewise, employee perceptions of how supervisors react to safety violations or how seriously they regard these violations of safety policy will indicate whether safety is valued or not. These perceptions are likely to induce positive safety performance and reduce the occurrence of accidents and injuries.

An empirical research conducted on marble workers in turkey by selahattin (2013) investigates the relationships among the safety culture, working conditions and safety behaviors, occupational accidents and injuries. Study conducted in four marble factories in Burdur city of Turkey, Based on the findings, significant relationships have been observed between safety climate and safety behaviors. Moreover, safety climate perceptions, working conditions perceptions and safety behavior levels of the marble workers differ depending on whether they have had occupational accident & injuries in organization or not.

### **2.1.6 Employee Safety Practice**

Employee safety practice refers to a behavior or habit of an employee to perform a job safely. Safety behavior requires knowledge, skills, motivation and a possibility to act safely (Jorgensen 1998). Worker Safety behavior refers to an employee motivation to engage in safety performance improvements. The safety behavior base refers to the behaviors which lead to reduction of unsafe act and as a result reduce accidents and injuries. Unsafe act may be said to include “the extent to which the personnel ignore safety regulations in order to get a job done, carry out activities which are forbidden, perform their duties incorrectly, do not use personal protective equipment, and break procedures to carry out jobs quickly” (Rundmo, 1996). Since unsafe behavior is the immediate cause of most occupational accidents, companies strive for ways to promote safe behaviors.

Safety practice encompasses all the activities undertaken by individuals in their workplace to ensure their personal safety, the safety of their co-workers and the safety of their organization at large. Referring to such activities as safety performance, Burke et al (2002) in two studies identified four components of safety behavior. These components concerned with workers'; use of personal protective equipments (PPE), engagement in workplace practices to reduce risk, dissemination or communication of health and safety information and lastly exercise of their rights and responsibilities.

Neal et al (2000) conceptualized safety practice as comprising of two components which they termed safety compliance and safety participation (or initiatives). Safety compliance according to these models refers to the mandatory activities that workers need to perform to bring about workplace safety. Usually such activities offer direct personal protection for the worker. It includes activities like following safety standards and using the correct PPE. Safety participation on the other hand, involves 'activities that may not directly apply to an individual's personal safety, but which do assist to develop an environment that supports safety' (Neal & Griffin, 2000). Such activities are usually not mandatory within a workplace and individuals perform them at their own judgment. They can thus be considered as 'safety specific citizenship' behaviors with examples being; identifying and reporting hazards, making suggestions to improve safety and correcting colleagues who engage in unsafe acts.

Mullen (2004) explored the factors that affects individual tendency to act unsafely. Seven interviews were carried out with employees from different occupations (e.g. police officer, power company technician, healthcare provider). Factors that appeared as influencing individual unsafe behavior included: Role overload: not having enough time or resources to carry out the work safely, Performance over safety: coercive pressure from co-workers and/or management to behave unsafely i.e. rushing or not wearing PPE for example, and Safety attitudes: lack of concern and overall commitment to safety from management and co-workers.

## **2.2 Empirical Reviews Related To Safety Culture and Safety Practice**

Beginning with Zohar's (1980) studies on safety climate, safety climate and safety performance were positively related. Research cites evidence to support the influence of safety climate on safety performance indicators (Clarke, 2006)

Additionally empirical evidence concerning safety culture and safety performance is from the findings of Varonen and Markku (2002) that these authors assessed 22 safety variables associated with organizational practices and the work environment in eight wood-processing companies between 1990 and 1993. According to their study three factors of safety climate were studied in relation to accident rates. These variables were a) safety activities of management and safety personnel, b) anticipation of hazards, and c) safety training. Their study confirmed the hypothesized relationship that higher scores on safety climate correlated with lower accident rates. The results of the Varonen et al. study were also in agreement with Neal and Griffin's (2006) research, which established the "connection between safety climate/culture and employee safe working practices"

Further study from Silva, Lima, and Baptista (2004) established measures of safety climate according to the four culture orientations of the Competing Values Framework. The instrument was administered in 15 industries to 930 employees. Their result showed Strong correlations between the following safety-related practices and accident frequency and severity rates: a) safety as an organizational value, b) management safety activities, c) communication related to safety d) learning from accidents, and e) employee involvement in promoting safety.

Another research by Mearns et al. (2003) determined the relationship between safety climate, safety management practices (i.e. actual practices used to maintain safety) and safety performance (using both self-report and company accident data) among 14 offshore installations. Survey data was gathered in two separate years (the sample size was N=682 and N=806 respectively) with a total of nine offshore installations providing data across both years. The finding of this analysis disclosed that safety management

practices relating to management commitment were associated with lower levels of self-report accidents.

### **2.2.1 Management Commitment to Safety and Employee Safety Practice**

In order to develop a successful safety practice, it is essential that there be strong management commitment in the effort to create and maintain a safe and healthy work place. An effective management addresses all work-related hazards, not only those covered by government standards. All levels of management must make safety a priority. They must communicate this by going out into the worksite to talk with workers about their concerns and to observe work procedures and equipment. In each workplace, the lines of responsibility from top to bottom need to be clear, and workers should know who is responsible for different health and safety issues.

A result of a study conducted by Zohar and his co-workers also suggest that, based on shared perceptions of management safety commitment, the employees infer the relative value of safety performance in the organization. This informs employees' behavior-outcome expectancies, and safety behavior is contingent on beliefs that such behavior is expected and will be rewarded (Zohar & Erev 2007).

Lin and Mills (2001) survey findings also implied that safety performance was influenced by management and employee commitment to safety and health. The involvement of management and workers showed positive results in enhancing safety performance as per their findings. The key to excellence in health and safety performance is the involvement of senior management. Their findings indicated that safety awareness among all workers is crucial to improve health and safety performance of a company. Management practices concerning the safety culture including management commitment help organizations to create safety culture. Zohar (1980) also discussed that management's commitment to safety is a vital factor influencing the success of an organization's safety programs. In management commitment, management gives values to safety measures

expressed in its way to give importance to the risk. These safety measures are undertaken to motivate employees to remain committed to perform a job in a safe manner.

Another research by Judd H Michael et al (2015) indicated that increasing employee perceptions of management's personal concern for employee well-being through a dedication to safety will result in positive outcomes beyond improved safety performance. According to them one method for demonstrating an increased commitment in a manufacturing organization may be for management to know and understand the manufacturing processes of the organization. Knowing the manufacturing process should help management to identify unsafe working conditions, unsafe equipment machinery, and unsafe acts/behaviors in order to take corrective actions for the issue at hand. Such actions by management reflect personal commitment and involvement, which in turn appears to influence employee level of safety outcomes.

Judd H Michael et al (2015) result confirms the relevance of management commitment to safety in the wood products manufacturing industry. These results provide empirical evidence to accrue benefits to organizations when management is involved in and committed to maintaining a safe work environment for their employees. This can be accomplished in a variety of ways, including showing personal concern for the health and safety of employees, implementing job-training programs, participating in the management of safety committees, considering safety in job design, and reviewing the pace of work.

### **2.2.2 Safety Training and Employee Safety Practice**

As Armstrong (2006) put it, Health and safety training is a key part of the preventative program. He asserts that training is another way of reducing unsafe and unhealthy acts, especially for new employees. New employees should be instructed in safe practices and procedures, warn them of potential hazards, and work on developing a safety-conscious attitude. Training should start as part of the induction course when employees are first hired. It should also be noted that

training must follow a transfer of an employee to another position or place. Certain types of works, different from others, require a more critical and different set of safety and care while performing as workers may engage in more hazards and risky work situations as in factories, power generation or transmission plants and so on.

According to a study conducted at Kaisugu Tea Factory in Kenya by Rotich and Kwasira (2015) the level of regulation and enforcement of occupational safety and health (OSH) in Kenya was inadequate especially when compared to developed countries. It was difficult to effectively implement OHS Program in Kenya tea factory. The study had aimed at identifying strategies that could be put in place to ensure effective implementation of OSH programs. Their findings established that there exists a positive, strong and statistically significant relationship between employee safety training and effective implementation of Safety programs in Kaisugu Tea Factory.

Another study conducted among textile workers in Adwa city of Ethiopia by Dessalegn T et al (2014) randomly taken 500 workers who were studied to see if safety training and knowledge about safety information have any effect on employees' safety practice. According to their analysis the result showed that generally more than two-third of respondents knew about safety information however, practice towards safety information was inadequate. Safety training was the common factor to increase knowledge and practicing habits which needs to be encouraged. Regular supervision is also recommended to ensure and promote work place safety.

### **2.2.3 Safety Involvement and Employee Safety Practice**

Increasing levels of employee engagement can lead to improved safety outcomes is also supported by a study into the Molson Coors beverage company which claimed the business saved \$1.7 million in safety costs by improving their levels of employee engagement; it was found that engaged employees were five times less likely than non-engaged employees to have a safety incident and seven times

less likely to have a safety incident that resulted in a loss of time. Further, it was claimed that the average cost of a safety incident for non-engaged employees was \$392 whereas for engaged employees the average cost was \$63 (Raines, 2011). He asserts that employee involvement is a key topic for discussion in enhancing organizational safety". Raines took the top and bottom quartile in employee engagement measures and compared measured safety outcomes. He found that "engaged" business units experienced fewer safety incidents than those units with lower levels of employee engagement. Lower accidents go along with higher safety practices as higher safety practice come from engagement in safety matters

Another advantage of worker participation as described by HSE (1997) is that it supports risk control by encouraging workers' ownership of health and safety policies. It creates an understanding that the organization as a whole, and people working in it, benefit from good health and safety performance. Pooling knowledge and experience through participation, commitment and involvement means that health and safety becomes everybody's concern.

Workforce participation needs an open environment in which people can offer ideas, including when something had gone badly, without the possibility of blame. Support on taking a much more active stance in involving employees in discussions and decision-making around safety can enhance adoption of safer behaviors, is provided by Meldrum et al. (2009). They conducted a 13 month investigation within a large construction firm in order to test a model of worker engagement using a series of one to one interviews with system stakeholders. Their paper stated: "Four key attributes that emerged during the study were found to support worker engagement in the project organization under study. These were: knowledge and capability to engage, perceptions (of what was expected), attitudes and behaviors (what they actually thought and did) and actual involvement in H & S risk management."



According to a published report in 2001 by the UK Health and Safety Commission (HSC) and the Health and Safety Executive (HSE), an increase in employee involvement with health and safety issues actually helped to reduce accident rates from 1.2 to 0.1 per 100,000 man hours.

In conclusion, good management of health and safety can only be achieved with the co-operation of the workforce. It is vital that the employees know what is expected of them and are aware of any risks to their health and safety that may arise at work and any safe systems of work that are applied.

#### **2.2.4 Safety Communication and Employee Safety Practice**

A study conducted by Cabrera et al (2007) shows that communication and feedback is an important variable to control the work place hazards. Efficient communication and feedback helps the upper management to take decision towards any possible hazards. Similarly, communication and feedback encourages the workplace safety behavior and through proper reporting the management and the workers can interpret to improve safety performance.

Mutual communication and relations between management and workers, creating open communication of safety as well as other work-related matters, have been linked with good safety performance records in Construction companies (Smith et al, 1978). According to them, construction companies which had good safety performance records had more recurrent and more positive contacts between management and employees, while management with poor safety records had inclined to use the health and safety committee meetings as their only means of interacting with employees.

A research conducted on road construction safety by Keffane S. (2015) pointed out that communication in organizations could play an important role to increase road safety. To better know its role, this study measured managers' and employees' perceptions about the communication's role in six antecedents' safety management and performance of road safety practice, self-reported safety

knowledge, safety motivation, safety compliance and safety participation, by conducting a survey using a questionnaire among 165 employees and 135 managers. This study showed that some of the safety management of road safety practices has effects associated with the safety performance determinants. Safety training and safety promotion have effects related to safety motivation, and only safety commitment, safety communication and feedback have effects related to safety knowledge. Safety behavior compliance was found to be the key mediator in explaining these effects and relationships, and only safety feedback has effects related to safety participation. Safety feedback was identified as the most important safety management factor to road safety practices that predicts safety knowledge, safety motivation, safety compliance and safety participation.

In companies where there were opportunities for workers to participate, to be involved in the consultation process and who were able to be involved in negotiations on health and safety issues were more likely to have good safety performance records.

### **2.2.5 Accident Prevention Measures and Employee Safety Practice**

According to a study by Nazia M et al (2010) conducted in Pakistan, thousands of workers are routinely exposed to hazards in the textile industry. There are different hazards faced by the workers of the textile industry. There are different factors, which are responsible to create the hazards in the working environment. These are Physical, Biological, Chemical and Ergonomic (personal) factors. There are some other aspects, which are responsible to create hazards in the work place environment i.e. shift work, smoking at work place, job strained, proper use of personal protective equipments etc. The introduction of hazardous technologies in industry has resulted in high accident rates, occupational diseases, and unhealthy working environments. Most workers are illiterate and do not know what protective measures should be adopted for their jobs. Their study proposed that awareness about hazards should improve occupational health and safety. According to the authors the effect of these hazards can be minimized by using

the hazards control measures. Majority (83.5%) of the respondents reported that hazardous warning signs are available in the vicinity of the industries furthermore; about eighty percent of the respondents were of the view that warning signs are placed at suitable place in the vicinity of the industries but in the language they don't understand and this has influenced the workers negatively, use of personal protective equipment was also correlated positively to impact on their safety performance.

Furthermore a cross-sectional study which was conducted by Daniel et al (2014) among 876 respondents sampled from 92 unions used structured questionnaire and observation check list to collect data. Crude odds ratio with 95% CI was computed to see the presence of association between selected independent variables and occupational injury. Multivariate logistic regression analysis was made to see the relative effect of independent variable on the dependent variable. The extent of occupational injuries among Addis Ababa city solid waste collectors is present in a level that needs immediate public health action. According to their findings Personal protective equipment utilization is the determinant factor for occupational injuries that arise in this sector. Therefore, implementation of basic occupational health and safety services including the provision of personal protective devices and ensuring utilization are highly advisable.

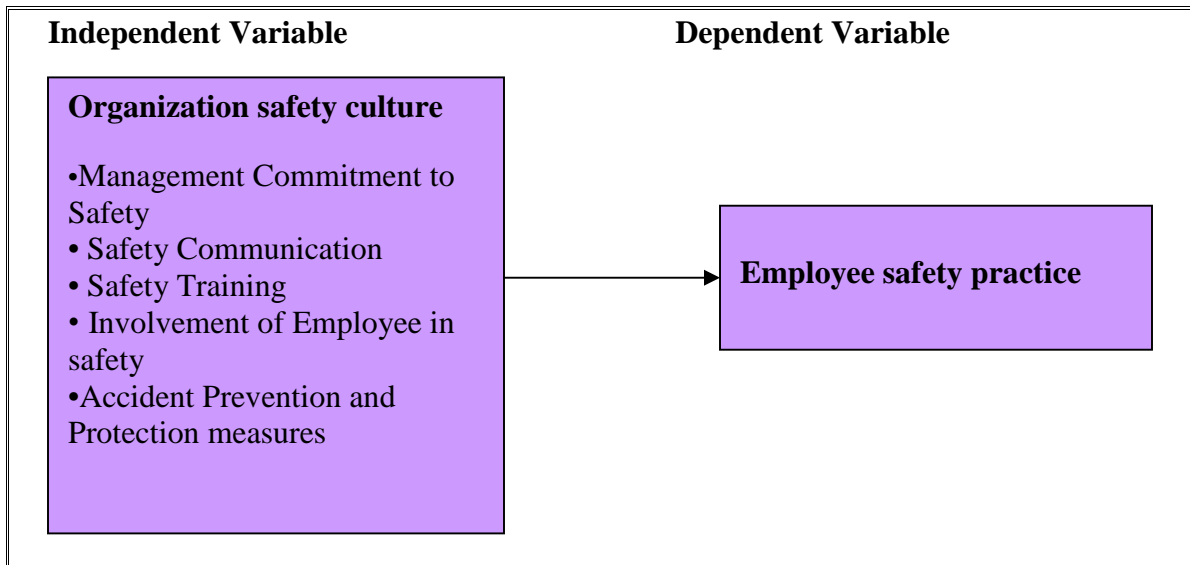
Osman and Abera (2010) also in their effort to determine the magnitude of occupational injury and describe factors affecting its happening among workers of Tendaho State Farm located in Afar Region they conducted a cross-sectional study design to assess occupational injuries among randomly selected 810 workers in August, 2006. A structured questionnaire based interviews, work environment observation, physical examination of study subjects for injury, and reviewing medical records for injury were used to collect the data. Their result shows that the overall occupational injury prevalence rate was 783 per 1000 exposed workers per year. They found that a total of 6153 work-days were lost, at

an average of 11.4 days per an injured worker per year. They determined that absence of health and safety training and lack of protective devices were among the determinants causing an injury.

### 2.3 Research Framework

This study was conducted to investigate the influence of safety culture elements on employee safety behavior. This research paper has proposed management safety commitment, safety communication, safety training and education, employee safety involvement and accident prevention and control measures as independent variable and safety practice of employees as dependent variable. All those independent variables were measured based on the perception of workplace safety culture towards compliance of safety practice (dependent variable). Figure 1 will provide on the relationship of the dependent and independent variables measured in the study.

Fig: Conceptual model of the research



Source: The researcher, 2015

# CHAPTER THREE

## RESEARCH DESIGN AND METHODS

### 3. Introduction

#### 3.1 Research Design

The purpose of this research was to assess and examine the influence of organizational safety culture dimensions on employee safety practice in Ethiopian Electric utility company by studying a sample. Quantitative research method is employed as it tries to observe impact relationship between variables (IV) and (DV). Quantitative research is a formal, objective, systematic process to describe and test relationships and examine cause and effect interactions among variables.

#### 3.2 Study Area

This study was carried out in jimma town at western regional office, which is one of the regional offices of Ethiopian electric utility company.

#### 3.3 Population and Sample Size Determination

For this study the population was management and non management staffs who were working under three work units of the western region, Ethiopian electric utility company. The work units under study were Retail business office, Wire business office and Transmission substation office. According to the data collected from the office of record officer and head manager these three work units have a total work force of 642 employees who appeared on the payroll.

A sample of 240 respondents was derived. The determination of the sample is done using Cochran's (1977) formulas. In Cochran's formula, the alpha level is incorporated into the formula by utilizing the t-value for the alpha level selected (for example, t-value for alpha level of 0.05 is 1.96 for sample size above 120). For categorical data, 5% margin of error is acceptable (Krejcie & Morgan 1970). Cochran's sample size formula for categorical data is

$$t^2(p)(q)$$

$$n = \frac{t^2 \cdot (p)(q)}{d^2} = \frac{(1.96)^2 (.5)(.5)}{(.05)^2} = 384$$

Where:

n = the desired sample size

$t^2$  = value of selected alpha level of .025 in each tail =1.96 (the level of .05 indicates the level of risk the researcher is willing to take. True margin of error may exceeds the margin of acceptable margin of error

(p)(q) = estimate of variance = 0.25 (p-Maximum possible proportion (.5)\* 1-maximum possible proportion (.5) produces maximum possible sample size)

d = acceptable margin of error for proportion being estimated = .05 (the error researcher is willing to accept)

Therefore, for a population of 642, the required sample is calculated as follows:

$n_f = n / (1 + n / \text{population})$  , where  $n_f$  is the target sample size.

$$\frac{384}{(1+384/642)} = 240$$

Using the Krejcie and Morgan sample size table, the researcher found that the sample is 240 employees (Krejcie & Morgan, 1970). 240 is also in line with the comment given by Fisher (2007) in the view that if one has population range between 600 - 650 and wants an error of about 5% in the survey results, then the sample size to be used for the estimated range of population should be between 234- 242. In this study, the researcher accepted 5% margin of error and as such sampling 240 out of the population of 642 made the work in conformity with Fisher's argument. Fisher's argument is also in line with the comment given by Saunders et al (2002) who are also of the view that using 5 percent margin of error in a study means 95% of the researcher's results of data are certainly true. This is supported by what was calculated by using Cochran's (1977) formula. The chosen sample is then considered by the researcher to be large enough and manageable to yield reliable data and to guard against non-responses.

### **3.4 Sampling Procedure**

The researcher applied stratified sampling proportional to size based on the relative number of employees in each level to be able to get a representative sample for the

employees (as Middle managers, junior managers, supervisors and workers). Table 3.1 illustrates the procedure how the determined sample was proportionally distributed over the identified strata.

Table 3.1 - Number of employees sourced from payroll

Categories of respondents	Sample determination	Sample size
Middle level Managers	12	5
Junior managers	67	25
Workers/supervisors	563	210
<b>Total</b>		<b>240</b>

Source; from payroll

After determining the representative sample for the population, questionnaires then were carefully distributed to participants within each category using availability sampling based on the allocated numbers to the strata as could be observed from table 3.1. Accordingly, out of the total 240 questionnaires which were given out to respondents 194 questionnaire were returned. According to the table below, 5 questionnaires that were allocated to middle managers were fully filled and received. Similarly 25 questionnaires given to junior managers were also fully complete and returned. However out of 210 questionnaires that were distributed among workers and supervisors only 164 were filled complete and returned. In general 194 questionnaires were able to be returned implying a response rate of 80.8% which is generally considered as good return rate.

Table 3.2- Response rate of the study

Categories of respondents	Number of questions distributed	Response rate		
		Frequency	% age per strata	% age share per total sample
Middle level Managers	5	5	100%	2.08%
Junior managers	25	25	100%	10.4%
Workers/supervisors	210	164	78.09%	68.4%
<b>TOTAL</b>	<b>240</b>	<b>194</b>		<b>80.88</b>

From the above table it can be observed that 194 questionnaire were fully filled and returned .This implies that the analysis was based on 80.8% response rate of the sampled population

### **3.5 Method of Data Collection and Instruments**

The study was based on both primary and secondary data. The use of secondary data collection began to some extent in the literature review part and continued further by getting information from books, articles, journals, bulletins and the company's Safety policy and procedures. Primary data was collected in the form of questionnaire. The questionnaires were in both English and Amharic languages to enable those who do not understand English to complete them in Amharic. The questionnaire comprises of three sections. These are; Section I contains demographical questions about the respondents such as sex, age, educational level, work experience, martial status and department of respondents. Section II contains elements/determinants of Safety culture such as management safety commitment, safety training and education, safety communication, employee safety involvement and accident preventive and control measures. Section III contains Employee safety practice. For section II and III, a five point Likert scale that range from 1 (strongly disagree) to 5 (strongly agree) were used.

### **3.6 Data Processing, Analysis and Presentation**

After data cleaning, the data was coded and entered in the computer for analysis using the Statistical Package for Social Sciences (SPSS 20). This research is expected to yield quantitative data. Quantitative data was analyzed quantitatively based on analysis of implications emanating from respondents information. Descriptive and inferential statistics was employed to analyze quantitative data. The descriptive statistics included frequency counts, means and percentages. Responses of employees were measured on five point Likert scale with scales as 1= Strongly Disagree; 2= Disagree; 3=Indifferent; 4= Agree; and 5 = Strongly Agree. To make an easy interpretation, the following range of values was assigned to each scale: 1.50 or below = Strongly Disagree; 1.51- 2.50 = Disagree; 2.51- 3.50 = Neutral; 3.51 – 4.50 = Agree; and 4.51 and above = Strongly Agree. A statistical inference was also drawn using correlation and multiple regression analysis. Quantitative data was analyzed numerically and presented using tables.



### 3.7 Operational Definitions of Variables

The variables for both independent and dependent are measured through calculating the arithmetic mean from each respondent for the following questions using likert 5-point scales. The questions used in this study are adapted mostly from **Organizational Performance Metric (OPM)** report at <http://www.iwh.on.ca/benchmarking-organizational-leading-indicators> and some from other literatures as Everon C. (2010) and Bob E. Hayes, et al (1998)

#### 3.7.1 Independent Variables

1. **Management Safety Commitment**- is assumed to be a commitment on the part of management to make safety and health a priority. It is only when management plays a positive role that workers view such practice as a worthwhile and sustainable exercise in the work they perform every day (Benjamin, 2008). The researcher therefore used the following items of questions to know the level of commitment managers and supervisors hold to occupational health and safety issues

1. Health and safety of workers is of high priority to the management
2. My immediate supervisor shows me the safe way to perform my job duties when I act in an unsafe manner
3. The safety manager (or the person in charge of health & safety) receives support from top management
4. There is safety department in the regional office
5. The management is committed to well-being of the workers through its safety policies along with other HR policies
6. Your company considers safety to be equally important as production and quality in the way work is done
7. Top management provides the essential resources of establishing OH&S System

2. **Safety Communication** - is the upward and downward flow of safety related information and feedback such as safety instruction, safety policy and procedures. It is assumed by the researcher that Effective communication and the promotion of competence, as one of the variables, allow all employees and their representatives to

make a responsible and informed contribution to the safety and health effort. The following items are thought to be indicative of the existence of safety communication in the company

1. OHS instruction manuals or work procedures are available
2. At this company, there is usually formal communication of safety policies and procedures that employees are to follow
3. This company, there is usually communication among employees to identify solutions to improve safety
4. At this company, the managers and employees communicate regularly about issues related to safe working conditions
5. Workers are informed about OHS hazards through written materials and meetings
6. OHS policies and procedures are clearly communicated in regular meetings, presentations or campaigns

3. **Safety Training and Education** - According to this study training and education refers to the skills, knowledge and attitudes to make employees be competent in the safety and health aspects of their work. The following items are considered a means to know if safety trainings are available to the workers

1. EEU company organizes workshop, seminar and lecturers on safety precaution
2. Workers are given sufficient OHS training when joining your company, changing worksites
3. Your company supports OHS training opportunities for workers (e.g. leave, scholarships)
4. Training is provided on the use of new equipment or technology in my work place
5. OHS training is ongoing and based on a training plan

4. **Employee Safety Involvement**- This refers to participation (engagement) of the employee in safety and health matters of himself. Participation of workers on their health and safety issues will help them to be more responsible to practice safe work and help others to do so. This study considered the following items to investigate whether employees are involved in safety matters or not.

1. Incentives are frequently offered to encourage workers to comply with OHS policies and procedures (e.g. correct use of protective equipment).
2. Staff suggestions are readily acted upon by management
3. I know fully what is expected of me at work regarding safety
4. I regularly receive recognition for doing a safe job
5. OHS decisions are frequently based on consultations with, or suggestions from, workers.
6. Periodic meetings are held between workers and supervisors/managers to make decisions that affect the organization of work.
7. Teams of workers from various parts of your company are frequently used to solve problems about working conditions.

5. **Safety Prevention and Control Measures** – refers to practical measures taken by the management to prevent or control incidents of hazards. In order for the study to assess or make sure these measures are practical in the company the following items are considered.

1. The working equipment and tools in my workplace are safe
2. Employees are provided with personal protective equipment
3. Safety audits and inspections are carried out to identify risks and hazards at my workplace
4. Portable fire extinguishers are distributed based on the classes of anticipated fires and degree of hazard
5. All accidents occurring at the workplace are investigated within specified timelines
6. Your company analyzes injury and illness data (e.g. claims data, first aid logs) to identify causes and target solutions

### **3.7.2 - Dependent Variable**

**Employee safety practice**– Griffin and Neal (2000) suggested that safety practice is a product of safety behavior. Therefore by definition this refers to activities which lead to reduction of risk and as a result reduce accidents and injuries. Safety practice as conceptualized in this thesis encompasses all the activities undertaken by individuals in their workplace to ensure their personal safety, the safety of their co-workers and the

safety of their organization at large. The following items are used to investigate the level of employee safety practice/safety performance.

1. I ignore safety procedures in order to get job done more quickly (reversed)
2. I follow all safety procedures regardless of the situation I am in
3. I handle all situations as if there is a possibility of having an Accident
4. I wear safety equipment required by practice
5. I keep my work area clean
6. I encourage co-workers to be safe
7. I keep my work equipment in safe working condition
8. I take shortcuts to safe working behaviors in order to get the job done faster (reversed)
9. I do not follow safety rules that I think are unnecessary(reversed)
10. I report safety problems to my supervisor when I see safety Problem
11. I correct safety problems to ensure accidents will not occur

### **3.8 Validity of the Research Instrument**

The validity of the research instrument determines whether the research truly measures what it is thought to measure. The study sought to achieve validity in that questions were based on information gathered during the literature review to ensure representativeness of the variables used under this study. The questionnaires used in this research as a data collection instrument were fully adapted from Literatures and are thus standard questions and are assumed fit to investigate the problem under study

### **3.9 Reliability Test**

In this study, reliability test was conducted to check the internal consistency of each item in the variables by using Cronbach's Alpha approach. As it was suggested by Cronbach (1990) those in the range of 0.70 ranges, is acceptable and those above 0.80 is considered as good. Table 4.2 shows cronbach alpha values as follows;

Table 4.2 Cronbach's Alpha

<b>Variables</b>	<b>Items</b>	<b>Mean</b>	<b>SD</b>	<b>Cronbach's Alpha</b>
Management Safety Commitment	7	2.59	1.02	0.811
Safety Communication	6	2.54	0.935	0.798
Safety Training	5	2.66	0.932	0.753
Safety Involvement	7	2.47	1.008	0.882
Accident Prevention and control measures	9	2.1	0.85	0.774
Employee Safety Practice	11	2.08	0.86	0.793

On the over all, the reliability of all the measures was comfortably above 0.70, ranging from 0.753 to 0.882. The measurement and the corresponding alphas of the study were Management safety commitment ( $\alpha = 0.811$ ), Safety Communication ( $\alpha = 0.798$ ), Safety Training ( $\alpha = 0.753$ ), Safety Involvement ( $\alpha = 0.882$ ), Accident Prevention and control measures ( $\alpha = 0.774$ ) and finally, Employee safety Behavior ( $\alpha = 0.793$ ). Based on the output of the analysis, the Cronbach's alpha acquired indicates that all the items are positively correlated to one another and it is internally consistent. For that purpose, the Cronbachs alpha has been used to measure reliability among variables. In summary, the instrument used to measure each variable in this study is reliable

### **3.10 Ethical Considerations**

In this study questionnaire were used as a data collection instrument. In order for the data to be collected permission was requested with a formal letter written to EEU company western region. The company granted the permission to collect data and so data was gathered by taking in to account ethical considerations. To ensure these ethical considerations the researcher provided respondents with questionnaire that requests their willingness to participate. Respondents were well informed about the purpose of the study, employees were assured that there would be no potential risks or costs associated with their participation. Respondents' privacy and confidentiality was also kept. For this reason, respondents voluntarily participated and cooperated during data collection. Hence, many questionnaires were fully filled and returned without any form of incompleteness.

# CHAPTER FOUR

## RESULTS AND DISCUSSION

### 4.1 Introduction

This Chapter Presents the findings of organizational safety culture influencing employee safety practice of Ethiopian electric utility in western region. The chapter begins with demographic data of respondents and subsequently assesses the organization’s safety culture dimensions with respect to employee safety practice and ends with discussions on the findings.

### 4.2 Demographic Data

The first part of the questionnaire consists of the demographic information of the participants. This part of the questionnaire requested a limited amount of information related to personal and professional characteristics of respondents. Accordingly, the demographic variables about the respondents were summarized and described in table 4.1. These variables include: sex, age, educational level, work experience and marital status and department of respondents. The Findings of demographic data were presented as follows

Table 4.1 Demographic Characteristics of Respondents

	Frequency	Percent
<b>Sex</b>		
Male	164	84.5
Female	30	15.5
Total	194	100.0
<b>Age</b>		
20-30	57	29.4
31-40	84	43.3
41-50	42	21.6
51 and more	11	5.7
Total	<b>194</b>	<b>100.0</b>
<b>Education</b>		
Secondary School	28	14.4
Vocational School	130	67

First Degree	29	14.9
Post Graduate Degree	7	3.6
<b>Total</b>	<b>194</b>	<b>100.0</b>
<b>Experience</b>		
1-3	20	10.3
4-7	43	22.2
8 and Above	131	67.5
<b>Total</b>	<b>194</b>	<b>100.0</b>
<b>Marital status</b>		
Single	41	21.1
Married	149	76.8
Widowed	4	2.1
<b>Total</b>	<b>194</b>	<b>100.0</b>
<b>Department</b>		
Transmission, Operation and maintenance	38	19.6
Distribution	34	17.5
Substation	11	5.7
District technical unit	99	51
Administration, Finance and Marketing	12	6.2
<b>Total</b>	<b>194</b>	<b>100.0</b>

The information from the above table shows that 84.5% of the respondents were male where as the rest 15.5% of the respondents were females. This indicates that majority of respondents were males. This is mainly because of the nature of the employment in the organization that requires more men than females to engage in tasks which involve operation, transmission and maintenance of electricity lines. These tasks are heavy works and do require physical strength and muscular endurance as workers are needed to climb on poles and reach certain height with all the tools and equipments to fix electricity.

Regarding age of respondents, 29.4% of respondents fall between the ages 20-30, 43.3% fall between ages 31-40, 21.6% fall between ages 41-50 and the remaining 5.7% of the respondents are found to be more than the age of 51. This information implies that majority of respondents (43.3%) were in the age range of 31-40.

Concerning education level of respondents, 14.4 % of respondents had reached secondary school whereas 67 %, as indicated in the table, had acquired vocational (technical) school training and on the other hand 14.9 % of respondents have their first degree. 3.6 % of the respondents have got Masters Degree. From this finding it is obvious that most workers in the region are educated enough to understand safety measures and to act in the way desirable if the company would improve safety management systems.

Relating to Respondents work experience those who served the company for a period 1-3 years constitute 10.3 % of the sample respondents. Those who served for a period 4-7 years take up a portion 22.2%. The rest of the respondents (67.5%) which is a majority, as can be seen from the table served for more than 8 years. This information infers that a larger proportion of respondents (89.7%) remained within the company for 4 and more years. This helped the researcher to gather appropriate information about the subject matter.

Marital status of respondents is such that 41 respondents (21.1%) are single, 149(76.8) respondents are married and only 4 respondents (2.1%) are widowed. This information indicates that majority of the respondents are married and assumed to lead families. Safety therefore is at most benefit for many of the respondents since they have dependents to support.

As can be seen from the table majorities of participants (93.8%) were from technical and engineering field of works; namely, Transmission, Operation and maintenance, distribution, substation, and district technical units whereas Only 6.2% of respondents were from administration, finance and marketing. From this finding it is evident that majority of the participants in the sample is worth pursuing and assumed to deliver the important information required by this study since they directly deal with electricity which is hazardous and requires the most safety.

In conclusion, demographic characteristics indicates that, more participant respondents were male 84.5% and few were females 15.5%.This shows that study sample is skewed,



because it was most likely to find more male workers in electric distribution and transmission works. Majority of the workers were within the age group of 31-40(43.3%). Majority of respondents (67%) have vocational school diploma. This indicates that they have sufficient capability to understand safety matters if provided to them by the company. Furthermore, Most of respondents (67.5%) have sufficient experience on electric works i.e. have worked over 8 years in the company. This also has positive implications to improving company's safety culture by making advantage of experiences together with support from the company if available. Large portion, which is 76.8% of participants in the survey were confirmed married. Most respondents about 93.8% are from technical or engineering aspect of works mainly from transmission operation, maintenance, distribution, substation and the like. The workers within these departments have contributed to the findings of this study by delivering the factual information.

### **4.3 Employee Response to the Organization Safety Culture**

Safety culture is a priority and a group value placed on worker to the extent in which individuals and groups will commit to personal responsibility for safety, act to preserve, enhance and communicate safety concerns, strive to actively learn, adapt and modify (both individual and organizational) perception of employees towards safety culture (Management commitment; Worker participation and consultation and Training for competence and confidence and Communicating the right message up and down the organization and accident prevention measures) is important in determining their safety performance at workplace.

This section provides response of the employees to statements that assess the perception of employees towards the organization safety culture in light of the five variables of safety culture. These responses were analyzed and presented in detail.

#### **4.3.1 Employees' Level of Agreement on Management Commitment to Safety**

Employees' perception of management's commitment to safety can result in good safety performance. Hence, this study tried to assess feelings of employees towards management commitment to safety.

Statements	Strongly Disagree		Disagree		Indifferent		Agree		Strongly Agree	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Health and safety of workers is of high priority to the management	34	17.5	92	47.4	24	12.4	33	17	11	5.7
My immediate supervisor shows me the safe way to perform my job duties when I act in an unsafe manner	29	14.9	85	43.8	54	27.8	15	7.7	11	5.7
The safety manager (or the person in charge of health & safety) receives support from top management	15	7.7	82	42.3	68	35.1	22	11.3	7	3.6
The management is committed to well-being of the workers through its safety policies along with other HR policies	20	10.3	23	11.9	63	32.5	72	37.1	16	8.2
There is of safety department in the regional office	20	10.3	90	46.4	41	21.1	42	21.6	1	.5
Your company considers safety to be equally important as production and quality in the way work is done	18	9.3	84	43.3	51	26.3	30	15.5	11	5.7
Top management provides the essential resources of establishing OH&S System	50	25.8	82	42.3	41	21.1	16	8.2	5	2.6

Source; Questionnaire

Table 4.4 Descriptive Statistics of management commitment to safety

	N	Min	Max	Mean	Std. Deviation
Health and safety of workers is of high priority to the management	194	1	5	2.46	1.134
My immediate supervisor shows me the safe way to perform my job duties when I act in an unsafe manner	194	1	5	2.45	1.023
The safety manager (or the person in charge of health & safety) receives support from top management	194	1	5	2.61	.917
The management is committed to well-being of the workers through its safety policies along with other HR policies	194	1	5	3.21	1.092
There is safety department in the regional office	194	1	5	2.56	.960
Your company considers safety to be equally important as production and quality in the way work is done	194	1	5	2.65	1.034

Top management provides the essential resources of establishing OH&S System	194	1	5	2.20	.999
Average mean and standard deviation				<b>2.59</b>	<b>1.02</b>

Table 4.3 and table 4.4 indicated the agreements of respondents to the set out questions regarding the commitment of management towards safety. In this regard to the first statement “Health and safety of workers is of high priority to the management”. Majority respondents (64.9%) disagreed with the mean of 2.46. whilst 12.4% of workers were not sure to indicate either agreement or disagreement. But only 16.7% showed their agreement.

With regard to the second statement more than half of respondents disagreed with a mean of 2.45(58.7%) about their supervisors’ commitment to safety in that Immediate supervisors themselves does not show employees a way of safely doing tasks and do not even correct them when doing a job unsafely. According to respondents comment both the management and supervisors give weight exclusively to task accomplishment than the safety of workers. Respondents feel that supervisors are negligent and careless about workers health and safety at work. They also added that managers are much more concentrated on getting a report of how much part of the job is done than safety of an employee.

Likewise, respondents reply to the statement that “safety managers/representatives were supported by the top management” is replied with the mean of 2.61 implying disagreement by half of respondents (50%) and still 35% also not sure to agree or disagree. This means that majority participants feel that department of safety does not exist in the regional office.

Additionally, 45.3% of respondents agreed that there is a written safety policy and other HR polices in the company that demonstrate commitment of management to keeping health and safety of workers. 32.5% of them were not sure about this and the remaining 22.2% disagreed to the statement. A mean value of 3.21 indicates that most employees are not sure if these policies (whether the HR policy or the safety policy) do reflect

commitment of management to safety. From this it may be possible to assume that the safety policy document is neither accessible nor communicated to workers and hence they have limited or no knowledge about the policy statement.

Presence of safety department in the regional office was a concern to be known. To this question then more than half of respondents (56.7%) disagreed while 21.1% of respondents are not sure whether there is safety department or not. A mean of 2.65 implies that majority agree that there is no department of safety in the region office.

In the same way, knowing if safety is considered equal to production and quality was the researcher concern to ask the respondents and therefore respondents' response remained at a mean of 2.18. This means that the majority of respondents (52.6%) disagreed and about 26.3% of respondents were not sure.

Consistently large number of respondents (68.1%) argues with a mean value of 2.20 that EEU management does not provide essential resources necessary to safety. provision of essential safety resources, as discussed in the literature, is a means by which management demonstrate its commitment to safety. Nevertheless, the respondents' response stresses that safety resource availability was unsatisfactory and this in turn explains poor safety commitment by the management.

In general, given the respondents response it can be concluded that management commitment to safety is perceived negatively by most of the employees (53.3%). An average mean of 2.59 implies that there is a weaker safety commitment on the part of management. Since management commitment to safety is important for both the employees and the management and most of all to the company, weak commitment will result in a threatening working environment for employees.

### 4.3.2 Employees' Level of Agreement on Safety Communication

Statements	Strongly Disagree		Disagree		Indifferent		Agree		Strongly Agree	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
OHS instruction manuals or work procedures are available	32	16.5	110	56.7	25	12.9	23	11.9	4	2.1
At this company, there is usually formal communication of safety policies and procedures that employees are to follow	17	8.8	105	54.1	35	18	23	11.9	14	7.2
This company, there is usually communication among employees to identify solutions to improve safety	15	7.7	79	40.7	67	34.5	21	10.8	12	6.2
At this company, the managers and employees communicate regularly about issues related to safe working conditions	39	20.1	91	46.9	40	20.6	15	7.7	9	4.6
Workers are informed about OHS hazards through written materials and meetings	18	9.3	90	46.4	55	28.4	29	14.9	2	1

Source; Questionnaire

Table 4.6 Descriptive Statistics of safety communication

	N	Min	Max	Mean	Std. Deviation
Safety instruction manuals or work procedures are available	194	1	5	2.26	.943
At this company, there is usually formal communication of safety policies and procedures that employees are to follow	194	1	5	2.55	1.048
This company, there is usually communication among employees to identify solutions to improve safety	194	1	5	2.67	.984
At this company, the managers and employees communicate regularly about issues related to safe working conditions	194	1	5	2.30	1.025
Workers are informed about OHS hazards through written materials and meetings	194	1	5	2.52	.894
				<b>2.46</b>	<b>0.978</b>

As table 4.5 and 4.6 illustrates Large portion (73.2%) of respondents strongly disagreed and disagreed (with mean value of 2.26 (SD=.943) to the statement “Safety instruction

manual or work procedures are available” and conversely (14%) have agreed and strongly agreed while 12.8% were unsure/indifferent. From this response, it is clear that majority workers have no access to safety instruction manuals or work procedures.

With respect to formal communication of safety policy and procedures 62.9% of respondents disagreed and mean value of 2.55 indicates that most workers are indifferent. This implies that workers feel that safety policy and procedures are not communicated to them. The mean value of 2.67 for the statement “In this company, there is usually communication among employees to identify solutions to improve safety” implies that there is no communication among or between employees to improve safety conditions. Similarly, large number of respondents (67%) argues managers and employees do not communicate regularly about issues related to safe working conditions. A mean value of 2.30 implies mass of respondents disagreed to practice of safety communication between managers and employees.

Likewise, responses to the statement “Workers are informed about workplace Safety hazards through written materials and meetings” indicates that more than half of the respondents (55.5%.) disagreed and strongly disagreed and mean value of 2.52 infers Safety documents and manuals are not available. Workers have the right to access records relevant to their working environment and health since significant OHS hazards/risks arise from the organization’s activities.

In general, Safety communication was regarded as insufficient by most of the respondents. Most of respondents (61%) believe that there are not any safety communication activities in the company. Moreover, among the rest of respondents 28 % are also not sure about any safety communication being underway by the EEU. From this it is possible to say that safety communication is perceived negatively by many workers in the company.

### 4.3.3 Employees' Level of Agreement on Safety Training

Statements	Strongly Disagree		Disagree		Indifferent		Agree		Strongly Agree	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
EEU company organizes workshop, seminar and lecturers on safety precaution	34	17.5	75	38.7	56	28.9	23	11.8	6	3.1
Workers are given sufficient OHS training when joining your company, changing worksites	6	3.1	73	37.6	67	34.5	43	22.2	5	2.6
Your company supports OHS training opportunities for workers (e.g. leave, scholarships)	6	3.1	90	46.4	56	28.9	31	16.0	11	5.7
Training is provided on the use of new equipment or technology in my work place	19	9.8	95	49	52	26.8	26	13.4	2	1.0
OHS training is ongoing and based on a training plan	5	2.6	88	45.4	45	23.2	54	27.8	2	1

Source; Questionnaire

Table 4.8 Descriptive Statistics of safety training

	N	Min	Max	Mean	Std. Deviation
EEU company organizes workshop, seminar and lecturers on safety precaution	194	1	5	2.44	1.013
Workers are given sufficient OHS training when joining your company, changing worksites.	194	1	5	2.84	.895
Your company supports OHS training opportunities for workers (e.g. leave, scholarships)	194	1	5	2.75	.957
Training is provided on the use of new equipment or technology in my work place	194	1	5	2.47	.883
OHS training is ongoing and based on a training plan	194	1	5	2.79	.915
				<b>2.66</b>	<b>0.932</b>

As it is possible to observe from the above tables (4.7 and 4.8) majority of the respondents (56.2%) strongly argue that the company has not been organizing any workshops, seminar and lectures on safety precautions for its employees. on the other hand only 15 % of respondents agreed while the remaining 28.9 % of respondents were

remained indifferent to statement. A mean value of 2.44 (SD=1.013) is a sign that majority disagreed to the statement.

Similarly to the second statement that asks if “Workers are given sufficient OHS training when joining your company, changing worksites” significantly large number of respondents (about 43.6%) demonstrated their disagreement to the statement and about 34.4% of respondents are not even aware if EEU conducts safety training for new employees and for changing worksite. The result in descriptive statistics table indicated that average mean is 2.84 and from this value it is inferred that workers feel they are not given sufficient training in these cases.

In addition a reply to a statement “the company supports Safety training opportunities for workers (leave, scholarships). Results from this question indicated that 58.8% of the respondents disagreed and strongly disagreed that EEU does not support any of these opportunities and 26.8 % of respondents were indifferent. A mean value of 2.75 (SD=.957) explains that EEU does not support safety training opportunities.

EEU is undergoing changes as result of changes in technology. In relation to this, the company is importing variety of new materials and products with new technologies that require the employees to have training on how to work with it safely. In this respect therefore a statement “Workers are given sufficient OHS training when using new equipment or new technologies” was posed to them. Majority of respondents (58.8%) disagreed and 26.8% of respondents responded indifferent. A mean value of 2.47 (SD=.883) also confirmed this result.

Moreover 48% of respondents indicated that they disagree and strongly disagree to the idea that OHS training is ongoing and based on plan. 23.2 % of them were unsure to agree or disagree when the rest (28.8 %) of respondents agree to the statement. This result is descriptively indicated with a mean value of 2.79 (SD=.915) implying safety training is not ongoing in the company.



In conclusion the findings with regard to safety training and education provided by the company is that majority of respondents (51.2%) had a negative perception. This is confirmed by a low average mean of 2.66 on safety training and education. Therefore from this finding it can be inferred that there is fundamental problem on OHS training in the company. Nevertheless, as Armstrong (2006) put it, Health and safety training is a key part of the preventative program. It is also believed that if employees are to make the maximum contribution to safety and health, adequate arrangements must be in place to ensure that they have the necessary skills to do their work safely. This means more than simply training. Experience of applying skills and knowledge is an important ingredient.

#### 4.3.4 Employees' Level of Agreement on Employee Safety Involvement

Statements	Strongly Disagree		Disagree		Indifferent		Agree		Strongly Agree	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Incentives are frequently offered to encourage workers to comply with OHS policies and procedures (e.g. correct use of protective equipment).	46	23.7	124	63.9	14	7.2	5	2.6	5	2.6
Staff suggestions are readily acted upon by management	23	11.9	144	74.2	15	7.7	10	5.2	2	1
I know fully what is expected of me at work regarding safety.	57	29.4	96	49.5	30	15.5	8	4.1	3	1.5
I regularly receive recognition for doing a safe job	44	22.7	94	48.5	45	23.2	8	4.1	3	1.5
OHS decisions are frequently based on consultations with, or suggestions from, workers.	45	23.2	115	59.3	23	11.9	6	3.1	5	2.6
Periodic meetings are held between workers and supervisors/managers to make decisions that affect the organization of work.	36	18.6	83	42.8	58	29.2	14	7.2	3	1.5
Teams of workers from various parts of your company are frequently used to solve problems about working conditions.	47	24.2	71	36.6	47	24.2	23	11.9	6	3.1

Source; Questionnaire

**Table 4.10 Descriptive Statistics of employee safety involvement**

	N	Min	Max	Mean	Std. Deviation
Incentives are frequently offered to encourage workers to comply with OHS policies and procedures (e.g. correct use of protective equipment).	194	1	5	1.96	.804
Staff suggestions are readily acted upon by management	194	1	5	2.09	.699
I know fully what is expected of me at work regarding safety.	194	1	5	1.99	.870
I regularly receive recognition for doing a safe job	194	1	5	2.13	.865
OHS decisions are frequently based on consultations with, or suggestions from, workers.	194	1	5	2.03	.842
Periodic meetings are held between workers and supervisors/managers to make decisions that affect the organization of work.	194	1	5	2.30	.908
Teams of workers from various parts of your company are frequently used to solve problems about working conditions.	194	1	5	2.33	1.065
				<b>2.47</b>	<b>1.0088</b>

According to table 4.9 and 4.10 which are presented above, over three fourth of respondents (87.6%) argues against the statement “Incentives are frequently offered to encourage workers to comply with OHS policies and procedures (e.g. correct use of protective equipment)”. A mean value of 1.96 also stresses the respondents’ disagreement. This result shows that the company does not provide any incentives or encouragement to enable workers to comply with safety matters such as working by the rules and using personal protective equipments.

The researcher sought to ask if staff suggestions are readily acted up on by management. To this question then about 86.1% of respondents disagreed witnessing that this is not possible in the company whereas the rest of the respondents were indifferent (7.7%) and some few agreed (5.2%). A mean score of 2.09 which is below the average mean point out that majority of participants believed that safety suggestions or comments from employees are not granted action by the company.

Employees level of knowledge regarding safety issues were raised to respondents by the statement “I know fully what is expected of me at work regarding safety.” To this statement majority (78.9%) disagreed while 15.5% of respondents were neutral and only 5.6 % agreed. This question holds a mean value of 1.99, which is far lower than the

average mean. Therefore, from this it can be inferred that employees have lower knowledge of safety expected of them.

Regarding getting recognition for doing a job safely majority of respondents (71.2%) disagreed whereas (23.2%) of participants remained neutral not knowing which end to belong to. On the other hand the remaining which were only (7.6%) have shown their consent to the statement. Besides a mean of value of 2.13 also indicate that majority workers feel that management does not grant recognition for doing a job safely.

Likewise for the question “OHS decisions are frequently based on consultations with, or suggestions from, workers” 82.5 % disagreed with a mean value of 2.03. This indicates that safety decisions that affect the life of employees are decided without any input from the employees who actually perform most of the hazardous work.

Furthermore, we can understand that large number (78.8%) of respondents disagreed to the statement that “Periodic meetings are held between workers and supervisors/managers to make decisions that affect the organization work” Whereas 29.2% of the participants remained indifferent being not sure to indicate of existence of any safety meeting. Moreover, the mean response of the question (i.e. 2.30) indicates respondents’ opposition to the statement.

The final question raised to respondents about their safety involvement was “Teams of workers from various parts of your company are frequently used to solve problems about working conditions”. To this statement 60.8% of participants in the questionnaire responded up with disagreement while 24.2 % were not sure whether to agree or disagree. Consistently then a mean of 2.33 as well explains clearly that majority disagreed.

To conclude, most employees (75.5%, with an average mean of 2.47) of the company firmly believe that they are not given any chance of involvement in safety issues of their work even though safety is a component of their job.

### 4.3.5 Employees' Level of Agreement on Accident Prevention and Control Measures

Statements	Strongly Disagree		Disagree		Indifferent		Agree		Strongly Agree	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
The working equipment and tools in my workplace are safe	51	26.3	115	59.3	21	10.8	2	1	5	2.6
Employees are provided with personal protective equipment	64	33	91	46.9	39	20.1				
Safety audits and inspections are carried out to identify risks and hazards at my workplace	54	27.8	92	47.4	24	12.4	19	9.8	5	2.6
Action is taken when safety rules are broken	43	22.2	97	50	44	22.7	10	5.2		
Portable fire extinguishers are distributed based on the classes of anticipated fires and degree of hazard	66	34	82	42.3	42	21.6	4	2.1		
All accidents occurring at the workplace are investigated within specified timelines	35	18	78	40.2	51	26.3	28	14.4	2	1
Your company use warning signs and posters prevent employees from hazard.	14	7.2	129	66.5	34	7.5	10	5.2	7	3.6
The hazards and risks associated with goods are controlled	20	10.3	124	63.9	20	10.3	20	10.3	30	15.5
Your company analyzes injury and illness data (e.g. claims data, first aid logs) to identify causes and target solutions	62	32	88	45.4	34	17.5	9	4.6	1	.5

Source; Questionnaire

Table 4.12 Descriptive Statistics of prevention and control measures

	N	Min	Max	Mean	Std. Deviation
The working equipment and tools in my workplace are safe	194	1	5	1.94	.803
Employees are provided with personal protective equipment	194	1	3	1.87	.719
Safety audits and inspections are carried out to identify risks and hazards at my workplace	194	1	5	2.12	1.008
Action is taken when safety rules are broken	194	1	4	2.11	.804

Portable fire extinguishers are distributed based on the classes of anticipated fires and degree of hazard	194	1	4	1.92	.797
All accidents occurring at the workplace are investigated within specified timelines	194	1	5	2.40	.978
Your company use warning signs and posters prevent employees from hazard.	194	1	5	2.31	.826
The hazards and risks associated with goods are controlled	194	1	4	2.31	.856
Your company analyzes injury and illness data (e.g. claims data, first aid logs) to identify causes and target solutions	194	1	5	1.96	.854
				<b>2.10</b>	<b>0.85</b>

Concerning the safety of tools and equipments that workers must use to carry out their job was one of the major instruments for the researcher to find about. Since the company in the study is electric utility company and its workers are mainly electrical engineers, electricians, lineman and technicians who require different tools and equipments to work with. In this regard large portion of respondents answered the question “The working equipment and tools in my workplace are safe” particularly 85.6% of respondents showed disagreement and of course with a mean of 1.94. From this result it can be possible to assume that safety performance of an employee is poor due to the condition that employees are not offered a safe working equipments and tools when going out to work.

In relation to the statement asking if employees are provided with personal protective equipment. Results indicated great large number (79.9%) of respondents disagreed with a mean value of 1.87. This means that the employees have witnessed the fact that there really is lack of equipment and protective clothing that employees use to safely perform their duties.

With regard to safety audits and inspections three fourth of respondents i.e 75.2 % of respondents disagree with a mean of 2.12 that they do not perceive any safety audit and inspection of accident being undertaken by the company. The mean value further stressed that there is a significant negative perception towards the statement.

Safety rules are important precaution measures and help to reduce accident the research has taken interest to know whether action is taken whenever employee broke them.

However to the fourth question as well about 72.2% of the respondents explained that no action is taken up on those who violate safety rules. A mean value of 2.11 implies disagreement to the statement in question.

Considering safety device, it was realized that (76.3%) disagreed and only (2.1%) agreed and (21.6%) were indifferent with regard to the inquiry “Portable fire extinguishers are distributed based on the classes of anticipated fires and degree of hazard”. a mean value of 1.92(SD=.797) for this, indicated that employees are certainly witnessed that there are not first aid kit and fire extinguishers at their work places.

Respondents when asked of the accidents that are occurring at the workplace are investigated within specified timelines. They replied with 58.2% that they do not believe such investigations are carried out under designated schedule. 26.3% of respondents themselves are not aware of or come across to such activity by the management. A response of mean value of 2.40 for this statement shows a lower perception of employees towards this activity.

Consistently large share of respondents almost three fourth of participants in the questionnaire (73.7%, mean of 2.31) replied to the statement “Your company use warning signs and posters prevent employees from hazard.” that they disagree. However only 12.8% of participants indicate they do agree yet the rest 7.5% of them kept unsure of presence of signs or posters of safety warnings.

Whether hazard and risk associated with good in use are controlled or not by the management was posed by the researcher to the respondents to show their level of agreement. According to the result therefore over half of the respondents (56.2%) disagreed and this is also confirmed by a mean value of 2.47(SD=.979) implying respondents lower perception of this matter.

Finally the researcher has sought to investigate if there is an experience of injury and illness data analysis. According to the finding respondents disagreed with a mean value 1.96 that there is not such experience in the organization.

Generally the findings show that most workers (74.7%) are unsatisfied with accident prevention and control measures and they rather believe that accident prevention measures in the company are unsatisfactory.

#### 4.4 Employees' Level of Agreement on Their Safety Practice

Statements	Strongly Disagree		Disagree		Indifferent		Agree		Strongly Agree	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
I ignore safety procedures in order to get job done more quickly (reversed)	42	21.6	88	45.4	50	25.8	13	6.7	1	.5
I follow all safety procedures regardless of the situation I am in	27	13.9	85	43.8	56	28.9	19	9.8	7	3.6
I handle all situations as if there is a possibility of having an Accident	39	20.1	78	40.2	51	26.3	20	10.3	6	3.1
I wear safety equipment required by practice	28	14.4	107	55.2	38	19.6	20	10.3	1	.5
I keep my work area clean.	42	21.6	110	56.7	38	19.6	3	1.5	1	.5
I encourage co-workers to be safe	46	23.7	109	56.2	24	12.4	14	7.2	1	.5
I keep my work equipment in safe working condition	81	41.8	94	48.5	-	-	18	9.3	1	.5
I take shortcuts to safe working behaviors in order to get the job done faster (reversed)	33	17	119	61.3	26	13.4	12	6.2	4	2.1
I do not follow safety rules that I think are unnecessary (reversed)	36	18.6	126	64.9	14	7.2	11	5.7	7	3.6
I report safety problems to my supervisor when I see safety Problem	85	43.8	91	46.9	-	-	17	8.8	1	.5
I correct safety problems to ensure accidents will not occur	74	38.1	108	55.7			8	4.1	4	2.1

Source; Questionnaire

Table 4.14 Descriptive Statistics of employee safety practice

	N	Min	Max	Mean	Std. Deviation
I ignore safety procedures in order to get job done more quickly(reversed)	194	1	5	2.19	.870
I follow all safety procedures regardless of the situation I am in	194	1	5	2.45	.971
I handle all situations as if there is a possibility of having an Accident	194	1	5	2.36	1.015
I wear safety equipment required by practice	194	1	5	2.27	.853
I keep my work area clean.	194	1	5	2.03	.723
I encourage co-workers to be safe	194	1	5	2.05	.835
I keep my work equipment in safe working condition	194	1	5	1.78	.890
I take shortcuts to safe working behaviors in order to get the job done faster (reversed)	194	1	5	2.15	.848
I do not follow safety rules that I think are unnecessary (reversed)	194	1	5	2.11	.895
I report safety problems to my supervisor when I see safety Problem	194	1	5	1.76	.886
I correct safety problems to ensure accidents will not occur	194	1	5	1.74	.774
				2.08	0.86

67% of respondents replied their agreement to the statement posed by the researcher about ignorance of safety procedures in order to perform a job quickly. And on the other hand still 25% of participants indicated that they do not know if they are negligent or not in complying with safety procedures. For the convenience of analysis the input was reversed. From this it can be inferred that most of the workers in the company do not follow safety rules. This was put in the descriptive statistics table as a mean value of 2.19 and this falls under strong disagreement at average level.

Similarly the second statement was meant to investigate if workers at all situations comply with safety procedures. Consequently over half of the participants mentioned that they disagree to the statement while significantly large number of respondents kept unsure about following safety rules in all situations. Average mean of 2.45 also strengthen this finding.

Large proportion of participants (60.3%) disagreed to the statement “I handle all situations as if there is a possibility of having an Accident” and 23.3% of participants are indifferent while low number of respondents (13.4%) agreed. A mean value of 2.36 explains disagreement in general conditions to the matter put in front.



In same way most respondents (69.6%) witnessed with disagreement that they do not wear any personal protective equipment or clothing while they are at job. 19.6 % of respondents to this question replied they are not sure to wear or not. A mean of 2.27 also indicate a low perception of wearing PPE. From this it is possible to understand that employees in this company (electricians, technicians and others) who may be highly exposed to hazards of electricity are not wearing personal protective clothing hence they are put to great danger and perhaps loss of life.

With respect to keeping a work area clean 152 (78.3%) of respondents suggested that they do not clean their work area. On the other hand 38 (19.6%) of respondents are indifferent (neither disagree nor agree) to the question asked. The rest which is only 4 (2%) of the participants have shown their agreement. A below average mean score of 2.03 indicate that majority of workers here do not keep their work area clean.

Relating to co worker safety, respondents were asked if they encourage co worker to be safe. Based on the responses from participants in the questionnaire therefore 155(79.9%) of respondents opposed to the statement while 24 (12.4%) of them replied indifferent. Nevertheless only 15 (7.7%) of the participants Have agreed that they encourage coworker to be safe. However a mean value of 2.05 is clearly seen to be below the average score. From this it is clear that employees' perception of this item is comparatively lower than other items next to the corresponding item above it.

Pertaining to keeping tools and equipments in safe working condition great large number of respondents which is 175 people constituting (90.3%) of the participants involved disagreed with a mean of 1.75, which is far below the average mean suggesting vigorously that working tools and equipments are not put in safe working condition and this for sure contribute to the incidents of worker injuries at workplace.

In order for accomplishing a task faster if shortcuts are chosen over safety behavior by an employee was interested to be known. This item was reversed to make the analysis realistic and in agreement with the other items. According to the finding large portion of

respondents which is 152 of them (78.3%) agreed they do take shortcuts in an attempt to do tasks faster. Whereas 26 (13.4%) of the respondents are unsure to agree or disagree (or are indifferent) while only a small share of participants (8.3%) have disagreed that they do take shortcuts.

Compliance to safety rules and procedures contribute positively to ensure a safe work environment. The researcher sought to know if employees do not follow safety rules that they think are unnecessary. Since this item appears negatively it was necessary that it should be reversed for the purpose of analysis. Pertaining to the result obtained over three fourth of respondents 162 (83.5%) of have shown their agreement that they do trespass safety rules at times when they assume unnecessary.

Likewise respondents were asked a question concerning reporting safety problems to a supervisor and according to the finding 176(90.7%) of respondents have said they do not report any safety incident to a supervisor. This result is further explained by a mean value of 1.76 which is far less than the average mean, explains the safety reporting activity in the company is very poor.

Finally the statement “I correct safety problems to ensure accidents will not occur” was forwarded to participants in the sample. To this end also in the same way as the above item large portion of respondents about 182 of them (93.8%) opposed to the statement saying that they disagree to correcting safety problems. On the contrary, only 12 people (6.2%) said they correct safety problems when they occur. A mean of 1.74 is obtained from responses given to this item. This value is below the average mean score and therefore it is possible to even conclude that employees do not try to correct safety problems even if it occurs.

In conclusion, on average 77.2% of respondents feel that they are not working in accordance with safety requirements. An average mean of 2.08 also illustrate that employee safety practice in the company is unsatisfactory. This means that most employees ignore safety regulations in order to get a job done, carry out activities which are forbidden, do not encourage co-workers to be safe, perform their duties incorrectly,

do not correct safety problems, do not use personal protective equipment, and break procedures to carry out jobs quickly.

## 4.5 Correlations

In this study, Pearson correlation analysis was used show the strength of the association between the variables involved. Inter-correlations coefficients ( $r$ ) were calculated by the means of Pearson's Correlation Coefficients Analysis.

**Table 4.15 Pearson Correlation Coefficients Analysis Results**

	Management commitment	Safety communication	Safety training	Safety involvement	Safety Prevention and control	Employee Safety practice
Management commitment	1					
Safety communication	.074	1				
Safety training	.471**	.039	1			
Safety involvement	.221**	.019	.317**	1		
Safety prevention and control	.361**	.144*	.463**	.530**	1	
Employee Safety practice	.372**	.173*	.511**	.264**	.443**	1

\*\* . Correlation is significant at the 0.01 level (2-tailed)

\* . Correlation is significant at the 0.05 level (2-tailed)

The result indicated that there exists a positive correlation between all the independent variable and to the dependent variable (employee safety practice). According to the result in the table below, the strength of correlation of each variables are as follows; Safety training ( $r=.511$ ) is strong relationship, Safety Prevention and control( $r=.443$ ) is moderate relationship, Management commitment( $r=.372$ ) is moderate relationship, is significant at 0.05 confidence level. The finding indicates that there is a positive medium correlation between the three variables to the compliance safety practice. Finally, findings of the study has shown that safety involvement( $r=.269$ ) and safety communication( $r=.173$ ) hold relatively lower relation to employee safety practice. Results of this study suggest that the five components of safety culture were positively correlated with each other. Thus, it is evident that the dependent variable (employee safety practice) was influenced positively by all the five independent variables.

## 4.6 Multiple Regression Analysis

This study utilized a multiple linear regression analysis in order to determine how much of the variance in the dependent Variable is explained by a set of predictors (independent variables). The analysis thus has determined how well a set of variables are able to predict a particular outcome and which variable in a set of variables is the best Predictor of an outcome.

### 4.6.1 Checking Assumptions

#### 4.6.1.1 Correlations

As can be observed from Pearson correlation coefficients in table 4.15 there is a positive relations between the variables used for this study. According to the finding there was some relationship between the independent variables as mentioned. The correlations were even less than .6 and this means that there is no strong significant relationship between independent variable to distort the level by which the dependent variable is influenced; therefore all variables will be retained.

#### 4.6.1.2 Collinearity Diagnostics

According to the SPSS result obtained and presented in the following table there are two values which are (Tolerance and Variance Inflation Factor, VIF) as provided.

Table 4.16 Collinearity statistics

	Collinearity Statistics	
	Tolerance	VIF
Management commitment	.751	1.332
Safety communication	.973	1.028
Safety training	.674	1.484
Safety Involvement	.709	1.410
Safety Prevention and control	.592	1.688

A problem of multicollinearity does not exist in this study since the tolerance value is more than (.10) and the VIF, which is just the inverse of the Tolerance value, is less than 10 which is the cut-off point. Therefore problem of collinearity is not present in this study.

### 4.6.1.3 Normality

The Results to check normality are available in the figure labeled Normal P-P Plot (Annex-C). Based on the normal P-P Plot all the points are clearly shown to lie in a reasonable straight diagonal line from the bottom left to top right. This would suggest that there are no major deviations from normality.

### 4.6.2 Model Results

Table 4.17 Result of the coefficients

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.584 <sup>a</sup>	.341	.323	3.64854	.341	19.434	5	188	.000

- a. Predictors: (Constant), Safety Prevention and control, Safety communication, Management commitment, Safety training, Safety involvement  
 b. Dependent variable: Employee Safety practice

ANOVA <sup>b</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1293.491	5	258.698	19.434	.000 <sup>a</sup>
	Residual	2502.633	188	13.312		
	Total	3796.124	193			

- a. Predictors: (Constant), Safety Prevention and control, Safety communication, Management commitment, Safety training, Safety involvement  
 b. Dependent Variable: Employee Safety practice

The results presented in the table 4.17 labeled Model Summary under the heading R Square and ANOVA<sup>b</sup>. These will tell how much of the variance in the dependent variable is explained by the model. The analysis revealed that R is 58.4 percent; this explains the correlation between the predictor variables and dependent variable. R Square ( $R^2$ ) is the square of the measure of correlation and indicates the variance in the dependent variable which is accounted for by the model. The Adjusted R Square value of ( $R^2 - .323$ ) in the output is to be used to provide a better estimate of the true population. In this case, the five Independent variables are reasonably correlated ( $r = .58$ ). In addition the statistical findings summarized in ANOVA table shows that regression effect is statistically significant where  $F(5,188) = 19.434$ ,  $p < 0.05$ , indicating that prediction of the dependent variable is accomplished effectively. The p value  $< 0.05$ , shows that the model has a

strong significance and explanatory power of prediction. From this it can be also assumed all independent variables contribute jointly to the prediction of employee safety practice.

Table 4.18 Beta under standardized coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	9.615	2.441		3.938	.000
	Management commitment	.111	.064	.119	1.739	.084
	Safety communication	.233	.117	.119	1.990	.048
	Safety training	.467	.097	.346	4.794	.000
	Safety involvement	.010	.067	.011	.154	.878
	Accident Prevention and control	.227	.080	.218	2.827	.005

*N.B: R = .584; R<sup>2</sup> .341; Adjusted R<sup>2</sup> = .323*

Table 4.18 shows which of the variables included in this study contributed to the prediction of the dependant variable, the output box labeled Coefficients to be applied in the column Beta under Standardized Coefficients. The adjusted R<sup>2</sup> of 0.323 implies that the 5 elements of Safety culture predictor variables explained about 32 % of the variance in the compliance with safety practice, as depicted in the table 4.17. The Beta values indicated the largest beta coefficient is .346 (Sig.000) which is Safety training, followed by the second largest beta .218 (Sig.000) which is Safety Prevention and control measures, the third largest beta are management safety commitment and safety communication respectively with same beta value of .119 but with different significance (i.e. Sig.088 and .048 respectively). From this therefore it is clear to understand that safety culture variables make the strongest contribution to explaining the dependant variable. These four variables make the strongest unique contribution to explaining the dependent variable but when looking at significance level; management commitment to safety had p value of greater than 0.05. Finally the remaining low beta value of .011(Sig.878) for safety involvement shows that it made relatively least contribution to the prediction of the dependent variable. When looking at the t statistics, when coefficient of t > 1.96 with a significance less than 0.05 (p<0.05), that indicates the independent

variable is a significant predictor of the dependent within the sample. This is true for the three variables (safety training, safety communication and accident prevention) as they hold t statistics value of 4.794, 1.99 and 2.82 respectively and all with  $p < 0.05$ . However, management commitment and employee involvement in safety had  $t = 1.739$  and  $t = .154$  respectively, which is less than 1.96 and this result suggest that management commitment and employee involvement are not effective predicator in this model.

It can be further interpreted that every increase in management commitment would lead to an increase of employee safety practice by .119; every increase in safety communication would increase employee safety practice by .119; every increase in safety training would lead to an increase in employee safety practice by .346; every increase in safety involvement would lead to an increase of .011 in employee safety practice and finally every increase in prevention and control measures would lead to an increase in employee safety practice by .218. Therefore the overall result of regression analysis indicates positive relationship between the five safety culture dimensions and employee safety practice.

#### **4.7 Discussion**

Descriptive findings show that safety culture perception of the employees, which was the focus of the study, was negative as the average mean of the sample was lower in the scale that is 2.42. Specifically, management commitment to safety had a response with an average mean of 2.59 (SD=1.02) signaling there is a considerable problem in safety commitment on the part of management. Michael O'Toole found that employees' perception of active commitment by management on safety issues have a positive effect on the rate of injuries in organizations by shaping behavior of workers to act in safe ways (O'Toole, 2002). As Michael put it, it is apparent that employees' perception of weak commitment by management would impact negatively on employee safety performance at work.

Similarly safety communication was negatively perceived by majority (mean 2.54, SD=0.935). This has revealed that safety information was not communicated to workers and this has negatively impacted on their safety motivation. Currently there is very little

emphasis on safety issues due to lack of awareness. Also, safety manuals and instructions are not readily available and not communicated whether in the form of meetings or discussion between management and workers.

When assessing safety training, Majority workers felt dissatisfied with safety training that they replied with a mean of 2.66 (SD=0.932). This proves that employees are not offered sufficient training and education on safety although safety training is known to increase safety consciousness of workers. Mearns et al (2000) suggested safety seminar workshops and on job training about safety practice increases employees' safety consciousness and thus improves safety performance.

Employees' participation in safety related matters was perceived lower as described by an average mean of 2.47(SD=1.008). Here workers were not given opportunities to discuss their problems about safety. The readiness and willingness from management is passive and due to this barrier consultation with workers remained impossible. Lack of worker participation in safety issues gives a rise to no or limited improvements in safety. Consequently, safety practice is likely to be poorly perceived by workers since their ideas, suggestions and comments are not taken for granted.

Finally accident prevention and control measures involving for example provision of PPE, safety audit, safety tools and equipments and so on, was assessed. Accordingly majority workers (74.7%) feel that these measures were not sufficient in practice. A mean value of 2.10(SD=0.85), which is relatively lower when compared with other variables, indicates that practice is very inadequate. Workers believe that PPE and other safety tools are not available to workers. And without provisions the necessary tools and equipments employees believe it is difficult to perform tasks as required by safety policy and procedures. With this regard employees may be forced to perform their job in other ways which may be dangerous and hazardous since electricity always involve danger when proper tool and precautions are not in place. The result in this study shows the existence relatively second highest correlation between Accident prevention measures and employee safety practice( $r=.443$ ).



Employee safety practice was assessed and the result indicated that majority of participants (77.2%) in the sample were not complying with safety rules and regulations stated in the safety policy document. Most workers disclosed that they do not perform their job safely. An average mean of 2.08(SD=0.86) shown in the descriptive result made clear that employee safety performance at work place were unsatisfactory. This means that most employees ignore safety regulations in order to get a job done, carry out activities which are forbidden, do not encourage co-workers to be safe, perform their duties incorrectly, do not correct safety problems, do not use personal protective equipment, and break procedures to carry out jobs quickly. From the given theoretical and empirical literatures presented, it is believed that this was due to their unfavorable perception of safety in the organization. Discussion of Zohar (1980) supports this relationship in that employees' perception of management safety culture or practice influences employees' personal safety performance at work place.

Participants of the study generally had unfavorable perceptions regarding the safety practices in their organization. As illustrated by literatures in chapter two, there is a linear link between company safety culture and individual safety practice and therefore, safety culture perception of employees does influence they way they practice safety at work place. For instance, Varonen and Markku, 2002 and Neal and Griffin's, 2006 established that there is a relationship between safety climate/culture and employee safe working practices. Suggestion by the Australian Institute of Petroleum (as cited in Industry Commission, 1995) also indicate that positive safety culture is of paramount benefit to better change workplace safety performance.

According to Pearson's correlation coefficients the relationship between the dependent variable and independent variables was thoroughly investigated. As can be observed from table 4.15 the study presented correlation analysis to explain the relationship that existed between employee safety practice and the five independent (predicator) variables. According to the finding the relationship between compliance to employee safety practice and employee safety training was the highest linear score where  $r = .511$ . The second

highest score is found in accident prevention and control where  $r = .443$ . Subsequently was management commitment where  $r = .372$  followed by safety involvement where  $r = .264$ . Finally the relationship between compliance of safety practice and safety communication was the lowest correlation where  $r = .173$

Based on this finding, safety training is the most crucial variable that strongly correlates to workplace safety practice. Safety training is the most effective tool in preventing accidents by human causes. Through adequate instruction, personnel gain useful knowledge and development of safe attitudes. Training gives each employee a personal safety tool by developing habits of safe practice and operation. Therefore it is important that utility companies must devise training interventions as it is an effective way of helping workers to develop a habit of safety practice at their workplace.

The second highest correlation explained in the analysis was accident prevention and control measures. Accident prevention and control measures are those tangible practices by the company which includes availability and adequacy of safety equipments and tools such as personal protective equipment (like clothing, safety shoe, helmet, goggles, gloves and other safety related tools as fire extinguisher).As to the finding from investigation these measures contribute in second level to unsafe act and then to injury. In another way it can be assumed that if companies work hard on accident prevention and control by providing safety tools and equipments to workers accident and injuries can be minimized if not eliminated. Provision of these equipments will help workers to act safely and be protected from hazards.

The third highest correlation shows that when the management safety commitment is strong where management put high commitment towards safety concern, promote health and safety programs, emphasize safety culture, investigate safety problems promptly, as allocating resources for health and safety, the employees' safety practice will also increase hence their level of compliance with safety rules and regulations will also be increased. It is important for management to actively demonstrate a visible commitment

to safety. Prioritization of safety over productivity is a means whereby management can demonstrate a visible commitment to safety.

Employee safety involvement in relating to compliance to safety practice is the fourth highest correlation. A supportive safety culture is typified by employee involvement, team building, and collaboration in promoting organizational commitment to safety. If employees are involved in decisions that affect their safety at workplace and themselves their safety performance will increase. Workers are the first important source of support to the management in identifying potentials for injuries and hazards. Therefore management needs to involve workers on the frontline to devise mechanisms for sound safety management. Therefore this constructed correlation indicated that an increase in involvement of an employee in safety matters will result in improvement of employee personal safety practice.

Safety communication is indicated to be the last highest correlation related to employee safety practice. This means that when safety communication and feedback for the workers is improved, then the tendency to perform a job safely will increase. Communication encompasses the extent to which there are open, clear and trusting communications between management and staff, and effective sharing of (safety critical) information such as safety policy, safety instructions, and safety procedures. The more this information is being shared among workers the better they become to understand safety related issues and learn to act responsibly in safer way.

According to coefficients 32 % of variance in compliance with safety practice was explained by the independent (predicator) variables, namely; management safety commitment, safety communication, safety training, employee safety involvement and accident prevention and control measures. This means that other factors not studied in this research and may be mentioned as further research, could contribute 68 % of variance in the dependent variable. The R square regression analysis that was presented in table 4.17 depicts that the F score of the regression analysis had been shown to hold a value of 19.434 with significance of 0.001 and the mean square value of 258.698. Based

on the SPSS analysis result and as can be observed from table 4.18 safety training has got the highest beta value of (.346) and therefore has the strongest contribution in predicting employee compliance to safety practices. The second highest beta with value of (.218) is shown representing Safety Prevention and control measures followed by management commitment and safety communication with the third largest beta of .119 each. In general the three variables (safety training, safety communication and prevention measures) are significant ( $p < 0.05$ ). However employee safety involvement and management commitment are not statistically significant but positive contribution in predicting the employee compliance to safety practice.

#### **4.7.1 Management Safety Commitment with Employee Safety Practice**

Management commitment to safety is believed to be an essential part of safety management that plays a role for improving safety practice of employees. However, on the part of EEU management commitment to safety is perceived by employees to be lower. The questionnaire distributed to respondents illustrates the percentage of workers perception towards management commitment in the organization and as to it, responses with disagreement has the highest percentage towards management commitments while, agreement is the least percentage. The average mean response on management commitment was 2.59 which revealed that the commitment from the managerial level in order to create and promote safety culture is still weak, putting more priority to production and service delivery than health and safety of workers. This is what some employees felt about their management as confirmed from expression made by some of the workers through the survey. However, the result from the regression analysis management to safety had a least contribution ( $\beta = .119$ ) to the variance in compliance to safety practice. The observed difference is not statistically significant because p value is greater than 0.05. (i.e.  $P = .084$ ). Nevertheless, the effect is positive, therefore, this finding is in line with the study conducted by Judd H Michael et al (2015) which asserts that an increased management commitment to safety results in good safety outcome by an employee and in the same way decreased management commitment results in bad safety outcome by an employee. The result is also consistent with those reported by other safety culture studies, which point out that positive management's involvement and commitment to safety will have positive influences on employee safety performance and

if not the opposite scenario is evident (Flin et al., 2000; Zohar, 1980). Parallel to these literatures, In the case of EEU weak management commitment contributed to weaker employee safety outcome.

#### **4.7.2 Safety Communication with Employee Safety Practice**

Communication based on common trust has been regarded as a main characteristic of an organization with a positive safety culture (HSE 2005). Surprisingly enough, as to the findings more than 61% of the respondents to the questionnaire have suggested that there are not a well established means of communication from employees to management. More so, the average mean score under category of communication is 2.54, which revealed the safety communication is in poor condition and therefore it can be said that employees are experiencing lack of regular updates on their safety matters. Updating employees with regular safety reports and information (oral or visual) are essential to keep employees motivated. But without constant feedback on their safety progress, workers tend to lose their focus, enthusiasm and motivation and as a result they may probably engage in risky practices at workplace. Positive relations between management and workers will encourage open communication of safety related matters, which in turn will have a positive influence on employee safety performance (Smith et al, 1978). According to them, construction companies which had good safety performance records had more persistent and more positive contacts between management and employees, whereas management with poor safety records had inclined to use the health and safety committee meetings as their only means of interacting with employees. Similarly, Pertaining to this study, safety communication result in a strong contribution to the variance in employee safety practice holding a beta value .119 (Sig.048). This infers that safety communication is statistically significant to influence the variance in employee safety practice. When workers' awareness about safety matters is lower, their knowledge on safety rules and procedures become limited, and hence has its impact on their safety performance. Therefore, it can be deduced that every decrease in safety communication would decrease safety performance of workers on the ground.

#### **4.7.3 Safety Training with Employee Safety Practice**

Safety training is essential for acquisition of safety related skills, knowledge and attitudes necessary for the safe completion a task by an employee. Furthermore, safety training

allows workers to obtain greater ability to control their work, leading them to perform their jobs more safely. However, in EEU, irrespective of this, inadequate training has been identified as a major obstacle to employee safety practice in EEU. As the result of this study shows, majority of workers (79%) do not feel EEU is providing safety trainings when new employees join the company, change worksite, operate new equipments/or use new technologies. In general safety training was perceived to be lower by many employees. If employees lack safety training they can't have safety related skills and knowledge and as a result their safety practice will be affected negatively. Consistently, the finding of this study indicated that safety training with  $p < 0.05$ ,  $\beta = .346$ , contributed significantly to the variance in compliance to employee safety practice. This result is parallel to the result of a study conducted in Adwa city by Dessalegn et al (2010). Their result indicated that generally more than two-third of respondents knew about safety information however, practice towards safety information was inadequate. Safety training was the common factor to increase knowledge and practicing habits which needs to be encouraged. If employees are to make meaningful contribution to safety adequate arrangements must be in place to ensure that they have the necessary skills to do their work safely. And in order to further improve employee safety practices; there is need for more safety training to be given to workers.

#### **4.7.4 Safety Involvement with Employee Safety Practice**

Active involvement of workers in safety matters is a feature of organizations with good safety cultures. According to 13 month investigation conducted by Meldrum et al. (2009) who studied the importance of involving employees in safety matters found out that Encouragement of companies to involve employees in discussion and decision making around safety can improve safety practice among workers. Regarding this study safety involvement of employees is very low. As to the result of the survey by the questionnaire, generally speaking great majority (75.5%, mean value of 2.47) of participants indicated that they have lower perception about their safety involvement in the company. However, regression analysis result shows that employee involvement in safety had a least contribution to the variance in employee safety practice as compared to the other variables since it has the lowest beta of .011 (Sig .878). Although the result of this study on employee safety involvement is not statistically significant to influence compliance

from workers towards safety performance other studies conducted suggest involvement of workers in safety is positively correlated to and does influence employee safety practice. For example, Raines, 2011 found that workers who are engaged in safety matters are more likely to bring positive safety outcomes than those who are not engaged. If organizations involve workers in safety issues, they become more likely to take ownership and responsibility for safety and to become actively motivated to take personal initiative in safety. Generally, People will work more safely when they are involved in decision-making processes, when they have specific and reasonable responsibilities, authority and goals, and when they have immediate feedback about their work.

#### **4.7.5 Accident Prevention and Control with Employee Safety Practice**

The result indicated that safety prevention and control measures are significant contributing element in predicting variance in employee safety practice. Moreover, when going back to descriptive results in chapter four, it can also be observed that majority of workers (over 74%, with a mean of 2.10) have disagreed to the provided questions in this scale showing lower perception to the preventive actions taken by the management of EEU. Safety prevention and control tools such as provision of Personal protective equipment, warning signs and posters, safety tools and equipments to work with, are not adequately available in the company. When accidents have been analyzed and assessed, decisions about the precautions against occupational health hazards can be made. However, accident identification systems such as safety audit or accident investigation are not being conducted in the company. Over all, due to this accident prevention and control measures are perceived below average with a mean of 2.10. Accident prevention measures turned up the second highest predictor ( $\beta=.218$ ,  $p < 0.05$ ). This result is consistently similar to study conducted by Nazia M et al (2010) who found that employee safety performance was affected due to lack of personal protective equipment and use of warning signs in a language workers do not understand. According to them Preventive elements lack of PPE for example influences workers negatively on their safety performance. A study by Daniel (2014) that was done in Addis Ababa among solid waste collectors is also similar to the result of this study in that lack of personal protective equipment is the determinant factor for poor employee safety practice which created many occupational injuries.

## **CHAPTER FIVE**

### **SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS**

Based on the data analyzed and interpreted in chapter four, this chapter presents summary of findings with conclusions and recommendations.

#### **5.1 Summary of Findings**

The result indicated that safety culture variables have explained the compliance of employees to safety practice in Ethiopian electric utility. The major findings of the study indicated majority workers do not feel satisfied with the current safety culture of the company and more so they do believe that majority of them had poor safety practice. Further analysis also demonstrate that three independent variables i.e. safety training, safety communication and accident prevention and control measures influence significantly the compliance to safety practice. On the other hand, safety involvement and management commitment had relatively a least contribution to influence compliance of employees to safety practice.

#### **5.2 Conclusion**

In relation to the objective of the study, which was to determine the influence of organization safety culture on employee safety practice based on perception of workers towards five elements of safety culture; namely management safety commitment, employee safety involvement, safety training, safety communication and accident prevention and control measures, the following are the major conclusions:

- This study revealed that the commitment of management towards safety is unsatisfactory. Majority of workers are discontented or dissatisfied with their management about their safety at workplace. They believe that management does not provide them support or assistance, essential safety resources, but gives the most priority to production and profit than safety of the workers.
- With regard to involving employees in workplace safety matters, the finding indicated that large portions of workers under the survey disclosed that workers



are not participating in making safety related decisions that do really affect their work and their life. From this evidence, it is therefore possible to conclude that EEU has a limited interest to receive suggestions, comments or improvements from the workers who definitely are the ultimate and right source of important safety in formations.

- On average, Safety communication was perceived negatively and regarded as insufficient by most of the respondents. Most of respondents believe that there are not any safety communication activities in the company.
- Safety training and education provided to employees are not sufficient. In general over half of respondents reported that there are no adequate safety trainings available to employees when joining the company, or changing work site or using new technologies. Moreover, employees believe that EEU does not support workers to take up any training opportunities conducted by other similar organization. Generally, it is concluded that there is a lack of knowledge on safe working procedures.
- Accident Prevention and control measures taken up by the company was found deficient as confirmed from responses of respondents. On average most employees under this survey indicated that they are not provided with sufficient personal protective equipments (PPE), safety tools and equipments, fire extinguishers (in case of fire outbreak) and so forth.

Under this point, the followings were also brought to light, these were

- It is identified that Accident investigation and safety audit activity of the company is unsatisfactory as majority of participants witnessed. Therefore, it is possible to conclude that if safety audits are not conducted on regular basis, then the company cannot determine the adequacy or effectiveness of the safety system to substantiate needed changes to the system of safety in the company.
- Pertaining to analysis and examination of the risks involved with goods purchased majority respondents disclosed that such activities are not being conducted in the company. This study had also ascertained that

- Unsafe acts or safe practices are not acted up on by the management.
- Warning signs and safety posters which are believed to increase safety consciousness of employees, were not given sufficient attention and are not being used in the company
- ✓ In general terms the current safety culture/practice of the organization was perceived by majority to be unsatisfactory.
- Concerning the level of employee safety practice at workplace it is proven that majority workers do not perform their tasks safely. This is partly because of the problems existent in the company's general safety culture/practices.
- With respect to the relationship between dimensions of organizational safety culture and employee safety practice, the Pearson correlation coefficient analysis explains that there exists a positive relationship between employee safety practice and the five elements, such as management safety commitment, safety communication, employee safety involvement, safety training and accident prevention and control measures. From this information, it is clear that employee safety practice is positively influenced by these variables.
- Finally, according to the regression result it is observed that safety training, safety communication and accident prevention and control measures significantly influence safety practice of workers in EEU. The remaining two; namely management commitment and employee safety involvement were not significant to influence safety practice of workers.

### **5. 3 Recommendations**

The following are recommendations that are proposed as measures to be taken by the company to solve the problems identified in this study.

- ❖ As indicated by the finding of this study, Safety training ranged highest to positively influence employee safety practice at work place. Skills and knowledge are important determinants of safe practice. Therefore, it is very advisable that Management of EEU concentrate on providing safety trainings to its employees.
  - The Training should cover such key aspects as knowledge of the work-related safety risks; proper use of safety-related equipment and procedures; awareness of the benefits of practicing safety at work place.

Training would develop safety consciousness among employees and a favorable attitude towards safety measures and precautions. This will also boost the morale of employees to act in safer manner at work place. Training would reduce or eliminate hazards and prevent work related injuries and illnesses.

- Workshops, seminars need to regularly be conducted on safety for staff, publish / notify regulations, instruction, notices in local language of employees and other steps must also be taken to inculcate safety consciousness in the minds of workers.
- ❖ Since prevention and control measures are the next highest contributor to influence safety practice of workers. Therefore, it is essential that EEU need to work hard on accident prevention and control measures.
  - It is important that accident investigation and safety audits are conducted periodically to identify hazards and assess the risks attached to workers. Therefore, EEU should carry out safety audits and inspections. Safety audit will help to know how many of the working units have requisite safety equipments and how many of them use it properly. Moreover it will help to know the existing gap which needs to be fulfilled and taken care.
  - Provide effective supervision and monitoring, as necessary, to ensure the protection of workers' safety and health.
  - Management should provide protective clothing and safety equipments for workers like Safety shoes, safety helmets, gloves, safety belts, goggles, Apron, masks etc. are very essential in ensuring safety of the employee at work place. Management should also put in place a regular monitoring unit to check whether the employees really do put on their protective materials while working.
  - It is advisable for the company to display safety information, warnings signs, and posters for letting workers to take safety precautions.
- ❖ Because safety communication was found to significantly influence employee safety the third rank, management of EEU should take steps to improve safety

communication among employees, between workers and supervisors and managers.

- Proper dissemination of risk information is important in ensuring safe and healthy working environment. Therefore, Management should share hazard and risk information with workers.
- ❖ Management commitment to safety is not significant influence to safety practice but it does influence positively to bring about some improvement in employee safety practice. Therefore,
  - The organization's Safety policy should be reviewed with a view to incorporating the employees' concerns of "safety is of higher priority than productivity" into the policy. This could show the management's commitment towards OHS and the core value of "caring.
  - Management of EEU should commitment itself by providing Human, financial, material and technical resources for safety management.
- ❖ Although the influence of employee safety involvement on safety practice is determined to be least in this study, Worker participation is an essential element of safety management system in organizations. It is important to making employees feel about safety as their personal responsibility at workplace. Therefore, the management of EEU should
  - Ensure that workers and their representatives are consulted and encouraged to participate actively in all elements of the safety management system.
  - Ensure that the concerns, ideas and inputs of workers and their representatives on safety matters are received, considered and responded to.

#### **5.4 Future Research Direction**

This study was done to specifically investigate the influence of five dimensions of safety culture on employee safety practice among Ethiopian electric utility company particularly western regional office. Additional researches can be conducted to investigate safety practice of employees in other regions of the organization to increase the reliability of enforcing effective safety practices by

the company for improving employees' safety performance. Therefore, more research is needed to accomplish several objectives. These are studies that incorporate larger and, and more diverse samples of workers (example age, socioeconomic status, educational background, experience etc); Studies that use different research methodologies to try and assess some of the same variables with different forms of data collection such as using both quantitative and qualitative methods. Finally other variables that were not included in this particular study but might influence employee safety practice( such as Job pressure, overtime work, are recommended as further research directions.

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**Annex A** - English questionnaire

**Organizational Safety Culture Influencing Employee Safety Practice:  
Case of Ethiopian Electric Utility, Western Region**

Jimma University College of business and economics

Questionnaire - To be filled by employees

Dear respondents, the purpose of this questionnaire is to collect data on to see if organizational safety culture influences employee safety practice at workplace. Responding to the questions will not create any harm & will be kept confidentially and not to be used for other purpose except to the intended graduation research purpose.

Your Answers will not be disclosed to any one and so there is no need to write your name on the questionnaire.

A tick mark (✓) for closed question and give clear description for open-ended question

**SECTION A: Personal Information**

**Please tick where appropriate**

1. Sex: Male  Female

2. How old are you?

20-30  31-40  41-50  51 and Above

3. What is your educational status?

Secondary school or its equivalent

Vocational school education

University education/First Degree or its equivalent

Postgraduate Degree

Others

4. How many years have you worked in this organization?

1-3 years  4-7years  8 and above years

5. What is your Martial Status?

Single  Married  Widowed  Others

6. In which department are you? Please explain .....

**SECTION B: elements of effective occupational health and safety practice**

To what extent do you agree with the following statements concerning occupational health and safety management in your company?

	Statement	Strongly disagree	Disagree	Indifferent	Agree	Strongly agree
	<b>Management commitment</b>					
1	Health and safety of workers is of high priority to the management					
2	My immediate supervisor shows me the safe way to perform my job duties when I act in an unsafe manner					
3	The safety manager (or the person in charge of health & safety) receives support from top management					
4	The management is committed to well-being of the workers through its safety policies along with other HR policies					
5	There is safety department in the regional office					
6	Your company considers safety to be equally important as production and quality in the way work is done					
7	Top management provides the essential resources of establishing OH&S System					
	<b>Communication</b>					
1	OHS instruction manuals or work procedures are available					
2	At this company, there is usually formal communication of safety policies and procedures that employees are to follow					
3	This company, there is usually communication among employees to identify solutions to improve safety					

4	At this company, the managers and employees communicate regularly about issues related to safe working conditions					
5	Workers are informed about OHS hazards through written materials and meetings					
	<b>Training and Education</b>					
1	EEU company organizes workshop, seminar and lecturers on safety precaution					
2	Workers are given sufficient OHS training when joining your company, changing worksites					
3	Your company supports OHS training opportunities for workers (e.g. leave, scholarships					
4	Training is provided on the use of new equipment or technology in my work place					
5	OHS training is ongoing and based on a training plan					
	<b>Employee involvement</b>					
1	Incentives are frequently offered to encourage workers to comply with OHS policies and procedures (e.g. correct use of protective equipment).					
2	Staff suggestions are readily acted upon by management					
3	I know fully what is expected of me at work regarding safety.					
4	I regularly receive recognition for doing a safe job					
5	OHS decisions are frequently based on consultations with, or suggestions from, workers.					
6	Periodic meetings are held between workers and supervisors/managers to make decisions that affect the organization of work.					
7	Teams of workers from various parts of your company are frequently used to solve problems about working conditions.					
	<b>Preventive and protective actions</b>					
1	The working equipment and tools in my workplace are safe					
2	Employees are provided with personal protective equipment					

3	Safety audits and inspections are carried out to identify risks and hazards at my workplace					
4	Action is taken when safety rules are broken					
5	Portable fire extinguishers are distributed based on the classes of anticipated fires and degree of hazard					
6	All accidents occurring at the workplace are investigated within specified timelines					
7	Your company use warning signs and posters prevent employees from hazard.					
8	The hazards and risks associated with goods are controlled					
9	Your company analyzes injury and illness data (e.g. claims data, first aid logs) to identify causes and target solutions					

**SECTION C: Employee safety practice/performance at their place of work**

In this section you are requested to tick [✓] against the scale with regard to the statements provided. Please [✓] tick once.

To what extent do you agree with the following statements concerning the kind of health and safety problems encountered by employees at their place of work?

	Statement	Strongly disagree	Disagree	Indifferent	Agree	Strongly agree
1	I ignore safety procedures in order to get job done more quickly					
2	I follow all safety procedures regardless of the situation I am in					
3	I handle all situations as if there is a possibility of having an Accident					
4	I wear safety equipment required by practice					
5	I keep my work area clean.					
6	I encourage co-workers to be safe					
7	I keep my work equipment in safe working condition					
8	I take shortcuts to safe working behaviors in order to get the job done faster					
9	I do not follow safety rules that I think are unnecessary					
10	I report safety problems to my supervisor when I see safety Problem					
11	I correct safety problems to ensure accidents will not occur					

12. Indicate how satisfied you are with the current safety measures put in place

A. Very satisfied  B. Satisfied  C. Dissatisfied  D. Very Dissatisfied

13. Do you think effective workplace safety practice have any impact on employee safety practice?

A. Yes  B. No  C. Not Sure

14. If yes, what benefits will the company and employees derive from effective occupational safety practice?

- A. Reduces accident
- B. Reduces cost of compensation to injured employees
- C. Loss or death of staff
- D. labor turnover is reduced
- E Corporate image of the company is enhanced
- F All the above
- G. Others, please state.....

**Annex B-** Amharic questionnaire

**Organizational Safety Culture Influencing Employee Safety Practice:  
Case of Ethiopian Electric Utility, Western Region**

JIMMA UNIVERSITY COLLEGE OF BUSINESS AND ECONOMICS

**ጅም ዩኒቨርሲቲ ቢዝነስና ኢኮኖሚክስ ኮሌጅ**

**በሰራተኞች የሚሞላ መጠይቅ**

ውድ የ EEU ሰራተኞች

የዚህ መጠይቅ አላማ በድርጅቱ ውስጥ ስላለው የሰራተኞች የሰራ ቦታ ደህንነት ሁኔታና ሰራተኞች ከአደጋና ከጉዳት ነጻ እንዲሆኑ እንዲሁም ጤናቸው ተጠብቆ እንዲሰሩም ድርጅቱ ምን እያከናወነ እንዳለና ከዚህም ጋር ተያይዞ የሰራተኞች ስራን በጥንቃቄ የመፈጸም ሁኔታ በምን ደረጃ ላይ እንደሚገኝ ለማወቅ ነው፡፡

**ለመጠይቆቹ መልስዎን ሲሰጡ ስምዎን መግለጽ እንደማያስፈልግ** እና የመጠይቁ አላማም ለሁለተኛ ዲግሪ መመሪያ የሚሟያ የጥናት ጽሁፍ ለማዘጋጀት መሆኑን ተረድተው በትዕግስት ምላሽዎን እንዲሰጡ እያሳሰብኩ

ለዝግ ጥያቄዎች የ (✓) ምልክት በአማራጮቹ ውስጥ እንዲያደርጉ በአክብሮት እጠይቃለሁ፡፡

**ክፍል ሀ: የግል መረጃ**

- 1. ጾታ                      ወንድ       ሴት
- 2. ዕድሜዎ ስንት ነው? 20-30       31-40       41-50       51 እና ከዚያ በላይ
- 3. የትምህርት ደረጃዎ ?  
     ሁለተኛ ደረጃ   
     የሙያ ትምህርት(ዲፕሎማ)   
     የመጀመሪያ ዲግሪ   
     ሁለተኛ ዲግሪ
- 4. ምን ያህል አመት አገለገሉ?    1-3 አመት  4-7 አመት  ከ፰ አመት በላይ
- 5. የትዳር ሁኔታ                      ያላገባ/ች  ያገባ/ች  የፈታ/ች                       ሌላ
- 6. የስራ ክፍል/ዲፓርትመንትዎን ይግለጹ .....

**ክፍል ለ: አጠቃላይ የድርጅቱ የሴፍቲ ሁኔታ**

በዚህ ክፍል ስር ለሚገኙት መጠይቆች ከጎን ከተቀመጡት ሳቦች ትይዩ ባለው ባዶ ሳጥን ውስጥ እንደ ተገቢነቱ ሳብዎን በሚገልጸው የስምምነት አማራጭ(V) ምልክት ያድርጉበት

መለኪያ	በጽኑ አልባማም	አልባማም	እርግጠኛ አይደለሁም	እስማማለሁ	በጽኑ እስማማለሁ
<b>የሰራ አመራሩ ቁርጠኝነት</b>					
የድርጅቱ አመራር ለሠራተኞች ጤናና ደህንነት ቅድምያ ይሠጣል።					
የቅርብ የሰራ ተቆጣጣሪዬ(አለቃዬ) ያለ ጥንቃቄ ስራዬን ስፈጽ ም ካየ ያርመኛል					
የሴፍቲ ቢሮ ተጠሪ ሰራተኛው ከበላይ አመራር ድጋፍ ይሰጠዋል።					
የድርጅቱ ሴፍቲና የሠው ሀይል ፖሊሲ ድርጅቱ ለሰራተኞች ጤናና ደህንነት ያለውን ቁርጠኝነት ያሳያሉ።					
በሪጅት የሴፍቲ ዲፓርትምንት ቢሮ አለ።					
ድርጅቱ የሰራ ላይ ደህንነትንና ሴፍቲን ከሚያቀርበው ምርትና ምርት ጥራት እኩል ይመለከታል።					
የበላይ አመራሩ ለሴፍቲ የሚያስፈልጉ ቁሳቁሶችን አሟልቶ ያቀርባል					
<b>ተግባቦት</b>					
የሴፍቲ መመሪያ ጥራዝ ለሠራተኛው ቀርቦለታል።					
በዚህ ድርጅት ውስጥ በሴፍቲ ፖሊሲና ደንብ ዙሪያ መደበኛ ውይይት ያደርጋል።					
በዚህ ድርጅት ውስጥ ሠራተኞች ሴፍቲን ለማሻሻል እርስ በእርስ ይወያያሉ ።					
በዚህ ጅርጅት ውስጥ ሠራተኞችና ኃላፊዎች በሴፍቲ አራያ መፍትሔ ለመስጠት ይወወያያሉ።					
ሠራተኞች ስለ ሥራ ላይ አደጋ በጸሁፍ እንዲያውቁ ይደረጋል።					
<b>የሰፍቲ ስልጠና</b>					
የድርጅቱ የሰራ ላይ ሴፍቲን በተመለከተ ወርክሾፕ ፤ ሴሚናር፤ ትምህርት ያዘጋጃል።					
ሠራተኞች ሲቀጠሩ፤ የሰራ ቦታ ሲቀይሩ እና አዲስ መሳሪያ መጠቀም ሲኖርባቸው በድርጅቱ የደህንነትና ሴፍቲ ሥልጠና ይሰጣቸዋል።					
ድርጅቱ የሰፍቲ ስልጠና ወይም ትምህርት እድል(አረፍት፤ ስኮላርሺፕ) ይሰጣል።					
ድርጅቱ አዲስ የሰራ መሳሪያ ወይም ቴክኖሎጂ ሲያስመጣ ለሰራተኞች ተገቢውን ስልጠና ይሰጣል					
የሴፍቲ ስልጠና በዕቅድ እየተያዘ በተከታታይ ይሰጣል።					
<b>የሴፍቲ ተሳፋትፎ</b>					
ድርጅቱ ሠራተኞች የሴፍቲን ደንብና ፖሊሲ እንዲያከብሩ ማበረታቻ ይደረግላቸዋል።					



በዚህ ድርጅት የሠራተኞች ሐሳብ በማኔጅመንቱ ምላሽ ይሠጠዋል ::					
የስራ ላይ ሴፍቲን በተመለከተ የሚጠበቅብኝን ሁሉ አውቃለሁ::					
ስራዬን በጥንቃቄ ከተወጣሁ በድርጅቱ እውቅና ይሠጠኛል::					
በዚህ ድርጅት ውስጥ የሴፍቲ ውሳኔዎች መሰረታቸው ከሠራተኛው በሚወሰድ ሃሳብና ምክር ነው::					
በዚህ ድርጅት ስለሴፍቲ ውሳኔዎችን ለመወሰን በሠራተኞችና በኃላፊዎች መካከል ውይይቶች በመደበኛነት ይደረጋሉ::					
በዚህ ድርጅት ሠራተኛ በህብረት (በቡድን) ሆነው የሴፍቲ ችግሮችን እንዲፈቱ ይደረጋል::					
<b>አደጋን የመከላከልና የመቆጣጠር እርምጃዎች</b>					
በስራ ቦታዬ ላይ የሚገኙ የስራ ቁሳቁሶች ደህንነታቸው የተጠበቀ ነው					
ሰራተኞች በስራ ላይ ሲሰማሩ ራሳቸውን ከ አደጋ አንዲከላከሉ አደጋ መከናከያ ቁሳቁሶች ይቀርቡላቸዋል					
የአደጋዎችን መንስኤ ለማወቅ እንዲቻል የሴፍቲ ኦዲትና ምርመራ ይደረጋል::					
የሴፍቲ ህግና ደንብ ተጥሶ ሲገኝ ድርግቱ ዕርምጃዎችን ይወስዳል::					
ተንቀሳቃሽ የአሳት ማጥፊያዎች ሰራተኞች ለስራ ሲንቀናቀሱ ይቀርብላቸዋል::					
አደጋዎች በስራ ቦታ ላይ ሲደርሱ በአደጋው ዙሪያ ተገቢው የምርመራ በተደባዘነ ጊዜ ይደረጋል::					
ድርጅቱ ሰራተኞችን ከ አደጋ ለመከናከል የማስጠንቀቂያ ምልክቶችንና ፖስተሮችን ይጠጠማል::					
በዚህ ድርጅት ውስጥ ዕቃዎች ተገዝተው ሲገቡ በሰራተኞች ላይ ሊያስከትሉ የሚችሉትም ጉዳትና አደጋ አንጻር የማጣራት ስራ ይደረጋል::					
ድርጅቱ የአደጋ መረጃን በመመርመር የአደጋን መንስኤ ለይቶ መፍትሄ ይሰጣል::					

**ክፍል ሐ : የሠራተኞች ስራን በጥንቃቄ የመፈጸም ሁኔታ**

በዚህ ክፍል ስር ለሚገኙት መጠይቆች ከጎን ከተቀመጡት ሳቦች ትይዩ ባለው ባዶ ሳጥን ውስጥ እንደ ተገቢነቱ ሳብዎን በሚገልጸው የስምምነት አማራጭ( ) ምልክት ያድርጉበት

ስራን በጥንቃቄ የመፈጸም ሁኔታን በተመለከተ በሚከተሉት ህሳቦች ምን ያህል ይስማማሉ?

መለኪያ	በጽኑ አልስማማም	አልስማማም	እርግጠኛ አይደለሁም	አስማማለሁ	በጽኑ አስማማለሁ
ስራን ለማፍጠን ስል የሴፍቲ ህግና ደንቦችን ችላ እላለሁ::					
በየትኛው ሁኔታ ውስጥ ብዎን የሴፍቲን ደንብ እከተላለሁ::					

አደጋ ሊፈጠር እንደሚችል በማሰብ ስራዬን በጥንቃቄ ፈፅማለሁ።					
የሴፍቲ መመሪያው እንደሚያዘው የሴፍቲ ልብስና ቁሳቁሶችን እጠቀማለሁ።					
የስራ ቦታዬን በጥራትና በንጽህና እጠብቃለሁ።					
የስራ ባልደረባዬ በጥንቃቄ እንዲሰራ አበረታታለሁ።					
የስራ ቁሳቁሶቼን በጥንቃቄ እይዛለሁ።					
ስራዬን በፍጥነት ለመጨረስ ስል ከጥንቃቄ ይልቅ በአቋራጭ ያለጥንቃቄ መጨረስን እመርጣለሁ።					
አያስፈልጉም ብዬ ማስባቸውን የሴፍቲ ህግና ደንቦችን እጥሳለሁ።					
የሴፍቲ ነክ ችግሮች ሲያጋጥሙኝ ለአለቃዬ ሪፖርት አደርጋለሁ።					
የሴፍቲ ችግሮች ባጋጠሙኝ ጊዜ አደጋዎች እንዳይከሰቱ ለማድረግ ችግሮችን በራሴ አርማለሁ።					

12. በአጠቃላይ በድርጅቱ የሴፍቲ ሁኔታ ያለዎት እርካታ ምን ያህል እንደሆነ ይጠቁሙ

ሀ. በጣም እረክቻለሁ  ለ. እረክቻለሁ  ሐ. አረካሁም  መ. እጅጉን አረካሁም

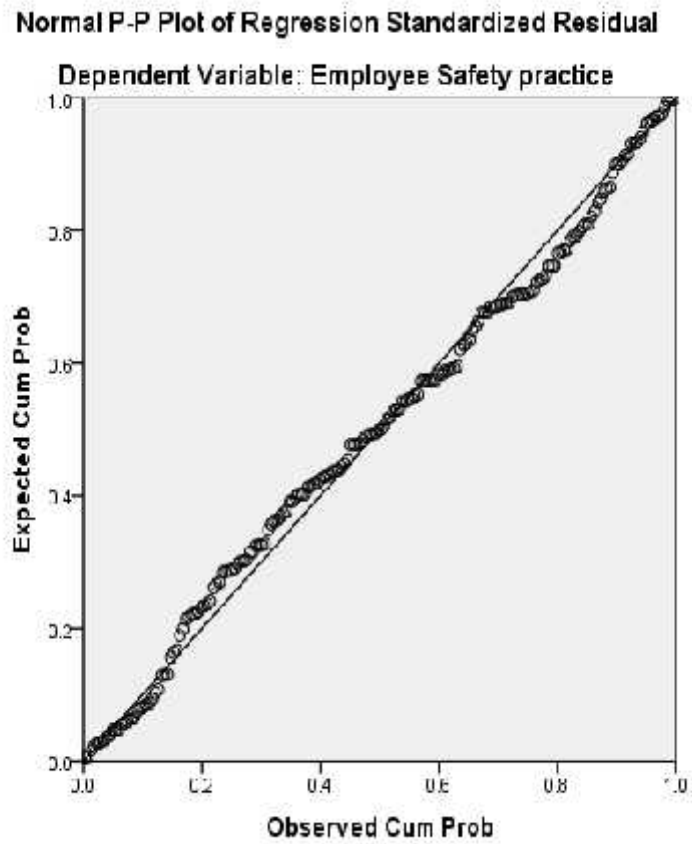
13. ውጤታማ ድርጅታዊ የስራ ላይ ሴፍቲ ባህልና ተግባር ስራን በጥንቃቄ ከመፈጸም አንጻር አወንታዊ ተጽኖ አለው ብለው ያስባሉ፤

ሀ. አዎ  ለ. የለውም  ሐ. እርግጠኛ አይደለሁም

14. ለ ጥያቄ ተቋ ፳ መልስዎ አዎ ከሆነ ድርጅቱም ሆነ ሠራተኞቹ ከውጤታማ ሴፍቲ ትግበራው የሚያገኙት ጥቅም ምንድነው?

ሀ. አደጋና ጉዳትን መቀነስ   
 ለ. ለጉዳተኞች የሚከፈለው የካሳ ክፍያ መጪ መቀነስ   
 ሐ. ሁሉም  መ. ሌላ ካለ ይግለጹ .....

## Annexe-C- Normal P-P plot



## Annex-D-Sample determination

TABLE FOR DETERMINING NEEDED SIZE  $S$  OF A RANDOMLY CHOSEN SAMPLE FROM A GIVEN FINITE POPULATION OF  $N$  CASES SUCH THAT THE SAMPLE PROPORTION  $p$  WILL BE WITHIN  $\pm .05$  OF THE POPULATION PROPORTION  $P$  WITH A 95 PERCENT LEVEL OF CONFIDENCE

Population Size	Sample Size	Population Size	Sample Size	Population Size	Sample Size
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351

90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	100000	384

Note.—N is population size. S is sample size.

Krejcie and Morgan (1970).