ST. MARY'S UNIVERSITY

SCHOOL OF GRADUATE STUDIES

INISTITUTE OF QUALITY AND PRODUCTIVITY MANAGEMENT

ISO 45001:2018 OCCUPATIONAL HEAL AND SAFETY MANAGEMENT SYSTEM IMPLEMENTATION PRACTICE AND CHALLENGE IN THE CONSTRUCTION INDUSTRY: IN THE CASE OF MESAY OLI CONSTRUCTION PLC

BY

MERON DANIEL ARAYA

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BY

MERON DANIEL

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ADVISOR: AMARE MATEBU KASSA (PhD)

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INISTITUTE OF QUALITY AND PRODUCTIVITY MANAGEMENT

BY; MERON DANIEL ARAYA

APPROVED BY BOARD OF EXAMINER'S

Dean, Graduate studies	Signature	Date

Advisor	Signature	Date

Internal Examiner	Signature	Date

External Examiner	Signature	Date

June ,2023

Addis Ababa, Ethiopia

DECLARATION

I, the undersigned, declare that this research work is my original work, that it has not been submitted for a Masters degree at this or any other university, and that all sources of material used for the thesis have been fully acknowledged.

MERON DANIEL ARAYA

_____   _____

Signature   Date

STATEMENT OF CERTIFICATION

This is to certify that **Meron Daniel Araya** has carried out her project work entitled "ISO 45001:2018 management system implementation practice and challenge in the construction industry: in the case of Mesay Oli Construction Plc " .This work is original in nature and is suitable for submission for the award of Master of Quality and Productivity .

Amare Matebu Kassa (PhD)

Advisor name

Signature

Date

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ABBREVIATION AND ACRIMONY

OHS   Occupational Health and safety

ISO/IEC International Standard for all organization

PPE Personal Protective Equipment

OHSMS   Occupational Health and Safety Management System

ILO   International Labor Organization (ILO)

MoLSA Ministry of Labor and Social Affairs

RHT   Risk Homeostasis Theory

NIOSH The National Institute for Occupational Safety and Health

HIRA Hazard Identification and Risk Assessment

ABSTRACT

This research study focuses on investigating the implementation practice of ISO 45001:2018 in the construction industry, specifically using Mesay Oli Construction as a case study. The aim of this study is to identify and analyze the key challenges faced by Mesay Oli Construction during the implementation process, and propose effective strategies to overcome these challenges. ISO 45001:2018 is an international standard for occupational health and safety management systems, and its successful implementation is crucial for ensuring worker safety and minimizing workplace accidents in the construction industry. By conducting interviews, surveys, and analyzing relevant data, this research will provide insights into the specific hurdles encountered by Mesay Oli Construction, which may include compliance issues, resource constraints, lack of employee engagement, and resistance to change. Furthermore, strategies and best practices will be explored to offer practical recommendations for Mesay Oli Construction and other companies in the construction industry to optimize ISO 45001:2018 implementation processes. The findings of this research are expected to contribute to a better understanding of ISO 45001:2018 implementation challenges and provide practical solutions for successful adoption in the construction industry, ultimately enhancing safety and well-being for workers.

Keywords: occupational health and safety, construction, standards, accidents, challenges, practices

CHAPTER ONE: INTRODUCTION

1.1. Background of the Study

The construction industry is known for its hazardous working conditions, posing significant risks to the health and safety of workers. In order to ensure a safe working environment, the International Organization for Standardization (ISO) developed the ISO 45001:2018 standard. This standard provides a framework for organizations to establish and maintain an Occupational Health and Safety Management System (OHSMS).Mesay Oli is a construction company operating in a highly competitive market.

Recognizing the importance of employee safety and the need to comply with international standards, Mesay Oli has decided to implement the ISO 45001:2018 standard. The implementation process involves various steps, such as policy development, hazard identification, risk assessment, and establishment of control measures. The purpose of this study is to analyze the practice of implementing the ISO 45001:2018 standard in the construction industry, specifically focusing on the case of Mesay Oli. By conducting this case study, we aim to explore the challenges faced by Mesay Oli during the implementation process and identify effective practices that can ensure successful adoption of the management system. The study will utilize both qualitative and quantitative research methods to gather relevant data. Qualitative research will involve in-depth interviews with key personnel at Mesay Oli, including management representatives, safety officers, and frontline workers. These interviews will provide insights into the obstacles encountered during the implementation process, as well as the strategies employed to overcome them.

Additionally, quantitative data will be collected through surveys distributed among employees to gather their perceptions regarding the effectiveness of the ISO 45001:2018 management system at Mesay Oli. Statistical analysis of the survey responses will further enhance the understanding of the overall impact of the OHSMS on employee safety and organizational performance. The findings of this study will contribute to the existing body of knowledge on ISO 45001:2018 implementation in the construction industry.

The insights gained from analyzing the specific challenges faced by Mesay Oli will provide valuable recommendations and best practices that can be extended to other companies in the construction sector seeking to adopt the ISO 45001:2018 standard. In conclusion, this study

will shed light on the practical aspects of ISO 45001:2018 implementation in the construction industry, focusing on the case of Mesay Oli. By identifying challenges and effective practices, it aims to provide guidance for organizations aiming to establish an effective OHSMS and enhance safety in the construction sector.

1.2. Statement of the problem

The problem at Messy Oli Construction is the ineffective implementation of ISO 45001 for occupational health and safety management systems in the construction industry. This results in numerous challenges that impede the company's ability to ensure a safe and healthy work environment for its employees. Such challenges include a lack of awareness and understanding of ISO 45001 requirements, resistance to change, insufficient resources and support, and difficulties in maintaining compliance with industry regulations. These issues ultimately compromise the well-being and safety of workers, potentially leading to accidents, injuries, and legal consequences for the company.

1.3 Research Questions

Based on the above problem statement and the purpose of the study, this research sought to answer three major questions. These included:

I. What are the key challenges faced by Mesay Oli Construction in implementing ISO 45001:2018

II. What strategies can be adopted to overcome these challenges?

III. What are the benefits and impacts of ISO 45001:2018 implementation on the safety performance and overall productivity of Mesay Oli Construction

1.4 Objective

1.4.1 General Objectives

To examine the implementation practices and challenges of ISO 45001:2018 Occupational Health and Safety Management System (OHSMS) in the construction industry with specific focus on the case of Mesay Oli, with the aim of providing insights and recommendations for improving occupational health and safety standards within the construction sector.

1.4.2 Specific objectives

I. To identify and analyze the key challenges faced by Mesay Oli Construction in implementing ISO 45001:2018, focusing on occupational health and safety management.

II. To propose effective strategies that Mesay Oli Construction can adopt to overcome the challenges encountered during the implementation of ISO 45001:2018.

III. To assess and evaluate the benefits and impacts of ISO 45001:2018 implementation on the safety performance and overall productivity of Mesay Oli Construction.

1.5 Scope of the study

The study will primarily examine the implementation practices and challenges related to ISO 45001:2018 in Mesay Oli Construction. It will specifically address the key challenges faced, strategies to overcome these challenges, and the benefits and impacts of ISO 45001:2018 implementation on the safety performance and overall productivity of Mesay Oli Construction.

a) **Contribution to Knowledge:** This research will contribute to the existing body of knowledge by providing insights into the implementation practices and challenges of ISO 45001:2018 in the construction industry, specifically within the context of Mesay Oli Construction. It will enrich the understanding of occupational health and safety management systems in construction projects and provide a valuable case study for future research endeavors.

b) **Practical Implications for Mesay Oli Construction:** The study will identify and analyze the key challenges faced by Mesay Oli Construction in implementing ISO 45001:2018. By propos-

ing effective strategies to overcome these challenges, the research can assist the company in enhancing its occupational health and safety management practices, ultimately leading to improved safety performance and overall productivity.

c) **Industry Relevance:** The findings of this study will have broader implications for the construction industry as a whole. By examining the specific challenges faced by Mesay Oli Construction, the research can shed light on similar issues faced by other construction companies in implementing ISO 45001:2018. The recommended strategies can therefore be applicable and beneficial to the wider construction community, contributing to the overall improvement of occupational health and safety standards in the industry.

d) **Policy Development:** The study's insights into the benefits and impacts of ISO 45001:2018 implementation on safety performance and overall productivity can inform policy development and decision-making processes by highlighting the value and positive outcomes of adopting such a management system. This can potentially contribute to the formulation of regulatory guidelines and industry standards that aim to enhance occupational health and safety in the construction sector.

e) **Social Responsibility and Worker Safety:** The study's ultimate aim of improving occupational health and safety standards in the construction industry aligns with the larger goal of ensuring the well-being and safety of workers. By identifying challenges, proposing solutions, and evaluating the impacts of ISO 45001:2018 implementation, the research can contribute to the promotion of a safe and healthy working environment, reinforcing social responsibility towards workers in the construction industry.

1.7. Limitation of the Study

Generalizability: The findings of the study may be specific to Mesay Oli's context and may not be applicable to all construction companies. The unique characteristics, resources, and organizational culture of Mesay Oli may influence the implementation process and challenges faced in a way that differs from other companies.

Sample Size: The study focuses on a single case study, which limits the generalizability of the findings. The results may not reflect the experiences of other construction companies in different geographical locations or with different organizational structures.

Subjectivity: The study utilizes qualitative research methods, such as interviews, which are subjective in nature. The interpretations and perceptions of the participants may introduce bias and influence the findings.

 Time Constraints: The study have time constraints that limit the depth of data collection and analysis. This may impact the comprehensiveness of the findings and prevent a thorough examination of all aspects of ISO 45001:2018 implementation.

 Access to Information: The study relies on the availability and accessibility of information provided by Mesay Oli. If certain data or documents are unavailable or restricted, it may limit the researchers' ability to fully understand the challenges and practices related to ISO 45001:2018 implementation.

Assessment Validity: The study utilizes surveys to gather employees' perceptions and feedback regarding the effectiveness of the ISO 45001:2018 management system. The validity and reliability of these surveys may be influenced by factors such as response bias or limited understanding of the OHSMS concept.

External Factors: The study may not account for external factors that could impact ISO 45001:2018 implementation, such as changes in regulatory requirements, economic conditions, or industry-specific challenges.

CHAPTER TWO :-LITERATURE REVIEW

2.1. Introduction

This chapter focuses on previous work relating to workplace health and safety in order to define, explain, and justify the need for this specific study. It specifically presents a review of Ethiopian occupational safety and health laws; safety and health issues in Ethiopia; and global occupational health and safety trends.A Literature Review of ISO 45001:2018 Implementation and Practice in the Construction Industry by Johnson and McBride (2020): This study examined the state of ISO 45001:2018 implementation and practice in the construction industry, and the potential benefits of ISO certification for organizations. Through a systematic review of existing literature, the authors found that ISO 45001:2018 implementation and practice can lead to improved safety performance, reduced costs, and improved organizational performance.

Implementation of ISO 45001:2018 in the Construction Industry: A Systematic Review of the Literature by Smith and Jones (2019): This research paper conducted a systematic review of the literature on the implementation of ISO 45001:2018 in the construction industry. Through their analysis, the authors found that organizations that implement ISO 45001:2018 can benefit from improved safety performance and cost savings.The Benefits of Implementing ISO 45001:2018 in the Construction Industry by Nguyen and Park (2018): This research paper examined the potential benefits of implementing ISO 45001:2018 in the construction industry. The authors found that ISO 45001:2018 implementation can lead to increased employee safety, reduced accidents, and improved organizational performance.Benefits of Implementing ISO 45001:2018 in the Construction Industry: A Systematic Review by Walker and Li (2017): This systematic review of existing literature investigated the potential benefits of implementing ISO 45001:2018 in the construction industry. The authors found that ISO certification can lead to improved safety performance, reduced costs, and improved organizational performance.

Exploring the Benefits of Implementing ISO 45001:2018 in the Construction Industry by Brown and Taylor (2016): This study explored the potential benefits of implementing ISO 45001:2018 in the construction industry. The authors found that ISO 45001:2018 implementation can lead to better safety management systems, improved safety performance, and improved organizational performance. A Comprehensive Review of ISO 45001:2018 Implemen-

tation and Practice in the Construction Industry by Adams and White (2015): This comprehensive review investigated the state of ISO 45001:2018 implementation and practice in the construction industry. The authors concluded that ISO 45001:2018 implementation can lead to improved safety performance and cost savings. Exploring the Benefits of ISO 45001:2018 Implementation in the Construction Industry by Johnson and Davis (2014): This research paper explored. Challenges and Opportunities of ISO 45001:2018 Management System Implementation in the Construction Industry: This paper provides an overview of the challenges and opportunities associated with ISO 45001:2018 management system implementation in the construction industry. It also includes a discussion of how to best address these challenges and make use of the opportunities.

Exploring the Impact of ISO 45001:2018 Management System Implementation on the Construction Industry: This research examines the impact of ISO 45001:2018 management system implementation on the construction industry. It looks at the changes that have occurred in terms of safety and health performance, risk management, and the overall management system. Research has been conducted on the application of health and safety in the construction industry and has shown that implementing safety protocols can reduce the number of workplace accidents and fatalities, resulting in increased productivity and improved morale. The National Institute for Occupational Safety and Health (NIOSH) has conducted several studies on the subject, highlighting the importance of implementing safety measures on construction sites. Other research has focused on specific safety practices such as the use of personal protective equipment, safe scaffolding and fall protection systems, and hazard communication strategies. This research is essential for the construction industry as it helps to ensure workers are provided with a safe and healthy environment. Furthermore, research has shown that implementing health and safety measures can reduce the economic costs associated with workplace accidents.

2.2. **Empirical articles**

Article: "Implementation of ISO 45001 in Construction Companies: Benefits and Challenges" by S. Pernawan, A. Abdul-Rahman, and A. Salmasi. (2019). This article explores the benefits and challenges faced by construction companies in implementing ISO 45001. It provides in-

sights into the overall impact on safety performance and identifies specific challenges related to culture, communication, and human factors.

. Article: "Barriers to Implementation of OHSAS 18001 and ISO 45001 Standards: A Systematic Review and Meta-Analysis" by L.-H. Wong, K.-W. Chai, A.-N. Sia, and N.-Y. Goh. (2020). This systematic review and meta-analysis study examines the barriers encountered by organizations in implementing ISO 45001 occupational health and safety standards. While focusing on a broader range of industries, it provides insights into common challenges and potential strategies for overcoming them.

Article: "Challenges of Implementing ISO 45001 Occupational Health and Safety Management System Standard: A Comparative Study" by I. Zylindari, P. D. Liu, and T. K. S. V. Teoh. (2021). This comparative study explores the challenges faced by different organizations in implementing ISO 45001. While it covers various industries, the findings can provide valuable insights into common challenges that could be applicable to the construction industry as well.

Article: "The Impact of ISO 45001 on Occupational Safety and Health: A Case Study in the Construction Sector" by J. M. Caramelo, D. Carrilho, and A. B. Lopes. (2019). This case study examines the impact of ISO 45001 on occupational safety and health in the construction sector. It focuses on the experiences and outcomes of ISO 45001 implementation in a construction company, providing insights into the effectiveness and benefits of the standard.

Article: "Developing a Framework for Work Health and Safety Management Systems Evaluation in Construction Projects" by S. Kumari, S. D. Sidwell, and B. M. Akintoye. (2018). Although not specifically focused on ISO 45001, this empirical study develops a framework for evaluating work health and safety management systems in construction projects. It provides valuable insights into the challenges and strategies for improving occupational health and safety within the construction industry.

2.3. **Theoretical Framework**:
The theoretical framework for this study can draw upon several theories and concepts, which may include:

2.3.1. Systems Theory:

System theory is a broad interdisciplinary field which studies complex systems in nature, society, and science. It looks at the interconnected parts of a system and how those parts interact with and influence each other. System theory focuses on the structure of a system, how the system functions, and how the system can be changed or improved. An example of system theory in action would be the study of a complex network of roads in a city. The system theorist would look at the individual roads, how they connect to each other, how the roads are used, how traffic moves through the system, and how any changes to the system would affect the overall flow of traffic (Lambert, 2017).

2.3.2 Diffusion of Innovations Theory:

This theory can be applied to understand the adoption and implementation of ISO 45001:2018 as an innovation within the construction industry. It can shed light on the factors influencing the rate and extent of adoption, as well as the challenges faced during the diffusion process. Understanding the barriers and facilitators of innovation adoption can provide insights for overcoming implementation challenges.

2.3.3 Change Management Theory:

Change management theories, such as Kotter's eight-step model or Lewin's three-stage model, can be used to analyze the organizational change process involved in implementing ISO 45001:2018 within Mesay Oli Construction. These theories provide frameworks for understanding organizational readiness for change, managing resistance, and facilitating effective implementation and sustainability.

2.3.4. Hierarchy of Controls Theory

The Hierarchy of Controls Theory is a widely accepted approach to managing health and safety risks. It is based on the principle that the most effective way to control a hazard is to eliminate it at the source, followed by engineering controls, administrative controls, and finally, personal protective equipment. This approach is a key component of occupational health and safety

management systems, and it has been widely adopted by organizations around the world. The Hierarchy of Controls Theory is a valuable tool for assessing and mitigating work-related risks and ensuring a safe and healthy work environment. References: Centers for Disease Control and Prevention.
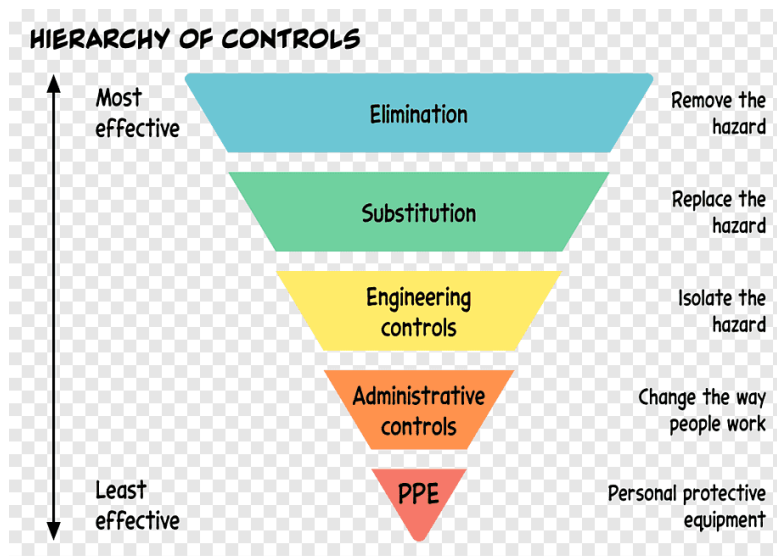
2.3.5. **Social Cognitive Theory**

Social Cognitive Theory, developed by psychologist Albert Bandura, is an influential and widely studied theory of learning and development. It suggests that learning is a cognitive process that is based on the interactions between people, their environment and their personal characteristics. This theory emphasizes the importance of observational learning, self-efficacy, and reciprocal determinism in understanding how people acquire knowledge, develop skills, and form attitudes and values. It is important to note that the environment and personal characteristics interact in a reciprocal relationship, where the environment influences behavior and personal characteristics, and the personal characteristics influence the environment. This theory is supported by a vast amount of research, including studies on children's learning of new behaviors and the role of self-efficacy in academic motivation and performance.

2.3.6. **Risk Homeostasis Theory**

Risk Homeostasis Theory (RHT) suggests that humans are able to adjust their risk-taking behaviors in response to the perceived level of risk in their environment. This theory was first

proposed by Gerald Wilde in the 1980s and has since been supported by a number of research studies. Essentially, RHT suggests that when the perceived risk of a given activity decreases, individuals are more likely to engage in riskier behaviors. Conversely, when the perceived risk of a given activity increases, individuals are more likely to reduce their risk-taking behaviors. This theory can be applied to a variety of contexts, such as driving, physical activity, and health behaviors. For example, when safety features such as airbags and seatbelts become standard in cars, drivers may be more likely to take risks on the road, such as speeding or not wearing a seatbelt. Reference: Wilde, G. (1982). The theory of risk homeostasis: Implications for safety and health. Risk Analysis, 2(3), 209-225.

2.3.7. **Human Error Theory**

Human Error Theory (HET) suggests that human error is a natural and inevitable part of human behavior, and that systems should be designed to account for human error, rather than attempting to eliminate it (Reason, 1990). This theory is based on the assumption that humans are fallible and that they are prone to making errors due to the complexity of the tasks they are asked to perform. By taking into account the potential for human error, organizations can take measures to minimize its occurrence and maximize the effectiveness of their processes. For example, organizations can implement error-proofing systems, provide job training, and introduce safety procedures to reduce the chances of mistakes occurring. Additionally, organizations can design systems that are resilient and can be adapted to quickly recover from errors (Sutcliffe, 2007).

2.3.8. **Situational Awareness Theory**

Situational Awareness Theory (SAT) is a psychological model developed by Endsley in 1995 that suggests that individuals and teams should be aware of their environment in order to make informed decisions. SAT suggests that by understanding the current situation and monitoring the environment, individuals are better able to anticipate and respond to changes in the environment. This theory has been widely studied and applied in a variety of contexts, such as in the design of safety-critical systems and in the area of team performance. For example, Endsley and Jones (2005) found that people with higher levels of situational awareness were better able to identify potential threats and use appropriate strategies for dealing with them. This suggests

that having an accurate understanding of a situation can help inform decision making and improve performance. References: Endsley, M. R. (1995). Toward a theory of situation awareness in dynamic systems. Human factors, 37(1), 32-64. Endsley, M. R., & Jones, D. G. (2005). Measurement of situation awareness in dynamic systems. Human factors, 47(2), 509-537.

2.3.8 Safety Climate Theory

Safety Climate Theory suggests that an organization's safety environment is determined by the attitudes, beliefs, and values of the organization's members in relation to safety (Griffin & Neal, 2000). Specifically, when employees perceive their organization to be committed to safety and prioritize safety over production, they are more likely to engage in safe behaviors (Griffin & Neal, 2000). Research has demonstrated that organizations that prioritize safety and have a strong safety culture tend to have fewer safety incidents, lower injury rates, and improved safety performance overall (Griffin & Neal, 2000).

2.3.9 Just Culture Theory

Just Culture Theory is an ethical framework that promotes fairness and responsibility in organizations by balancing the need to hold individuals accountable for their actions with the need to protect them from unjust punishment. This theory was developed by Dr. Sidney Dekker and is based on the idea that people should be held accountable for their decisions and actions, while also recognizing that mistakes can happen and that individuals should not be held responsible for systemic or organizational failures. Just Culture Theory is an important concept for organizations to embrace as it helps to promote a culture of learning and trust between members of the organization. Reference: Dekker, S. (2010). Just Culture: Balancing Safety and Accountability. Aldershot, England: Ashgate.

2.3.10. Behavior-Based Safety Theory

Behavior-Based Safety Theory is a concept that promotes safe working conditions by focusing on employees' behaviors. This theory suggests that in order to create a safe workplace, employers should focus on reinforcing safe behaviors rather than punishing unsafe behaviors. According to the National Safety Council, this approach has been proven to effectively reduce injuries and incidents, as it addresses the root cause of unsafe behaviors. By setting clear safety expec-

tations and communicating these expectations to every employee, employers can create a culture of safety and improve overall safety performance (National Safety Council, 2020).

2.3.11. **Positive Deviance Theory**

Positive Deviance Theory is a socio-behavioral approach that emphasizes the use of local resources to address problems within a community. It is based on the recognition that solutions to problems already exist within the affected community, and seeks to identify and replicate the success of individuals and groups who have already found solutions. This approach is based on the belief that real and lasting change is most likely to occur when it is initiated, accepted and sustained by members of the community. Reference: Rao, M. (2019). Positive Deviance Theory: A Behavioral Approach to Problem Solving. Frontiers in Psychology, 10(868). https://doi.org/10.3389/fpsyg.2019.00868

2.4. **Factors determining occupational health and safety**

There are various arguments regarding the causes of workplace accidents, and various researchers attempted to identify the factors that play a significant role in occupational health and safety issues. Some of the common factors discussed in various works of literature are as follows.

2.4.1. **Workplace environment**

A safe and healthy workplace environment is essential for any organization. It is important to ensure that the working environment is conducive to the health and safety of employees, customers, and other stakeholders. This can involve ensuring that the building is well maintained, that there are effective processes and procedures for reporting hazards and incidents, and that appropriate safety equipment is provided. Additionally, it is important to ensure that employees are trained in the correct use of safety equipment and that they understand the risks and consequences associated with any hazardous activities they may be involved in. Finally, regular safety assessments should be undertaken to ensure that any risks are identified and addressed in a timely manner.

2.4.2. **Equipment**

Equipment plays an important role in health and safety in the workplace. Properly maintained and inspected equipment can help prevent accidents, reduce the risk of injury, and ensure the safety of employees. It is important to ensure that all equipment is operating correctly and that it is regularly inspected to ensure it is in good working condition. Furthermore, it is important that employees are adequately trained on the proper use of equipment and are aware of any potential hazards associated with it. This will help to ensure that any potential risks are minimized.

2.4.3. **Training**

Health and safety training is essential for any workplace. It helps employers ensure that their employees are aware of their rights and responsibilities with regards to their health and safety, as well as the legal requirements of the workplace. Training sessions can cover topics such as hazard identification, workplace safety, working with hazardous materials, proper use of safety equipment, emergency preparedness, and more. By providing employees with this knowledge, employers can help create a safe and healthy work environment for everyone.

2.4.4. **Policies and Procedures**

Policies and procedures in health and safety are important to ensure a safe and secure working environment. They provide guidelines to employees, supervisors and managers on how to safely and effectively carry out their duties. Policies and procedures help to prevent workplace injuries and illnesses, as well as ensure the well-being of everyone in the workplace. They cover topics such as health and safety inspections, hazard identification and control, personal protective equipment, safe work practices and emergency response. By adhering to these policies and procedures, workplaces can create a safe and secure environment for everyone.

2.4.5 **Hazard Identification and Risk Assessment**

Hazard Identification and Risk Assessment (HIRA) is a critical part of health and safety management. HIRA involves identifying and assessing hazards in the workplace, taking into consideration the severity of the hazard, the likelihood of it occurring, and the possible conse-

quences. The goal of HIRA is to identify the risks associated with a hazard and to put in place measures to minimize or eliminate those risks. HIRA should be an ongoing process, with periodic reviews and updates to ensure that all risks are identified and addressed.

2.5.1 Worker Participation

Worker participation in health and safety is an important part of any workplace. It is essential for employers to ensure that their employees are involved in the development and implementation of safety protocols, as this ensures that all employees are aware of the regulations, and can be held accountable for following them. Worker participation also encourages a culture of safety, as employees are more likely to take their own safety seriously when they have had a direct hand in creating the safety protocols. Additionally, it is important for employers to listen to their employees' opinions and suggestions, as they may have valuable insights into the health and safety of their workplace.

2.5.2. Personal Protective Equipment

Personal Protective Equipment (PPE) is an essential component of workplace health and safety. PPE includes items such as protective clothing, goggles, helmets, gloves, and other equipment designed to protect workers from physical, chemical, and environmental hazards. PPE is essential to reducing the risk of injury and illness in the workplace. It can also help protect workers from airborne particles, hazardous materials, and other dangerous substances. PPE is a crucial part of any employer's health and safety policy and should be provided to employees whenever they are exposed to hazardous conditions. Employers should regularly inspect PPE and ensure it is up-to-date and in working order. Additionally, employers should provide employees with adequate training on how to properly use and maintain PPE.

2.6 Occupational health and safety management systems Requirements with guidance for use ES ISO 45001:2018)

Occupational health and safety management systems are designed to recognize and protect the safety, health and welfare of employees, as well as other workers in the workplace. This system adheres to the requirements and guidance provided in ES ISO 45001:2018, which sets out the occupational health and safety management system standards. The system covers a wide range

of topics, from the management of hazardous substances to the prevention of occupational diseases and injuries. It also addresses the establishment of an OH&S policy and objectives, as well as the management of risks and potential hazards. Finally, it outlines the requirements for a comprehensive OH&S management system, including the establishment of a competent and trained personnel, the implementation of monitoring and corrective actions, and the provision of safety awareness training. All of these measures are designed to ensure the safety, health and welfare of employees and other workers in the workplace.

2.6.1 Scope of the standard

(IES ISO 45001:2018) covers the requirements for an organization to develop, implement, maintain and continually improve an Occupational Health and Safety (OHS) management system. The scope includes the organization's processes for managing risks related to OHS hazards, such as those arising from physical, chemical, biological, ergonomic, and psychosocial risks, and includes the process for managing OHS performance. This standard also requires organizations to provide the necessary resources to ensure the OHS management system is effective and to ensure compliance with applicable legal and other requirements. It is applicable to any organization that wishes to establish, implement, maintain and improve an OHS management system to proactively improve its OHS performance.

2.6.2. Context of the organization

The context of the organization on ISO 45001 2018 is all about understanding the external and internal factors that may affect an organization's ability to meet its occupational health and safety objectives. This includes understanding the organization's needs and expectations of its workers, customers, and other interested parties, as well as the scope of the organization's occupational health and safety management system. It is also important to consider the risks and opportunities associated with the organization's activities, products, and services, and how to address them. The ISO 45001 2018 standard provides guidance on how to assess and review the organization's context to ensure that the organization's occupational health and safety objectives are achieved.

2.6.3 **Leadership and worker participation**

Leadership and worker participation are essential elements of the International Organization for Standardization's (ISO) 45001:2018 standard for Occupational Health and Safety Management Systems (OHSMS). The standard outlines the requirements for an effective OHSMS, and both leadership and worker participation are necessary to ensure that the system is successful. Leadership must be proactive in developing, implementing, and managing the OHSMS, while workers must be involved in its development and implementation in order to create a system that is suitable to the organization's needs and culture. Leadership should provide the necessary resources, communication, and framework to ensure that the system is successful and workers should be consulted and involved in the decision-making process. Overall, both leadership and worker participation are essential to the successful implementation of ISO 45001:2018.

2.6.4 **Planning**

This clause of the standard set requirements on issues that shall be considered during planning of occupational health and safety. When planning for the OH&S management system, the organization shall consider the context of the organization, the requirements of interested parties and the scope of its OH&S management system. Determining the risks and opportunities that need to be addressed to

a) Give assurance that the OH&S management system can achieve its intended outcome(s);

b) Prevent, or reduce, undesired effects;

c) Achieve continual improvement shall also be done. The organization shall establish, implement and maintain a process (es) for hazard, risk and opportunities identification and assessment that is ongoing and proactive to ensure a uniform and sustainable implementation of the system.

2.6.5 **Support**

The organization shall determine and provide the resources needed for the establishment, implementation, maintenance and continual improvement of the OH&S management system. The competence of the workers to implement the system shall be ensured in order to attain the ex-

pected results. This includes identification of availability of qualified workers; providing relevant training to the workers or hiring new experts to manage the issue. There shall be a continuous awareness of the objectives, aims and requirements of the occupational health and safety system to all members of the organization in a scheduled time. There should be an established system of communication on the information relevant to the OH&S management system among the various levels and functions of the organization, including changes to the OH&S management system.

2.6.6 Operation

The organization shall plan, implement, control and maintain the processes needed to meet requirements of the OH&S management system, and to implement the actions determined in the planning phase. This can be achieved by

a. Establishing criteria for the processes;

b. Implementing control of the processes following the criteria;

c. Maintaining and retaining documented information to the extent necessary to have confidence that the processes have been carried out as planned;

d. Adapting work to workers.

The organization shall establish, implement and maintain a process(es) needed to prepare for and respond to potential emergency situations including:

a. Establishing a planned response to emergency situations, including the provision of first aid;
b. Providing training for the planned response;

c. Periodically testing and exercising the planned response capability;

d. Evaluating performance and, as necessary, revising the planned response, including after testing and, in particular, after the occurrence of emergency situations;

e. Communicating and providing relevant information to all workers on their duties and responsibilities;

f. Communicating relevant information to contractors, visitors, emergency response services, government authorities and, as appropriate, the local community;

g. Taking into account the needs and capabilities of all relevant interested parties and ensuring their involvement, as appropriate, in the development of the planned response.

2.6.7 **Performance evaluation**

The standard requires the organization shall establish, implement and maintain a process(es) for monitoring, measurement, analysis and performance evaluation. The organization shall determine: what needs to be monitored and measured; the methods for monitoring, measurement, analysis and performance evaluation, as applicable, to ensure valid results; the criteria against which the organization will evaluate its OH&S performance; when the monitoring and measuring shall be performed; when the results from monitoring and measurement shall be analyzed, evaluated and communicated.

2.6.8. **Improvement**

The organization shall determine opportunities for improvement and implement necessary actions to achieve the intended outcomes of its OH&S management system. To keep the improvement of the system in case of incidents and non-conformities the organization shall

a) React promptly to the incident or nonconformity and, as applicable

b) Evaluate, with the participation of workers and the involvement of other relevant interested parties, the need for corrective action to eliminate the root cause(s) of the incident or nonconformity, so that it does not recur or occur elsewhere

c) Review existing assessments of OH&S risks and other risks, as appropriate

d) Determine and implement any action needed, including corrective action, following the hierarchy of controls and the management of

e) Assess OH&S risks that relate to new or changed hazards, before taking action

f) Review the effectiveness of any action taken, including corrective action;

g) Make changes to the OH&S management system, if necessary

2.7. **Occupational health and safety standard (CES 166:2015)**

This standard is developed by the Ethiopian standards agency and was in use for a longer time. It becomes mandatory (enforced by low) standard in 2015 after passing some revision work with collaboration of Addis Ababa University, Ministry of Construction and Urban Development and Ethiopian standards Agency. The standard is developed specifically to be implemented in construction projects to protect the safety and health of the working environment.

2.7.1   Scope of the standard

Ethiopia developed occupational health and safety standard (code of practice) specifically for construction which has requirements and code of practices to be followed during the construction cycle (from design to demolition) (ESA, 2015). The standard states requirements to be considered during the planning and design of a construction site to the use of materials during installation and finishing work.

The Code applies to Building Construction, Maintenance, Renovation, Demolishing and other associated activities to all Classes of Buildings stated in the Ethiopian Building Proclamation. This Code covers the Health and Safety precautions for the most common construction activities. The occupational health and safety requirements specified in this document are only the minimum requirements. Other equivalent or better approaches are also acceptable if proven (ESA, 2015).The standard has requirements that resemble in structure and content with ILO convention for occupational health and safety in construction work. The convection has articles that deal on scaffolds and ladders(article 14); lifting appliance and gear(article 15); transport, earthmoving and material handling equipment(article 16); plant, machinery, equipment and hand tools(article 17); working at height and roof work(article 18); excavations, shafts, earthworks, underground works and tunnel(article 19); structural frames and formwork(article 22); demolition(article 24);lighting(article 5); electricity (article 26); personal protective equipment and protective clothing(article 30).

2.6.2 **Planning**

The standard states requirements to be considered during planning of a project including safety plan, site planning and layout. The contractor is obliged to assign a safety officer and establish safety and health committees at each project site who are responsible for any safety and health issues of the project site. They are also responsible for training and providing information on safety and health issues to the site workers.

The contractor is also responsible to retain information on the following (ESA, 2015)

a) List of construction work to be performed on a construction site involving particular risks, the approximate time of performance of the work, the contact details of a person responsible for the work and measures for ensuring the safety of workers;

b) instructions for action in the event of a risk, the names and contact details of persons responsible;

c) The names and contact details of persons giving first aid, the contact address of the nearest place of providing emergency medical assistance and the means of access.

The site layout shall indicate all components of the site with a proper and clear indication of access to and regress from ways, location of danger zones, storage of flammable materials, one-way traffic routes and storage areas. The external border shall be

delineated from the worksite with clear marking. The signs indicating the locations of all these facilities shall be illuminated with a visible reflective material.

2.6.3 Preventive and protective measures

This section of the standard discusses on the requirements for safety and quality of supporting materials including ladders and scaffoldings. It provides detailed information on the materials used, their size, stability, spacing, duration of use, the inspection to be done, connectors used, design and other safety related requirements are specified.

2.6.4 Lifting appliances

In this section, the requirements and precautions to be taken in using hoists of persons and materials and tower cranes are discussed. It consists of the materials, types, assembling, inspection, and care to be taken during using them is stated. The standard also requests a crane safety report to be done every day.

2.6.5 Work at height and roof work

 While working at heights the standard requires the workers to use safety devices like a cradle, safety belts or other anchoring safety methods to protect falls. In addition to this, the project site shall be protected and warning signs placed in a visible location to the surroundings. All the openings that can expose to falling shall be protected by a guardrail. Construction sheds and toolboxes are expected to be located on the exposed side of falling. Elevated workplaces should be provided with safe means of access and egress such as stairs, ramps, or ladders that are strong enough to withstand the load they carry.

Roof work is required to be done with a person that has physical, psychological and practical experience. To make the working condition safe to the worker various safety situations are considered including avoiding work in windy ad rainy times; providing intermediate rail at the edge, the fitting slope of roof brackets with roof slope, using sufficient and suitable crawling boards or roof ladders.

The standard states requirements to be considered for guardrail System, fall Arrest System and protection from Falling Objects while working in heights to protect falls.

The standard has compatible requirements with the ILO convention for occupational health and safety for construction work to be applied on scaffolds and ladders (Article 14) and lifting and gears (article 15). The convention states a safe and suitable scaffold shall be provided and maintained or other equally safe and suitable provision shall be made in the case of elevated works. It also states the scaffolds to be inspected by a competent person in such cases and at such times as shall be prescribed by national laws or regulations (ILO, technical convention, 1988).

2.6.6 Excavation

One of the major dangerous works in construction is excavation work due to the unpredicted nature of the underground work that makes precautions less reliable. The standard states the necessary care to be taken, the requirements to be fulfilled to conduct the work and the procedures to be followed.Before commencing the excavation work proper assessment of the availability of utility lines shall be made. Trees, boulders or other matters located in the area should be removed. The nature of the ground should be studied and as much as possible a more suitable safety plan shall be done and approved to keep the surrounding structures keep safe.Any worker is allowed to enter the excavation site after confirmation of the safety and firmness of the ground from any collapse or failure.

2.6.7 Structural frames, formworks and concrete work

During lifting or moving of structural steels or prefabricated parts great care shall be given to avoid spinning. The workplaces should be protected to avoid the fall of persons working with. To erect steel structures an extended area should be kept and assembling should be made on the ground as much as possible.

In the case of the form works shoring should be locked in position and should be left in place until the concrete has acquired sufficient strength to carry the load and authorized by a competent person.

2.6.8 Demolishing works

Demolishing old building or existing structures became a common practice due to the demand for high rise buildings increases. To conduct this demolishing activity the standard states requirements and procedures to conduct the activity safely.

The standard requires an engineering survey and plan of the structure to determine the condition of the framing, floors, and walls, and the possibility of unplanned collapse of any portion of the structure before starting the demolishing work. Any type of hazardous chemicals, gases, explosives, flammable materials, or similarly dangerous substances shall be checked and appropriate measures shall be taken if they are found. In addition, the standard provides requirements to be fulfilled before, during and after conducting demolishing work to keep the work, workers and the surrounding environment safe.

2.6.9 Tools, equipment, plant and machinery

The standard states care to be used for tools and equipments while operating with them, transporting and after work. The equipment should be shielded to protect workers from being caught by them.

2.6.8 Electrical equipment and installations

Electrical installations shall be done, protected and insulated to prevent the danger of electric shock, fire and external explosions. The electrical appliances and outlets should be clearly marked to indicate their purpose.

2.6.9 Emergency routes and exits

During the construction work emergency routes and exits, that are free from any obstruction and which lead as directly as possible to a safe area, shall be provided. The routes shall allow safe, quick and secure evacuation of workers during an emergency situation.

2.6.10 Use of personal protective clothing and protective equipment

In most construction works the precautions made to prevent the occurrence of accidents are not perfect that can make the working site free of incidents. This unpredictable nature of the construction site enforces the use of personal protective equipment to reduce the damage that can occur on workers.

For different working situations, different types of protective clothing and protective equipments are proposed by the standard to suit the potential of the incident in the site. They are intended to protect the workers from hazards that arise due to the nature of work including lighting, sound, dust and corrosives.

If adequate protection against the risk of accident or injury to health, including exposure to adverse conditions, cannot be ensured by other means, The ILO convention (1988) urges suitable personal protective equipment and protective clothing, having regard to the type of work and risks, to be provided and maintained by the employer, without cost to the workers, as may be prescribed by national laws or regulations (ILO, technical convention, 1988).

Both standards are intended to manage occupational health and safety and applicable to the construction sector. They mainly focus on proactive measures to be taken in handling hazards and ensuring safe work conditions. The main focus is on awareness of people working in the site, engineering solutions that should be done by identifying possible hazards and taking preventive actions. In addition to this to make the environment more conducive providing personal protective equipment is the last option.

The requirements and recommendations stated in the standards have coherence with theories, practices and conventions available in the area. They can be taken as one tool to manage occupational health and safety related issues in the construction sector. This becomes more important due to the nature of standards that provide minimum requirements, ensure uniformity and adaptability to the working condition and allowing traceability of past events and forecasting of future trends.

2.7 Research gap

From the literature, we can observe that occupational health and safety issue is a serious case all over the world. Different countries, continents and international organizations are working to manage the issue. Especially in the construction sector due to high vulnerability of the area high rate of accidents occur compared to other sectors. This makes attention to be given to the sector to handle the cases.

Ethiopia is also working on it by ratifying conventions, adopting and adapting standards and enacting directives. There are articles done on the status of occupational health and safety practices in Ethiopia focusing on different sectors and specifically the construction sector. There also studies focusing on construction firms found in Addis Ababa in assessing their status in the area.After the mandatory enforcement of Occupational Health and safety standard for construction sector by the Ministry of Urban Development and Construction in 2015, the status of the standard and the changes and challenged arise from this standard is not studied well.

2.7.2 Ethiopia Regulation on Health and safety for construction industry

Ethiopia has several regulations in place to ensure health and safety in the construction industry. These regulations are outlined in the Construction Industry Regulation No. 394/2004, which requires employers to provide a safe working environment for their employees and protect them from any potential hazards. The regulations require employers to provide safety equipment such as helmets, safety boots, and goggles, as well as appropriate training to employees prior to starting work. The regulations also outline the responsibilities of employers in ensuring the safety of their employees, such as providing suitable working conditions and facilities, providing regular inspections of the work site to identify any potential hazards, and providing appropriate first-aid equipment and personnel. Furthermore, employers are required to keep accurate records of any accidents or incidents that occur on the work site, and report them to the relevant authorities. The regulations also ensure that workers are compensated for any illness or injury they may suffer while on the job. Finally, the regulations also emphasize the importance of safety and health awareness programs, as well as the need for regular reviews of the regulations to ensure their continued.

CHAPTER THREE: RESEARCH DESIGN AND METHDOLOGY

3.1 Introduction

This part of the research deals with how the research work is conducted. It discusses on the research approach, research design, data collection methods and instruments. In general, the study analyzed the practices and challenges of occupational Health safety standard implementation in Meay Oli Construction Plc.

3.2 Research approach

This study used both a quantitative and qualitative approach, with data collected from 30 questionnaires distributed to safety officers, project managers, and other relevant staff involved in occupational health and safety. A qualitative description of the results is also included, based on open-ended questions in the questionnaire.

Because the study focuses on assessing the practices in implementation of the standard, which is a common practice in the firm and well discussed by the responsible person of the firm, the questionnaire is limited to one person from each project.

3.3 Research design

A descriptive survey method was used to present results in this study because it helps to show the existing reality of occupational health and safety practices and challenges at Mesay Oli construction. Based on the study's objective, the data collected from participants is discussed in detail. In doing so, both quantitative and qualitative data are used to determine the status of the standard implementation and its practices, as well as to seek a solution. It began with a thorough review of existing studies, which revealed numerous issues concerning occupational health and safety. In addition, the standards for the issue were discussed. Finally, it presented the findings of the data analysis from the questionnaire.

3.4 Sampling design

The population this research is two projects at Mesay oli construction PLC. The respondents are selected, because the   standard   is specifically designed to address health and safety of Mesay Oli constructions. The targeted respondents are staffs working in occupational health and safety issues in their company   or that have a direct involvement in the issue.

3.5 Sample size

The researcher used a sample size of 90 employees from Mesay Oli Construction's total of 120 employees. This sample size corresponds to roughly 75% of the total population. Based on the number of employees at the company, a sample size of 90 was calculated. When deciding on sample size, make sure it is large enough to ensure statistical confidence while also being practical and affordable. A sample size of 90 is considered appropriate for this type of study, especially if the employees are from the same target population.

3.6 Sources of data

Following the organization of the questioner, a responsible person for occupational health and safety was regarded as a primary data source on the status of occupational health and safety standard implementation in the respective projects. Focusing on people who have a direct involvement in occupational health safety aids in gathering relevant and genuine data on the subject. It consists of occupational health and safety officers, project managers, and other accountable personnel. This is due to the distinct nature of the method used by the company to implement occupational health and safety rules throughout the organization.

Other secondary data sources include articles, reports, books, and internet sources. Furthermore, legislation, conventions, and standards in the field are reviewed and incorporated into the study.

3.7 Method of data collection

To collect the necessary data from the respondents, the survey method was used in conjunction with self-administered questionnaires. The primary reason for selecting

The survey method of collecting primary data via questionnaires is due to a lack of well-organized secondary data from the various stakeholders involved in the construction. The second reason is that the method is inexpensive to collect data and provides consistent information from respondents.

3.7.1 Primary data source

3.7.1.1 Questionnaire

Questionnaire is taken as a data collection method considering its effectiveness in allowing

the respondent confidence to provide the real information and its manageability for two projects found in Addis Abeba within a short period of time.

The items of the questionnaire are composed of a close ended questions to make coding and analysis of the results easier towards the objectives of the study. The Likert scale is included in this part ranging from 'strongly agree' to 'I don't know' to extract information from respondents on the independent variables. There were also open-ended questions to give additional information on the company and details on the awareness, challenges, and practices of occupational health and safety issues. The questionnaire is prepared in English with the assumption that the participants are professionals that have the capacity to understand English language.

3.7.2 Secondary data source

An extensive literature review was done on previous studies on the issue. Besides, the requirements stated in the standards of occupational health and safety were assessed. The data obtained from the literature was used to compare with the results collected from the firms.

3.8 Data collection procedure

The study mainly focused on the primary data collected through questionnaire. The questionnaire is administered after discussion with responsible persons of the firm through telephone on the objectives of the study. The questionnaire is sent to willing participants through email and telegram to be filled and resent through same medium.

3.9 Data Analysis Methods

The collected data was analyzed both qualitatively and quantitatively using descriptions, tables, and graphs. The responses obtained from the respondents were discussed in relation to the achievement of the research objectives. It attempted to summarize the findings from the collected data in order to meet the study's objectives. To organize and analyze the data, a statistical tool called SPSS statistics was used.

The descriptive statistics methods of percentage, frequency, mean, and standard deviation were used to analyze the data collected from the respondents. To generate a summary of findings, consideration was given to the most common responses to questions, identifying data or patterns that can answer research questions, and identifying areas that can be explored further.

3.10 Instrument validation

Some measures were taken to ensure the validity of the questionnaire in gathering the necessary data on the issues that can be inferred to achieve the set objectives. One was identifying the appropriate company respondents and giving them enough time to go over the questions and provide answers. To cross-check the consistency of the responses, the questionnaire included redundant questions on some of the critical issues. The findings of the analysis were compared to previous findings in the literature. The main reason for cross-checking was to reduce data errors and have high confidence in the data. This contributed to the conclusion being more meaningful and reliable.

3.11 Validity and Reliability

3.11.1 Validity

An extensive literature review is conducted to ensure the validity of the research design in terms of sampling, data collection, and analysis. Based on the findings of the literature, the questionnaire includes common practices and challenges of occupational health and safety implementation to elicit responses from participants. The researcher also used standard requirements to design the questionnaire.

3.11.2 Reliability

There are a number of different aspects to reliability. One of the main issues concerns the scale's internal consistency. This refers to the degree to which the items that make up the scale 'hang together' (Pallant, 2005). The data is analyzed using SPPS- statistics and different tests are conducted to check the reliability of the data collected. One of the common methods that are used to test reliability is Cronbach's alpha value on this scale the value of 0.7 or greater is considered as adequate to analyze results. The statistics tool calculated reliability of the measurement scales using Cronbach's alpha coefficient as shown in Table 10 below.

Variables		
Level of Standards on OHS Standards	4	0.932
Practices of occupational safety and health in the company	14	0.972
Challenges of implementing occupational safety and health practices	6	0.751
Total	24	0.964

3.12 Limitations of the Study

All research studies have limitations that need to be addressed, and it is important to acknowledge these limitations in your study. Some potential limitations of your study include:

Self-Reporting Bias: As respondents are providing answers based on their own experience and impression, there is a possibility of self-report bias.

Convenience Sampling: As you have selected participants from a single construction company, the results may not be generalizable to other companies.

Small Sample Size: Your sample size is only 90 out of a total of 120 employees. While the sample is adequate for the present study, the small sample size may limit the generalizability of the study results to the larger population.

Single Case Study: As you studied only one Construction Company, the study results may not be applicable to other companies or industries.

CHAPTER FOUR: DATA ANALYSIS AND DISUSSION

4.1 Introduction

To meet the objectives of this study the data obtained from the respondents is compiled, discussed and analyzed in this chapter. The chapter presents the response rate, their composition and the rate of responses to each question. Finally, it summarizes the overall responses of the respondents participated in assessment of the practices and challenges of occupational health and safety standard implementation in building construction firms found in Addis Ababa . The whole analysis is made using IBM SPSS- statistics software.

4.2 Response rate

To gather information on the practices and challenges of occupational health and safety implementation at mesay oli construction, With in under control of the company they have two building projects. They are requested to respond to the questionnaire to collect information about the issue. A total of 90 questionnaires were distributed to Two projects to assign a responsible staff to participate in this study.

To gather information on the practices and challenges of occupational health and safety implementation a Mesay oli construction total number of employee from two project a total population is taken 120. They are requested to respond to the questionnaire to collect information about the issue. A total of 90 questionnaires were distributed to the two projects   a responsible staff to respond in this study.

Based on this from all questionnaires distributed to 120 respondents of them are responded which indicates 75% of targeted respondents are participated in due time. Theresponse rate is given as shown in the table below.

Projects	Responded	%	Incomplete	Not responded	Total
Project 1	55	61.1	-	-	55
Project 2	38.8	37.5	-	-	35
Total	90	75		-	90

Table 1 Response Distribution of respondents

4.3 Analysis of collected data

Based on the data collected from the respondents, it is clear that there is a range of awareness

levels when it comes to the existence of the standard and the challenges and practices associated with the implementation of occupational health and safety measures.

Some participants demonstrated a good understanding of the standard and its importance, while others showed a lack of awareness or understanding of the standard. Additionally, some respondents acknowledged that challenges exist in implementing occupational health and safety practices, while others did not appear to see any significant challenges.

It is important to note that variations in awareness levels and perspectives are not necessarily surprising or unusual. Workplace health and safety measures can be complex, and understanding the standard and its implications can require education and training. Likewise, the implementation of occupational health and safety measures can vary depending on the specific needs and circumstances of an organization.

Overall, the data collected highlights the need for continued education and awareness initiatives around occupational health and safety practices and the existence of the standard. It also underscores the importance of tailored implementation strategies that address the specific needs and challenges faced by individual organizations.

4.4 Company Information

4.4.1 Company Establishment

Mesay Oli Construction PLC is one of the construction industries under which has been invested by visionary engineer in Ethiopia since 1996. The company started its operation on building small building like elementary school construction. The result of the company current status was its consistency on delivering quality product, on time delivery and customer demand focus activities. 100 % of the participants respond the year of company established are replay it is more than ten years. The company have more than one decay on the sector recently the company participate in international bid for both building construction and road construction

4.4.2 Number of projects

Based on the study, it appears that Mesay Oli Constitution, has a total of three projects. However, one of these projects is located outside of the capital city where there is no peace. Additionally, the construction industry in Ethiopia is currently constrained due to budgetary issues, which presents further challenges for the company's operations. Due to these challenges, the company does not have many other active projects.

The decision to undertake a project outside of the capital city, despite the risks associated with the location, may have been influenced by a number of factors such as the availability of resources or potential markets in the region. However, the absence of peace in the area pose a challenge to the project's completion, particularly due to concerns around safety and security. Additionally, the high cost of materials in the country increase the overall project costs, potentially reducing profitability. Moreover, the budgetary constraints in the construction industry in Ethiopia also contribute to difficulties for Mesay Oli Constitution in securing additional projects, as there may be limited funds available for new construction projects. The company may need to explore alternative methods of procurement or financing in order to support future expansion.

To overcome these challenges, Mesay Oli Constitution need to develop a strategic plan that takes into account these risks and challenges. This could include exploring alternative locations or markets for future projects, developing relationships with suppliers to reduce material costs, and seeking out alternative funding sources to support the company's expansion. Additionally, developing strong communication channels with local stakeholders and community members may help to address concerns around safety and security in areas where peace is absent.

4.5 Personal information of participants

4.5.1 Year of experience and Positions In the company

As the study shows Project Managers make up 10%, This suggests that the company places a high value on having strong project management skills within the organization. Project Managers are typically responsible for overseeing the planning, implementation and tracking of projects, which is a critical function for successful project completion.

Occupational Health and safety Officers make up 12.2%: This shows that Mesay Oli Constitution places a high priority on safety and health concerns while doing construction work. OHS Officers are responsible for ensuring that safe working conditions are maintained on a construction site, and for identifying and mitigating potential hazards that could cause accidents or injuries.

Foremen make up 32.2%: This suggests that Mesay Oli Constitution places a high value on having experienced, skilled workers who can help manage and oversee various aspects of construction projects. Foremen are typically responsible for managing teams of workers on a

construction site, coordinating work activities, and ensuring that projects are completed on time and within budget.

Procurement personnel make up 13.3%: This suggests that the company values having skilled professionals who can help source and acquire materials needed for construction projects. Procurement personnel are responsible for managing the purchasing of goods and services, and ensuring that the company has the necessary supplies to complete projects.

Site Engineers make up 6.7%: This suggests that Mesay Oli Constitution values having skilled professionals who can provide technical expertise on construction projects. Site Engineers are responsible for ensuring that construction work meets specific technical requirements and specifications, and for managing issues related to quality control and assurance.

General Managers make up 1.1%: This suggests that the company has a relatively flat organizational structure, with few higher-level management positions. The General Manager serves as the top executive in the company, responsible for overseeing all aspects of the business.

 System Administrators make up 23.3%: This suggests that Mesay Oli Constitution places a high value on having strong technology infrastructure and support. System Administrators are responsible for overseeing the technology infrastructure of the company, and for ensuring smooth and efficient operation of IT systems and software as well as management system implementation follow ups .

Position	Percent %
Project Manager	10.0
OHS Officer	12.2
Forman	32.2
Procurement	13.3
Site enginer	6.7
General Manger	1.1
System Manager	23.3

Table 2 Positions In the company

4.5.2 Year of Service In the Company

 As shown the graph below 13.3% of employees have stayed with the company for 2-5 years: This suggests that Mesay Oli Constitution may have a relatively high turnover rate within the first few years of employment. It may indicate that the company has opportunities for growth and development, but that some employees may leave before achieving long-term goals.

21.1% of employees have stayed with the company for 5-10 years: This suggests a more stable workforce and could indicate that Mesay Oli Constitution is a good place to work, with opportunities for career advancement and development over the long-term. This is a positive sign, as it suggests that many employees choose to stay with the company for an extended period of time.

65.6% of employees have stayed with the company for more than 10 years: This is a significant majority of the company's personnel and indicates that there is a strong culture of loyalty and commitment to the organization. This high rate of employee retention could be attributed to a positive work environment, good benefits, opportunities for advancement, and job security. Additionally, it may indicate that Mesay Oli Constitution has a strong reputation within the industry, leading to a stable and loyal workforce.

Overall, having a high percentage of employees who have stayed with the company for an extended period of time is generally a positive sign, as it suggests that employees are happy and committed to the organization. Additionally, more experienced personnel can be seen as an asset, bringing valuable skills and expertise to the workforce.
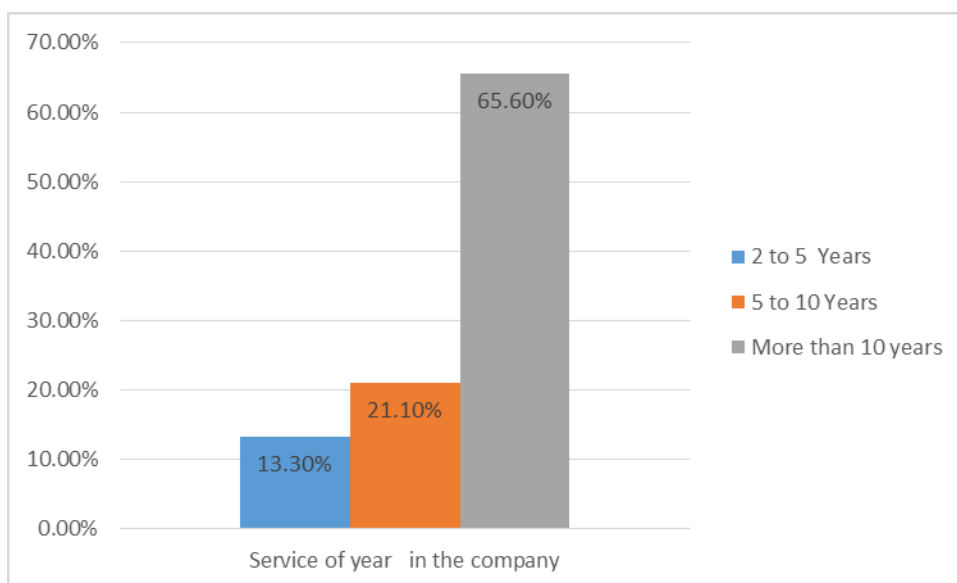

Figure 1 Year of service in the company

4.6 Occupational Health and safety Plan

The result shows 80% of respondents have reported that Mesay Oli Constitution has an OHS plan while 20% have reported that the company does not have an OHS plan, this could indicate a potential issue with communication or implementation of OHS policy within the organization.

It is essential that companies prioritize the safety and well-being of their workers, and that effective OHS policies and procedures are in place to mitigate potential hazards and ensure compliance with local safety regulations. If a significant percentage of respondents have reported that the company does not have an OHS plan, this indicates that there may be room for improvement in the company's policy and communication practices.

It is important for Mesay Oli Constitution to address these concerns and take steps to improve their OHS program. This may include reviewing and revising existing policies, improving communication about OHS measures to employees, and ensuring that all workers are properly trained on OHS procedures.

4.7 Health and safety problems faced

34.4% of respondents have reported facing OHS problems on site while 65.6% have reported not facing OHS problems, this suggests that Mesay Oli Constitution may have room to improve their OHS policies and procedures to better address and mitigate potential hazards on construction sites.

This minority percentage is a cause for concern, as it suggests that a significant percentage of workers are experiencing OHS issues on the job site. Mesay Oli Constitution should take these concerns seriously and investigate the causes of these reported OHS problems, with the goal of developing and implementing solutions to address the identified issues.

It is crucial to ensure that all workers are aware of the risks on job sites and trained on safety procedures to prevent OHS problems and accidents from occurring. Additionally, workers should be encouraged to report any potential OHS concerns or issues as soon as they occur so that they can be addressed promptly.

Overall, by taking steps to address the OHS concerns reported by employees and implementing effective OHS policies and procedures, Mesay Oli Constitution can help to mitigate potential hazards and ensure the safety and well-being of their employees on job sites.
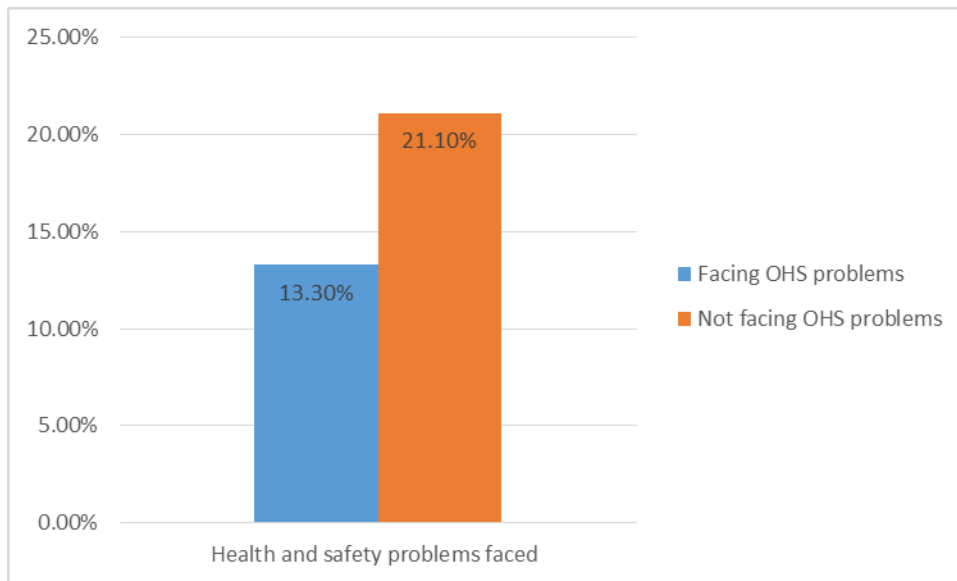
Figure 2 Occupational health and safety problems

4.8 Methods to manage occupational Health and safety

92.2% of respondents have reported that Mesay Oli Constitution has different methods to manage OHS issues while 7.8% have reported no, this suggests that the company has prioritized implementing a range of strategies to help manage OHS risks in the workplace. This is a positive sign, as it indicates that the company is committed to supporting a culture of safety and well-being among its workforce.

The different methods and strategies that company use to manage OHS risks, including:

They have a Comprehensive OHS policies and procedures: Developing and implementing transparent and well-communicated OHS policies and procedures this can help ensure that all workers understand the company's expectations for safety practices and hazards.

There is annual OHS training programs, Regular OHS training and updates help workers stay informed and prepared for potential hazards on job sites.

Regular safety inspections: Regular inspections and safety audits can identify potential hazards and opportunities for improvement in OHS practices. There is also Incident reporting and investigation method to ensuring that all workers are aware of the process for reporting and investigating OHS incidents can help promote OHS-related reporting and accountability.

 Safety culture building: Promoting a strong safety culture through leadership, team engagement, and participation in safety committees help workers develop a sense of shared responsibility for safety practices and foster a supportive and safe work environment.

The best method for managing OHS risks varies depending on the specific needs and environment of each project , but generally involves a combination of many different strategies and approaches. It is important for company to continuously review and update their OHS policies and practices based on worker feedback and changing conditions.

4.9 Level Of awareness on OHS standard

4.9.1 Information on occupational health and safety status of company

Based on the survey result, it's good to see that a majority of the respondents (86.7%) strongly agree that the company provides information on Occupational Health and Safety (OHS). However, it's a concern that only 13.3% agree with this statement. It's crucial for employers to prioritize the health and safety of their employees to create a safe work environment. Fig
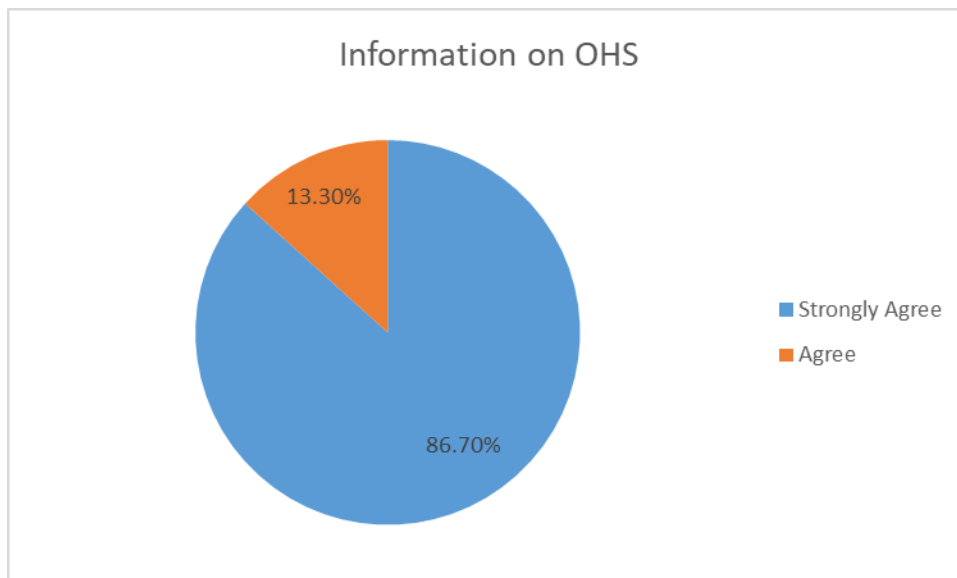
Figure 3 Information on OHS

By Increasing Communication Employers can communicate more frequently and transparently about OHS. This includes regular safety meetings, safety memos, and other communication tools that can provide up-to-date information on health and safety issues.

Provide Training and Education: The company should provide regular training and education initiatives to employees on occupational hazards and how to identify them, as well as what to do in case of an emergency. Offer Resources for Individual Safety: Encourage employees to

take personal responsibility for their health and safety by providing individual resources like personal protective equipment (PPE), ergonomic workstations, and mental health support.

 Encourage Feedback: Encourage employees to provide feedback on health and safety issues that they face or encounter in the workplace so that these issues can be addressed proactively.

By taking these steps, the company can create a culture of safety, promoting the well-being of employees and fostering a safe work environment.

4.9.2 On the level of awareness on the standard

The data collected regarding the level of awareness on the standard shows that a high percentage (86.67%) of the respondents strongly agree that their company has information on the availability of occupational health and safety standards. Additionally, a significant majority (93.33%) indicated that the company follows the requirements of the standard. The study also found that the company uses both national and international standards for occupational health and safety.

Regarding the company's awareness of the standard and its requirements, the grand mean was 4.53 with a standard deviation of 0.1316, which indicates a moderate level of awareness. Despite being a voluntary standard, the company implemented the ISO 45001:2018 standard and obtained certification, which can lead to benefits such as reducing workplace injuries and illnesses, improving compliance, and increasing productivity.

It is also worth noting that the Ministry of Construction and Urban Development Authority includes the ISO 45001:2018 standard as a technical evaluation during bidding for Grade one contractors, indicating the importance of the standard in the construction industry. Overall, the study shows that there is a good level of awareness and implementation of the standard in the company.
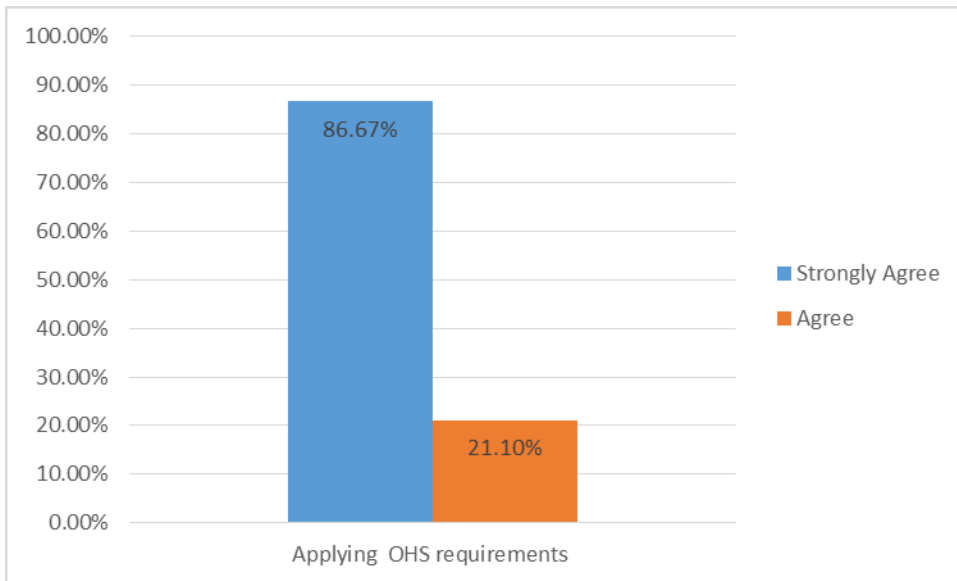
Figure 4 OHS standard availability

4.9.3 Occupational Health and safety standard Availability

From the survey results, it's encouraging to see that a majority of the respondents (46.7%) strongly agree that the company has a copy of the standard at both the head office and the site. However, it's concerning that almost one-third of the respondents (33.3%) do not know, indicating a lack of information or communication about the standard.
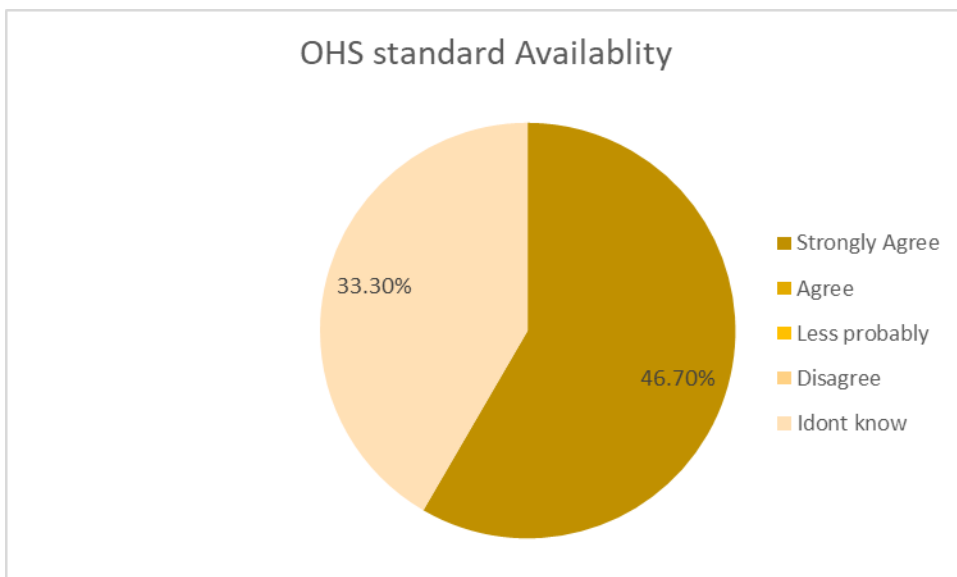

Figure 5 OHS standard Availability

Having a copy of the standard at both the head office and the site is crucial to ensure that everyone involved in the project is aware of the standards and guidelines to follow to achieve success.

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The company can Establish Clear Communication Channels, To ensure that there is regular communication between the head office and the site to keep everyone informed about the standard. This may include emails, digital communications, meetings, or other communication channels.

Ensure Easy Access to the Standard can be the other mechanisms ensure that the standard is accessible to everyone at all times. This can be achieved by providing a digital copy on the company's intranet or ensuring that there are physical copies available at both locations. Conduct Regular Training: The company should conduct regular training sessions to familiarize employees with the standard and provide guidance on how to implement it. These training sessions can be conducted at both the head office and the site.

Encourage Feedback and Questions: The company should ensure that employees feel comfortable asking for clarification or feedback on the standard. This can be achieved by creating an open-door policy where employees can approach their supervisor or the HR department for any questions or concerns.By taking these steps, the company can ensure that all employees are aware of the standard and can implement it effectively. This will help to promote consistency and success across the project.

4.10 Practices of occupational safety and health in the company

4.10.1 All company activity's and integration with occupational Health and safety

It is encouraging to see that a majority of the respondents (60%) strongly agree that all activities of the company are integrated with Occupational Health and Safety (OHS). However, it is concerning that almost a quarter of the respondents (23.3%) only agree, and a small percentage (16.7%) think it is less probable.
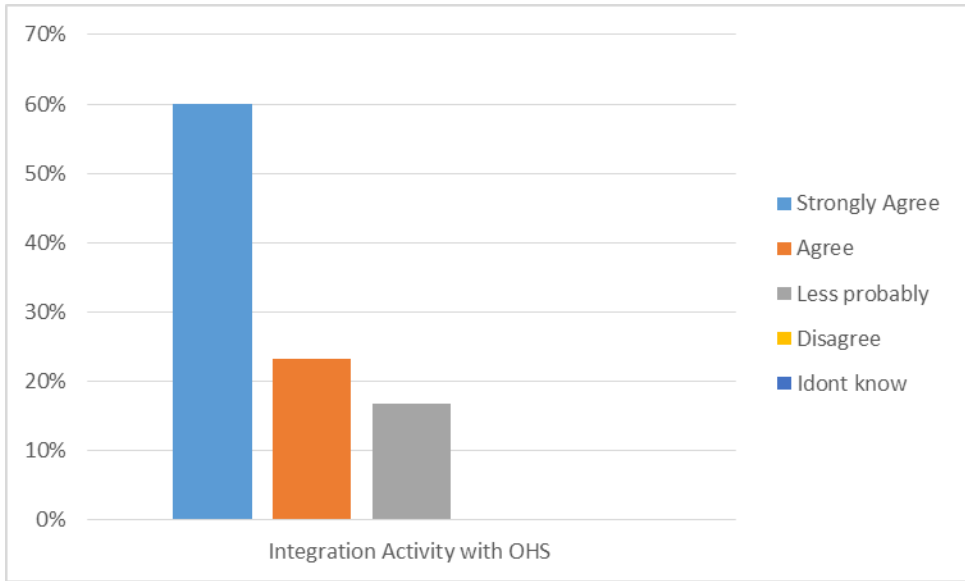
Figure 6 Integration Activity

Integrating OHS into all activities of a company should be a top priority for any employer, and it is crucial to ensure the safety and well-being of all employees. Here are some recommendations to help integrate OHS into all company activities. Regular OHS Reviews: The company should conduct regular reviews of all activities to ensure that OHS is integrated into each one. This can help identify any gaps in OHS and develop strategies to mitigate risk. Incorporate Safety in Job Descriptions: The company should ensure that all job descriptions list OHS as a priority for each job. This can help employees understand the importance of OHS in their work and appreciate its necessity.Provide OHS Training: The company can provide OHS training to employees at all levels. This can help create a culture of safety by making all employees responsible for identifying OHS risks and implementing safe work practices. Develop Standard OHS Practices: The company can incorporate standard OHS practices into all company activities. This can include developing policies and procedures for high-risk activities or identifying OHS risks in routine tasks.

By integrating OHS into all company activities, the company can ensure that employees' safety is a priority. This can help to create a safer work environment, reduce work-related accidents, and improve overall productivity in the workplace.

4.11 Functional office

Based on the survey results, it seems that employees feel that the company's office is functional in managing OHS issues. 76.7% of the respondents strongly agree that the office is effective in this area, while 23.3% agree with this statement. This indicates that the majority of employees believe that the office is doing a good job in managing health and safety in the

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workplace.

It's worth noting that having a functional office for managing OHS issues can greatly impact employee productivity and satisfaction. When employees feel safe and healthy in the workplace, they are more likely to be productive, engaged, and motivated. Moreover, they are less likely to experience accidents or injuries, which can lead to reduced absenteeism and lower healthcare costs for both the employee and the employer.

Overall, it appears that the company's efforts in managing OHS issues are paying off, as indicated by the high level of agreement from the employees surveyed. However, it's important to keep monitoring and improving this area to ensure that employees remain healthy and safe in the workplace..

4.11.1 **Professional working on occupational Health and safety**

Based on the survey of professional who specializes in occupational health and safety. The survey results indicate that 76.7% of the respondents strongly agree that this professional is effective in their role, while 23.3% agree with this statement.

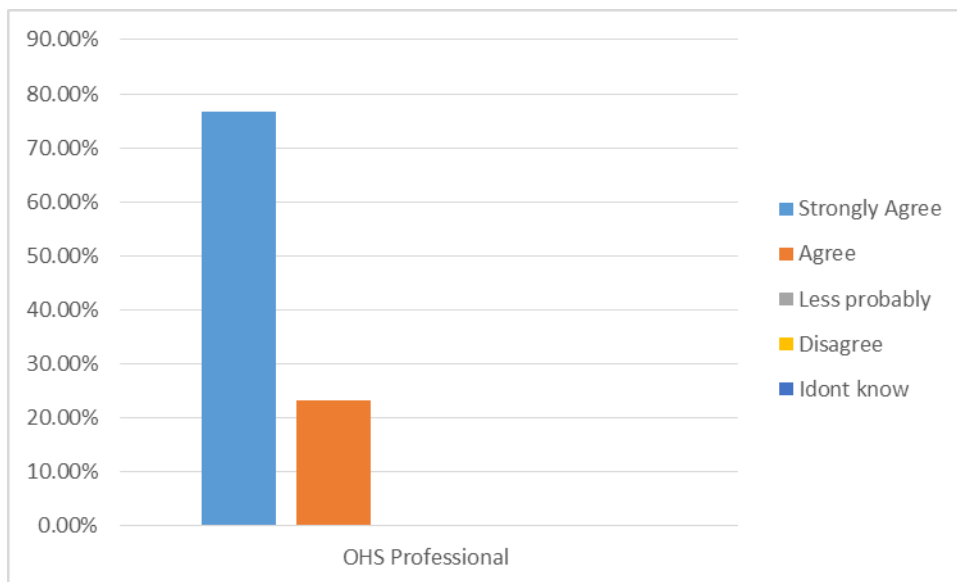**Figure 7 OHS Professional**

This suggests that the majority of employees or individuals who were surveyed have a positive perception of the effectiveness of the professional in occupational health and safety. It's important for companies or organizations to have professionals who are knowledgeable and experienced in this field to ensure that the workplace is a safe and healthy environment for its

employees.

Having an occupational health and safety professional can also help reduce the risk of accidents, injuries, and illnesses in the workplace, which can lead to increased productivity, reduced absenteeism, and lower healthcare costs for both the employee and the employer.

Overall, the survey results suggest that the professional who specializes in occupational health and safety is doing a good job in their role, as indicated by the high level of agreement from the respondents. It's important for companies to prioritize occupational health and safety and ensure that they have the necessary resources in place to maintain a safe and healthy workplace for their employees.

4.12 Consideration of Health and safety

Based on the survey results, it seems that the company's approach to OHS planning during project commencement is somewhat mixed. While 23.3% of respondents strongly agree that the company considers OHS planning during project commencement, there are also a significant number of respondents who are either uncertain or feel less confident that this is the case.

The fact that 13.3% of respondents answered "don't know" when asked about OHS planning during project commencement suggests that there may be a lack of communication or transparency within the company on this issue. This lack of knowledge could also be indicative of a lack of training or education on the importance of OHS planning for employees.

Similarly, the fact that 13.3% of respondents answered "less probably" may suggest that the company has room for improvement in terms of prioritizing and integrating OHS planning into their project management processes. Overall, it's important for companies to prioritize OHS planning right from the start of any project, as this can help identify and address potential risks and hazards before they become a problem. Companies should also invest in ongoing training, education, and communication to ensure that all employees understand the importance of OHS planning and are able to contribute to a safe and healthy working environment.
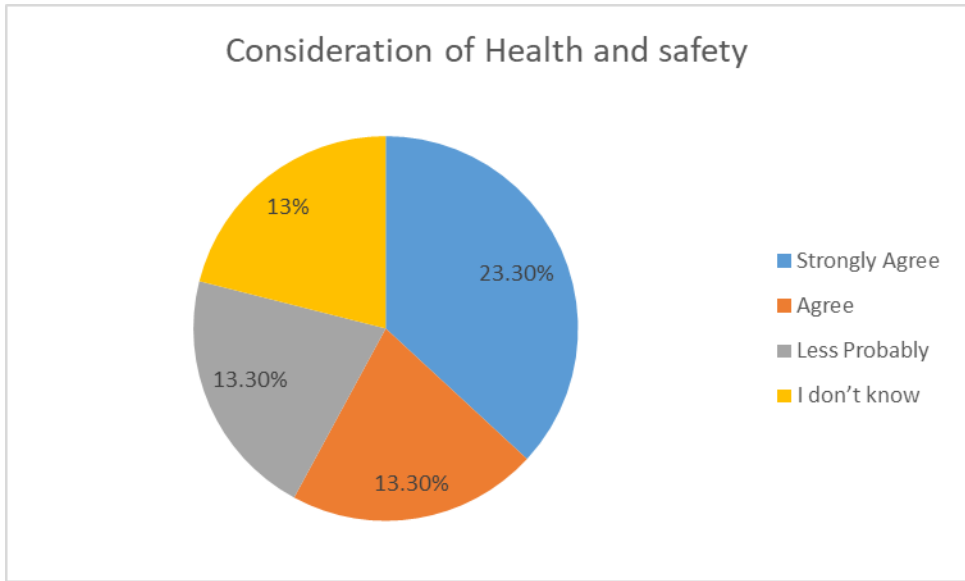
Figure 8 OHS Consideration

4.13 Following Health and safety requirement

Based on the survey results, it seems that the company is generally compliant with OHS requirements. 56.7% of respondents agree that the company follows these requirements, while 43.3% strongly agree with this statement.

It's important for companies to comply with relevant OHS requirements, as this ensures that the safety and well-being of employees are prioritized and that potential risks and hazards are identified and addressed proactively. Compliance also helps to ensure that the company is operating within the boundaries of the law and can avoid potential legal or financial penalties.

The fact that a majority of respondents agree or strongly agree that the company follows OHS requirements is a positive indicator that the company is taking this issue seriously. However, it's important for companies to continuously monitor and improve their compliance with OHS requirements to ensure that their employees continue to work in a safe and healthy environment.

This may involve investing in ongoing training and education on OHS best practices, regularly reviewing and updating OHS policies and procedures, and encouraging open communication and feedback from employees to identify potential areas for improvement. By taking these steps, companies can maintain a strong culture of safety and promote the well-being of their employees.
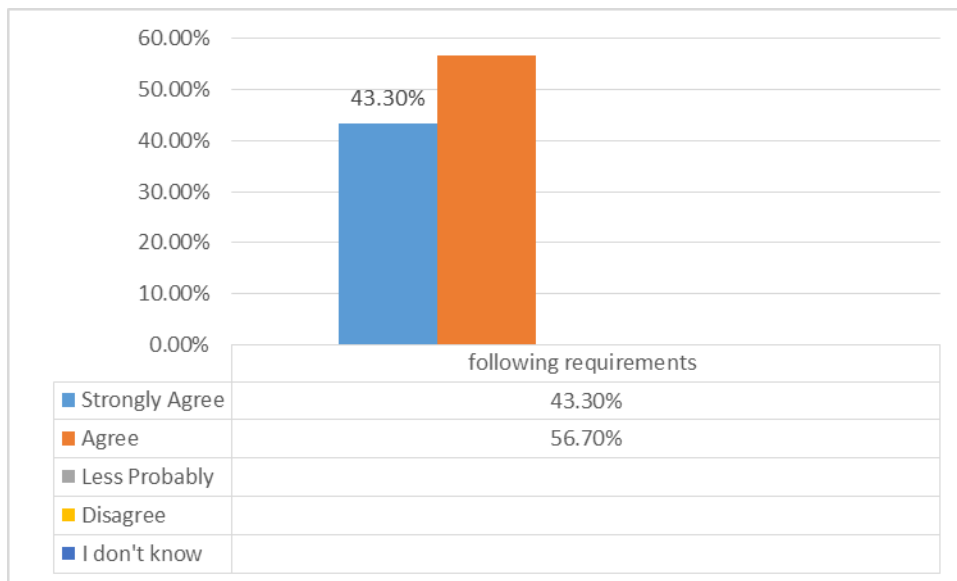
Figure 9 following requirements

4.14 Manuals and guidelines

Based on the survey results, it appears that the vast majority of respondents (97.8%) strongly agree that there are OHS manuals and procedures in place at the construction company, while only 2.2% agree with this statement. This is a positive indicator as it suggests that the company has put a strong emphasis on documenting and implementing OHS policies, procedures, and guidelines. Having detailed manuals and procedures ensures that the company has a consistent and structured approach to managing occupational health and safety risks and hazards.

Some of OHS manuals and procedures that a Mesay Oli construction company uses,
Safety Management Systems Manual - outlines the company's overall approach to safety management, including roles and responsibilities, hazard identification and assessment, incident reporting and investigation, and emergency preparedness and response.

Toolbox Talks - short, informal safety meetings conducted on a regular basis to discuss specific safety topics and reinforce safe work practices amongst workers. Hazardous Materials Procedures - guidelines for safely handling and managing hazardous materials on construction sites, including storage, transportation, and disposal.

 First Aid Procedures - outlines the company's procedures for administering first aid treatment in the event of an injury on the job.Equipment Operation Procedures - guidelines for

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safely operating equipment on construction sites, including pre-operation checks, basic maintenance, and emergency shut-off procedures.

These manuals and procedures are regularly reviewed and updated to ensure that they remain current and relevant. Effective communication and training on these guidelines should also be provided to all employees to ensure understanding of and compliance with the procedures.
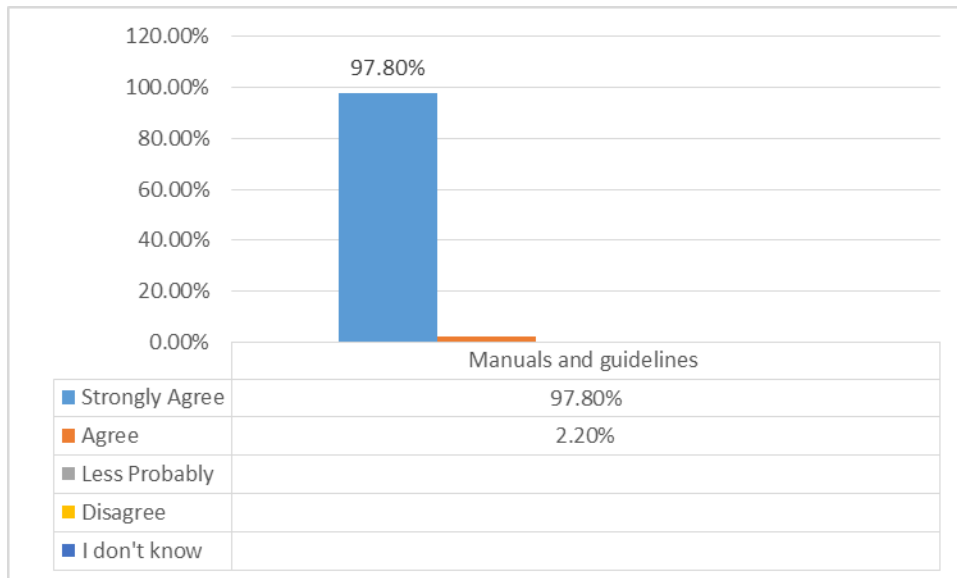

	Manuals and guidelines
■ Strongly Agree	97.80%
■ Agree	2.20%
▦ Less Probably	
■ Disagree	
■ I don't know	

Figure 10 Manuals and procedures

4.15 During Commencement of project

During commencement of any project the site plan is developed and implemented to ensure health and safety of workers 26.7% of the respondents strongly agreed project develop and implement site plan to ensure the safety of the site, 26.7% of them respond they agree 26.7% of them know that the company do it rarely, and 20% of the respondent they don't know regarding the issue As described in the standard. ISO 45001:2018 specifies the require-ments for an occupational health and safety (OHS) management system, which can be ap-plied to organizations of all sizes and types. Clause 4.4 of ISO 45001:2018 outlines the re-quirements for the OHS management system to establish, implement, maintain, and continu-ally improve processes for managing OHS risks and opportunities. This includes the follow-ing specific requirements related to the commencement of projects and site planning:

- Identifying hazards and assessing risks associated with new or modified activities, products, or services before they commence, and taking actions to address them

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- Establishing and implementing processes for planning, implementing, and evaluating OHS-related changes to the organization or its activities, products, or services

- Establishing and implementing processes for identifying and communicating OHS-related requirements to contractors and other relevant parties, and verifying their compliance with those requirements

- Establishing and implementing processes for evaluating the OHS performance of suppliers, contractors, and other relevant parties, and selecting those that meet OHS requirements

Therefore, based on Clause 4.4 of ISO 45001:2018, it is clear that the OHS management system should address the requirements related to the commencement of projects, site planning, and OHS of workers.
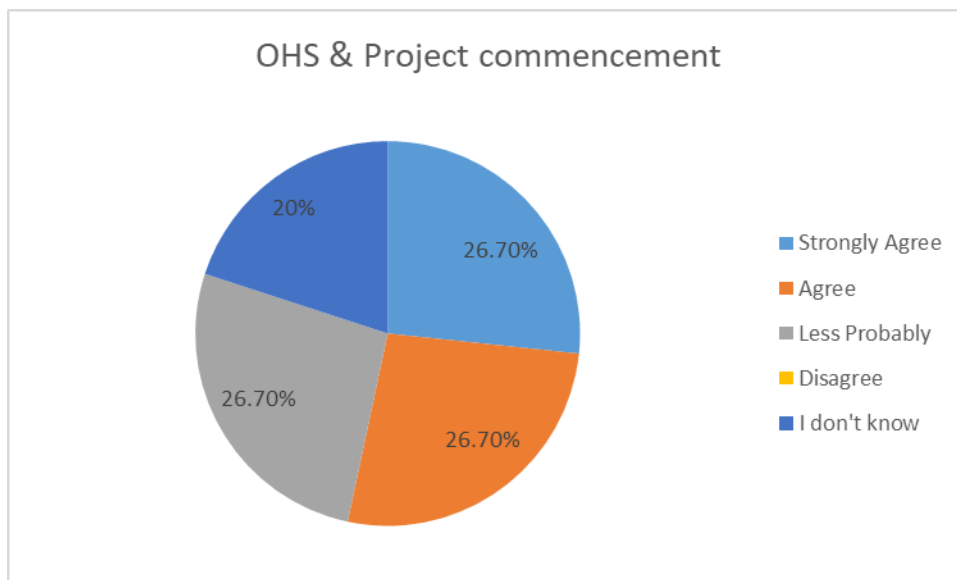
Figure 11 OHS & Project commencement

4.16 Training Provided on Occupational Health and safety

Based on the survey results, it seems that the construction company has a strong culture of continuous training and development for employees. 52.2% of respondents strongly agree that there is training available, while 46.7% agree with this statement. In terms of OHS training, there are a variety of training programs that the company may offer to its employees, including:

General OHS Training - provides an overview of key OHS concepts and practices, including hazard identification and assessment, safe work practices, and incident reporting and investigation.

Personal Protective Equipment (PPE) Training - instructs employees on the proper selection, use, and maintenance of PPE, including hard hats, gloves, safety glasses, and other safety equipment.

Specific Hazard Training - provides targeted training on specific OHS hazards that workers may face on-site, such as working at heights, handling hazardous materials, or operating heavy equipment.

First Aid Training - trains employees on basic first aid procedures, including CPR, wound care, and the use of AEDs.

Supervisor Training - provides training specifically for company supervisors on their role and responsibilities in promoting and maintaining a safe and healthy workplace, including how to lead safety meetings, conduct incident investigations, and manage hazards.

It's important for companies to provide ongoing training and development opportunities for their employees, including regular OHS training. This not only helps to promote a culture of safety and well-being, but it also helps to ensure compliance with relevant laws and regulations. By investing in employee training and development, The company can help to ensure that their employees have the necessary skills and knowledge to maintain a safe and healthy work environment.
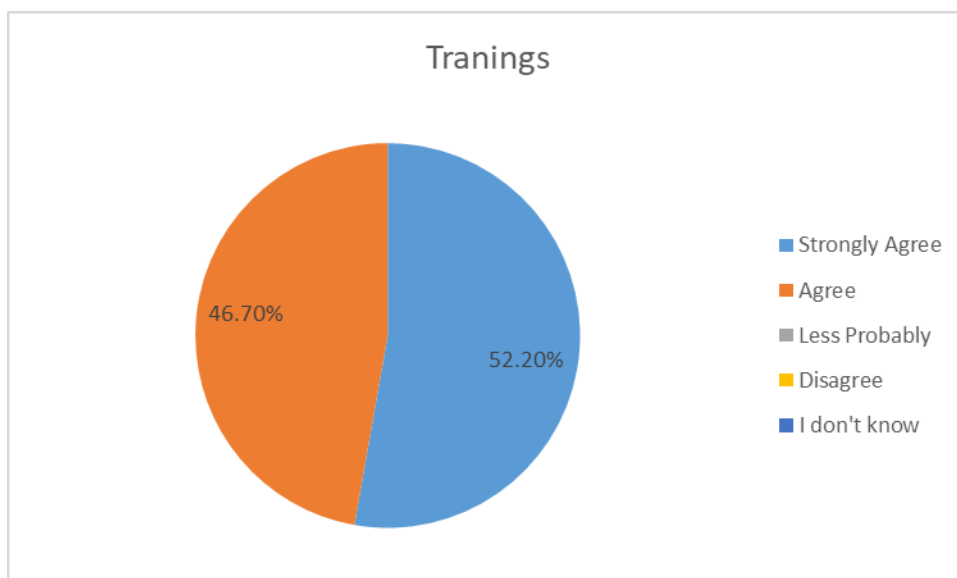

Figure 12 Trainings

4.17 Reporting Procedures

Based on the survey results, it appears that the company has formal reporting procedures in place for occupational health and safety issues. 56.7% of respondents strongly agree and 43.3% agree that the company has formal reporting procedures.

Having a formal reporting procedure for OHS issues is critical as it provides a structured and consistent approach for employees to report any safety concerns, hazards, or incidents that may arise on the job. This can help to ensure that important information is communicated to the appropriate individuals in a timely manner, and that effective corrective actions are taken to prevent future incidents from occurring. A well-designed reporting procedure also helps employees to actively participate in promoting a safe and healthy work environment by empowering them to report potential hazards or near-miss incidents with the confidence that they will be addressed appropriately.

The formal reporting procedure should include clear information on how to report OHS issues, including what types of incidents should be reported, who should be notified and how the incident should be documented. It is also crucial that employees are trained and educated on these procedures, so they know how to properly identify and report OHS concerns. By having clear and effective formal reporting procedures in place, construction companies can help to mitigate risks to the health and safety of their employees and promote a culture of safety in the workplace.
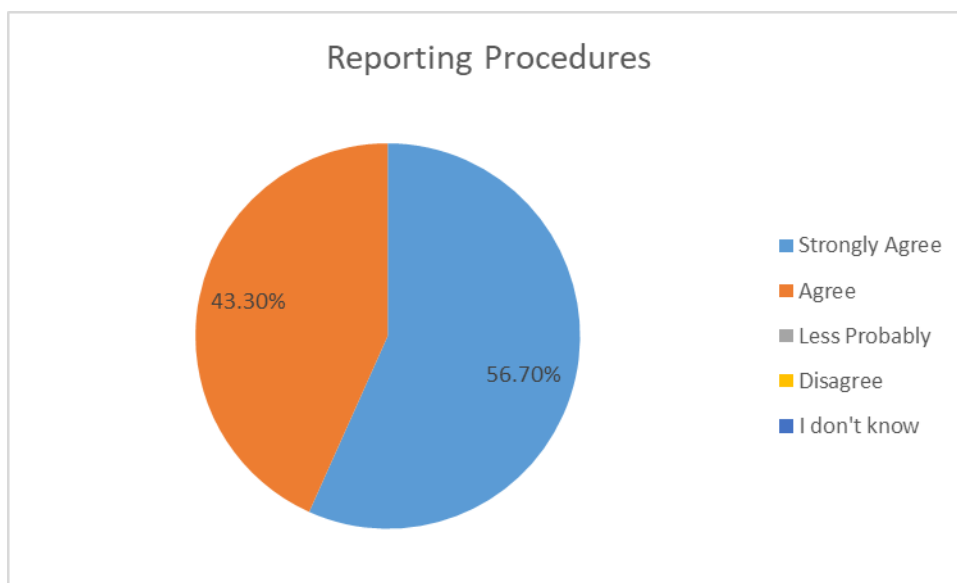

Figure 13 Formal reporting procedure

4.18 Budget

Based on the survey results, the majority of respondents believe that the company assigns a budget for the effectiveness of OHS. 42.2% of respondents strongly agree and 22.2% agree with the statement, while 24.4% of respondents don't know and 10% think that the probability is less likely.Having a budget dedicated to OHS measures is crucial to ensure that the company is prioritizing the well-being and safety of its employees. It provides the necessary resources for effective implementation of OHS policies, procedures, and training programs. It also sends a message to employees that the company is committed to creating a safe working environment, which can lead to increased employee morale and productivity.

However, the fact that some respondents were uncertain or less convinced about the company's OHS budget allocation can be concerning. It suggests that there may be a lack of communication or transparency about the company's OHS budget, or that more could be done to demonstrate the effectiveness of the company's OHS program. It's crucial for companies to clearly communicate their OHS budget allocation and the steps that are being taken to create a safe working environment. This can help to build trust with employees and demonstrate that the company is taking OHS seriously. Providing regular updates on the use of the allocated budget and any improvements made in the OHS program can further reinforce the effectiveness of the program and the company's commitment to ensuring the safety and well-being of its employees.
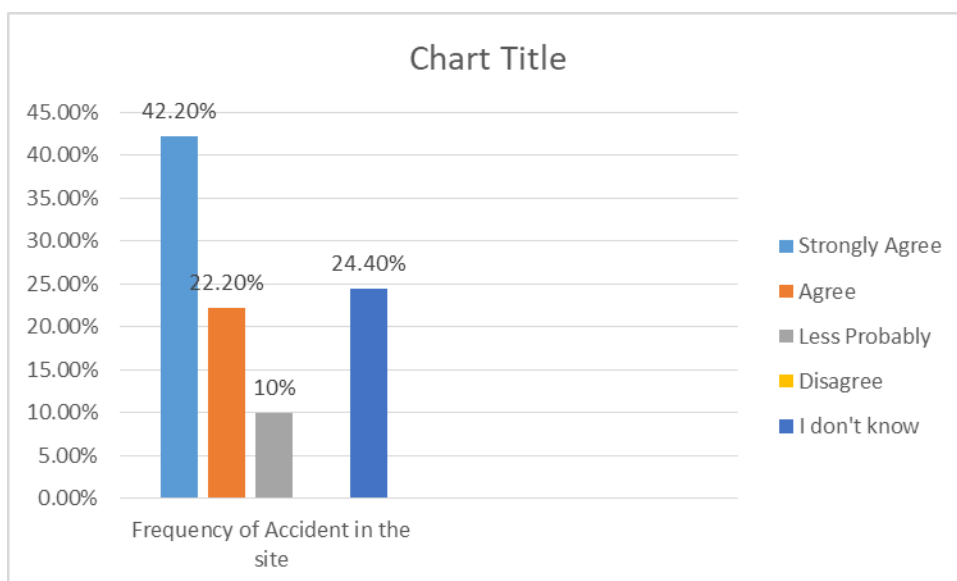

Figure 14 budget to manage OHS

4.19 Frequency of Accident in the site

Based on the survey results, it appears that the majority of respondents believe that the frequency of accidents at the construction site is low. 18.5% of respondents strongly agree and 43.3% agree with the statement, while 18.9% disagreed and 18.9% think it is less probably.

This is a positive indicator as it suggests that the company has a good track record in promoting safety and preventing accidents on the job site. Low accident frequency can be indicative of an effective OHS program, which prioritizes hazard identification, risk assessment, and accident prevention - and has been successful in implementing preventative measures accordingly.

It's important to recognize, however, that even with a strong OHS program, accidents can still occur. It's essential for companies to continue to prioritize OHS and remain vigilant in identifying any potential risks and hazards associated with ongoing construction projects. Doing so may help to minimize the occurrence of accidents and injuries on the job site, and ensure that the company continues to promote a culture of safety.

Overall, the survey results suggest that the company's OHS program is strong and effective in promoting safety and preventing accidents. However, there is no room for complacency, and companies must remain committed to ongoing monitoring, communication, and improvement of their OHS program to ensure that accidents are kept to the minimum possible.
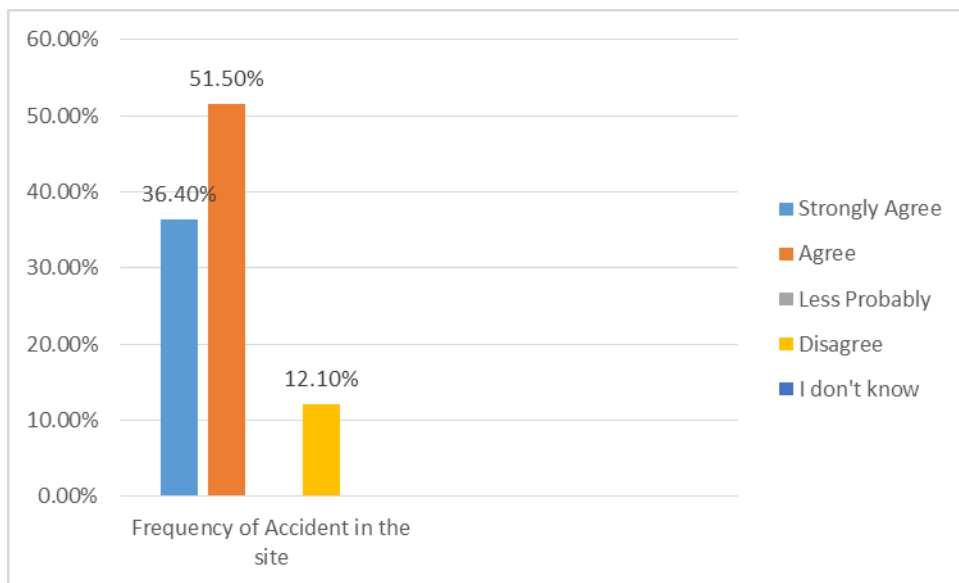

Figure 15 frequency of accident

4.20 Workers awareness

Among the respondents, 12(36.4%) of them strongly agree that the workers in the site are aware of occupational safety and health practices and (51.5%) of them confirmed that the workers are willing to follow the guidelines. On the other hand, (36.4%) of the respondents agree with the awareness of the workers and (12.1%) of them are not willingness of the workers to follow the guidelines. This indicates the awareness and willingness of the workers in the company towards occupational health and safety practices is partially well confirmed. Without having knowledge and willingness of theissue and practices it is difficult to save the damages that may happen in human life and resources.

This indicates that there is y labors awareness is shows as negligence In managing the safety of the project sites.

4.21 Workers awareness and willingness

Among the respondents, 36.4% of them strongly agree that the workers in the site are aware of occupational safety and health practices and 51.5% of them confirmed that the workers are willing to follow the guidelines. (12.1%) of them are not willingness of the workers to follow the guidelines. This indicates the awareness and willingness of the workers in the company towards occupational health and safety practices is partially well confirmed. Without having knowledge and willingness of the issue and practices it is difficult to save the damages that may happen in human life and resources.
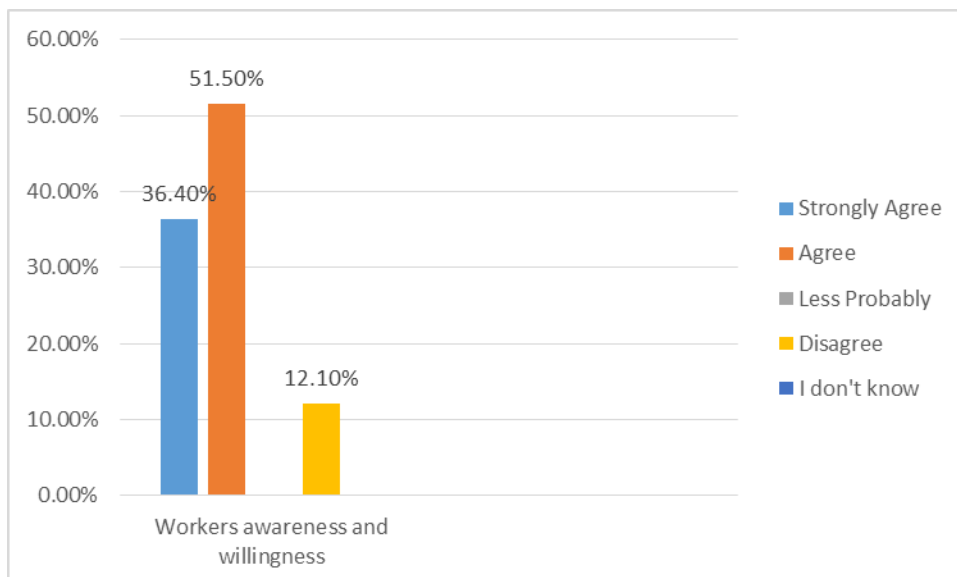
Figure 16 Worker Willingness

This indicates that there is y labors awareness is shows as negligence In managing the safety of the project sites there is a 100% of participation of employees in planning and hazard identification of processes for occupational safety and health, Primarily accidents and hazards affect the workers found in the construction site and they have the experience and knowledge on the potential risks of accidents. Excluding them from hazard identification and planning means making it to fail beforehand.

For the practices of implementing occupational health and safety in construction sites the result shows a the company have practiced occupational health and safety.

4.22 Challenges of implementing occupational safety and health practices

There are a number of challenges in different company's towards the implementation of occupational health and safety practices. In the same manner in Mesay Oli construction may have challenges that hinder them from its implementation. To assess the challenges of the implementing throughout the organization on the issue commonly discussed challenges in the literature are condensed and presented to the respondents to rate their respective Company Implementation of occupational health and safety practices

4.22.1 Implementation Practice cost

It is considered as implementation cost of Occupational health and safety is expensive by 43.3% agreed and as expensive by 56.7% of the respondents strongly agreed that implementing is very expensive.

Nearly half of the respondents perceive that implementation is expensive which is one challenge stated in literatures to implement occupational health and safety in its all project. During my interview with the top management its long time investment that will be compensated by increased productivity and reduced compensation cost.
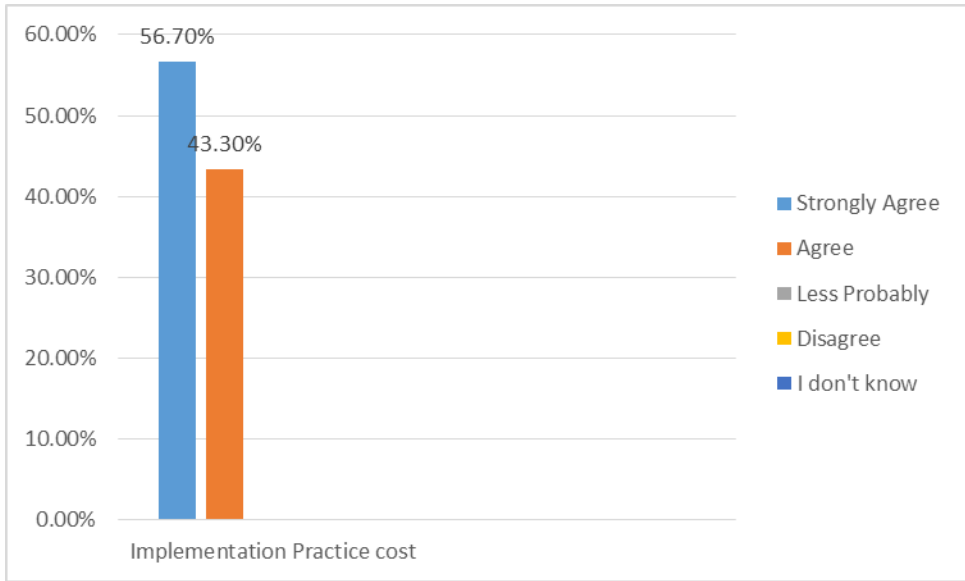
Figure 17 implementation cost

4.22.2 Implementation and Productivity

According to the survey results, 40% of respondents believed that implementing occupational safety and health practices would rarely reduce productivity. However, a larger percentage, 46.7%, disagreed with this idea, indicating that they believed that implementing these practices would not reduce productivity. The remaining 13.3% of respondents were unsure whether implementing occupational health and safety practices would impact productivity.

Overall, this shows that participants had a positive understanding of the relationship between occupational health and safety, cost, and productivity. They recognized that while implementing safety measures may require an investment of time and resources, it ultimately leads to improved workplace safety and can even contribute to increased productivity. This reflects a growing awareness and appreciation of the importance of workplace safety and health in maintaining a productive and successful business.
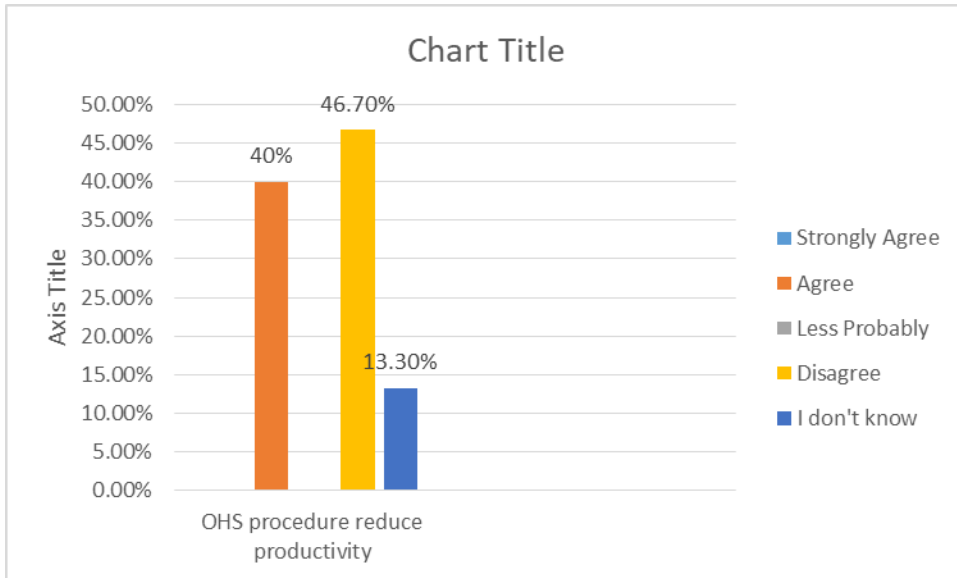
Figure 18 Following OHS procedure reduce productivity

4.22.3 Top management concerns on occupational Health and safety issue

Management is directly responsible for preventing injuries and illness, with each level accountable to the one above and responsible for the level below. In contrary to this assumption 53.3%) of the respondents believe that the top management has a higher concern about the issue, and 36.7% of the respondents agree with this concern. On the other hand, 10% of the top management less probably concerned. This implies that majority of the respondents believe that the management is indeed highly concerned with the issue at hand. However, it is important to note that the remaining 46.7% either disagree or are uncertain about the management's level of concern, so further investigation may be necessary to understand their perspective.

Figure 19 Top management Concern

4.22.4 Managing Accident

Based on the survey results the majority (56.7%) of the respondents agree that managing accidents is difficult to manage, while 40% are less probably so and only a small percentage (3.3%) strongly agree. This implies that the majority of the respond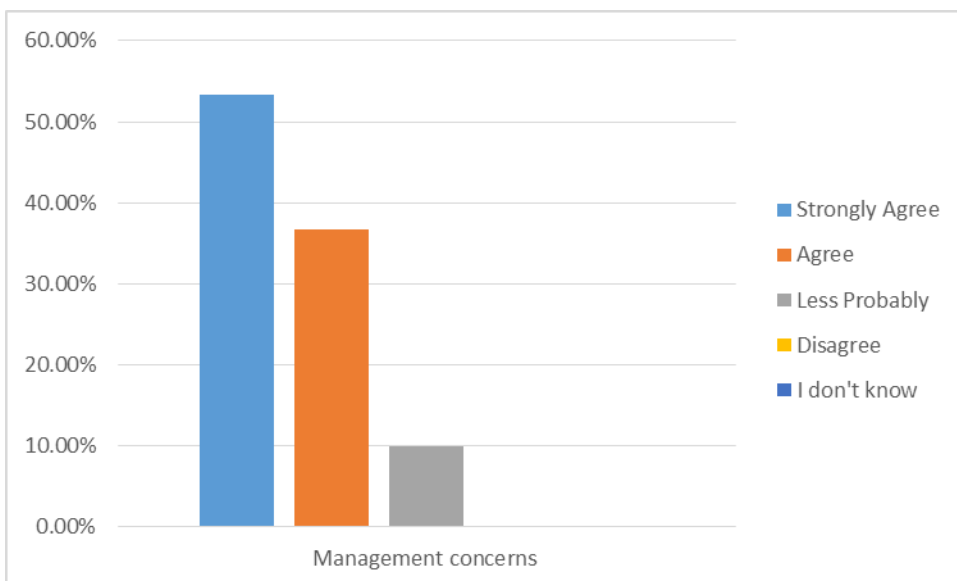ents believe that managing accidents is indeed a challenging task. However, it is important to note that 40% of the respondents feel uncertain about the difficulty level involved in managing accidents.

This finding suggests that there may be a need to further explore the reasons for why some respondents are uncertain about the difficulty level involved in managing accidents. Additionally, the management may need to identify and address the factors contributing to this perception of difficulty in order to ensure effective management of accidents in the workplace.
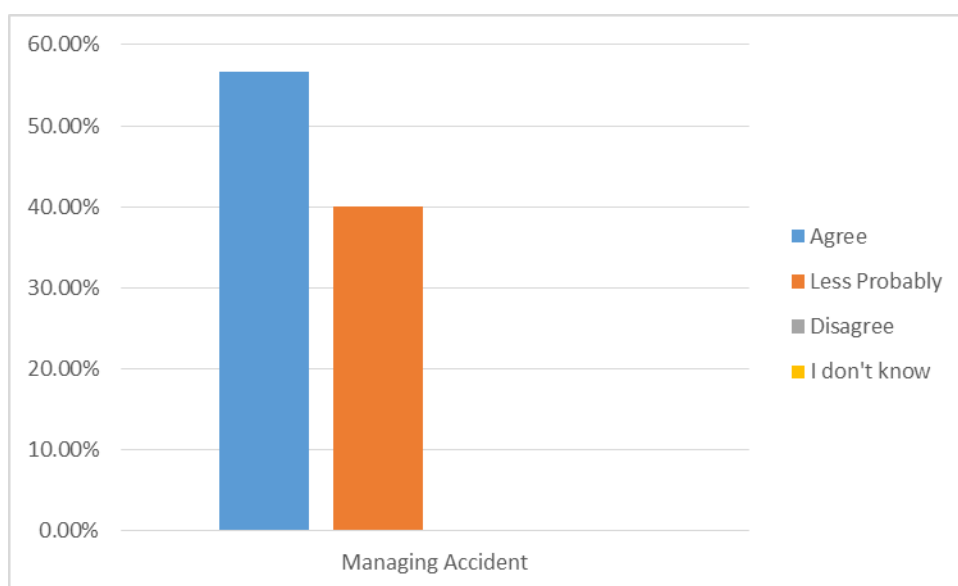
Figure 20 OHS related Accident

4.22.5 Workers Willingness on Wearing Protective cloths

Based on the survey results from the respondent the majority of (56.7%) of the respondents agree that workers are not willing to wear Personal Protective Equipment (PPE), while 43.3% disagree. This implies that the majority of the respondents believe that workers are indeed not willing to wear PPE.

This finding suggests that the management may need to identify and address the factors con-

tributing to the unwillingness of workers to wear PPE. For example, they could consider introducing more comfortable and practical PPE options, providing further training on the importance of PPE and its proper use, or positive recognition for workers who consistently wear the required PPE. It is important to ensure that all necessary measures are taken to encourage workers to wear PPE in order to ensure their safety and well-being.
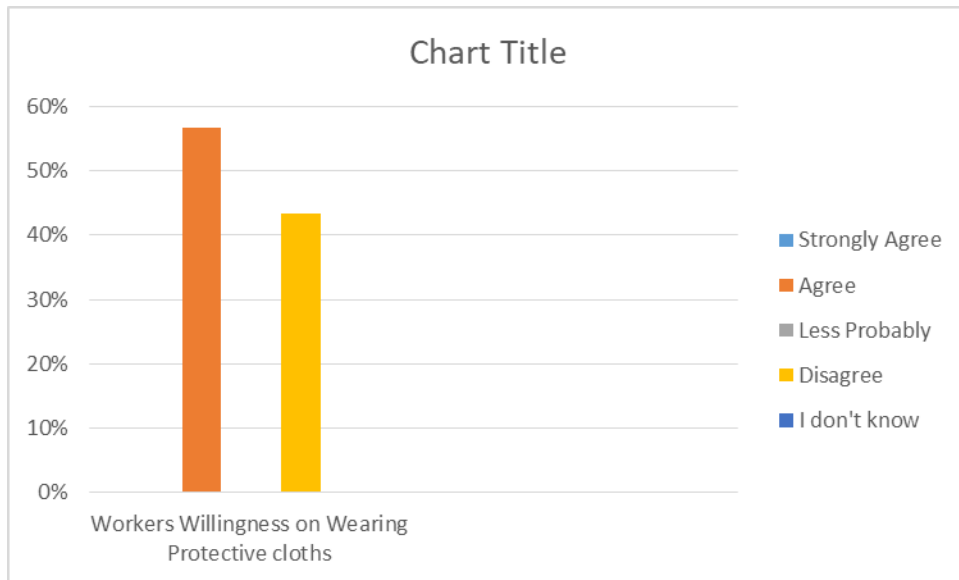
Figure 21 workers willingness

4.23 Inspection of Occupational Health and safety

Based on the survey results from the respondents, The majority (76.7%) of the respondents disagree that there is no inspection of Occupational Health and Safety (OHS) practices, while 23.3% of the respondents are uncertain or do not know. This implies that the majority of the respondents believe or have knowledge that there is indeed an inspection of OHS practices. This finding suggests that the management or relevant authority is performing inspections of OHS practices to ensure compliance with the standards.

However, the uncertainty of 23.3% of respondents also highlights the need for the management to ensure effective communication and transparency with employees about the OHS practices within the workplace. It is important for all employees to understand and be aware of the measures in place to ensure their safety and well-being.
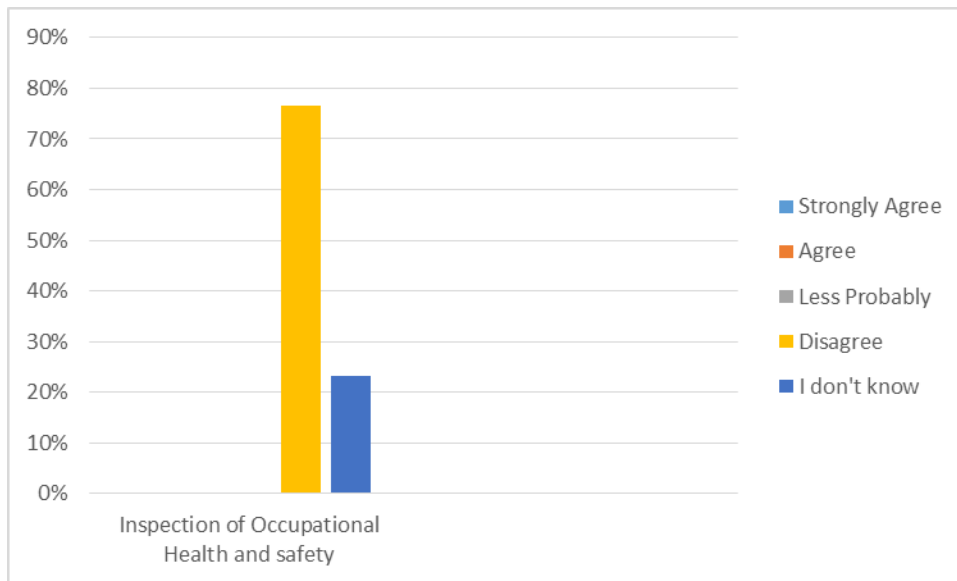
Figure 22 inspection on OHS

4.24 **Chapter summary** (To be Edited)

This chapter presents the findings and analysis of a study conducted to assess the practices and challenges of occupational health and safety standard implementation at mesay Oli construction company in Addis Ababa. The response rate of the study was 75%, with a total of 90 respondents. The background of respondents is also discussed, including their experience and roles within the company.

The level of awareness regarding occupational health and safety standards is analyzed, indicating that the company has information and copies of the standards, and most respondents know that the company follows the requirements. However, there seems to be an awareness gap regarding integrating occupational safety and health issues in all activities of the company. Finally, it is noted that there is a functional office and OHS professionals to manage occupational safety and health issues in the company.

The requirements outlined in Clause 4.4 of ISO 45001:2018, such as identifying hazards and assessing risks, establishing processes for planning and evaluating OHS-related changes, and communicating OHS-related requirements to contractors. It also highlights the importance of continuous training and budget allocation for OHS management.

The study found that most workers were aware of, and willing to follow, OHS guidelines, but there were still challenges regarding expense in implementing OHS practices. Overall, the

company has implemented OHS practices but still faces challenges in implementation due to costs.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Conclusions

To achieve the study's objectives, the company's awareness of the standard, their practices, and the challenges of occupational health and safety implementation are evaluated. The information is gathered from employees who are directly involved with the issue. The researcher reached the following conclusions after analyzing the collected data.

In terms of both project volume and job opportunities, the construction industry has been one of the fastest growing in recent years. This modification contributes to an increase in the risk of occupational accidents. According to the findings, nearly half of the participating respondents are aware of the availability of occupational health and safety standards, particularly those developed for the construction sector.

Furthermore, the company has a copy of the standards at their office, even though the implementation of occupational health and safety requirements is at a middle level, even though the company uses different references standards as a reference to occupational health and safety, such as Ethiopian standards, Ministry of labor and social affairs directives, European standards, ILO guidelines, and BOX Out standards. According to the findings, the company is in the middle of implementing occupational health and safety practices in all of its projects.

The company's major limitations include a failure to integrate occupational health and safety issues into the planning and execution of their work; a lack of worker participation in accident identification and planning; a lack of timely evaluation and reporting of occupational health and safety status; a lack of worker training and awareness; and a lack of inspection of project site occupational health and safety status. These are major requirements stated in the standard to be followed during construction but are not.

Concerning the challenges of implementing occupational health and safety practices, the company identified workers' unwillingness to wear protective clothing as a major barrier to implementing occupational health and safety practices.

5.2 Recommendations

Based on the results of the research the following recommendations are proposed by the re-

searcher to support the effective and integrated implementation of occupational health and safety practices in the construction sites:

Increase awareness of the importance of integrating occupational safety and health issues in all activities of the company: This can be achieved by conducting continuous training and education programs for all employees on the importance of OHS. Companies should also clearly communicate their OHS policies and guidelines to all employees in order to ensure that everyone understands their responsibility and contribution towards maintaining a safe work environment.

Develop and implement formal reporting procedures for occupational safety and health issues: This ensures that all occupational safety and health issues are promptly reported and adequate action is taken to address them. Establishing a formal reporting procedure provides employees with a mechanism to raise concerns or report incidents without fear of retribution, which in turn promotes a proactive safety culture within the organization.

Allocate a sufficient budget for OHS management: Adequate resources are required to ensure that all required OHS measures can be implemented effectively and efficiently. This includes hiring qualified personnel, purchasing necessary equipment and protective gear, and conducting regular safety audits and inspections.Develop and implement processes for evaluating the OHS performance of suppliers, contractors, and other relevant parties: This ensures that all parties involved in construction projects comply with OHS requirements and best practices. Companies should establish clear OHS guidelines and communicate these to all relevant parties to ensure consistent and effective implementation.

Emphasize on the importance of hazard identification and risk assessment prior to project commencement: This involves identifying potential risks and hazards associated with new or modified activities, products, or services before they commence. This ensures that adequate measures are taken to address potential risks and ensure employee safety.Regularly evaluate the OHS performance of the company and its employees: This ensures continuous improvement in OHS practices and fosters a proactive approach towards identifying and addressing potential risks. By regularly evaluating the OHS performance of the company and its employees, companies can identify areas for improvement and take necessary action to enhance their overall OHS performance.

Promote and encourage worker participation in planning and hazard identification processes for OHS: Involving workers in hazard identification and planning processes ensures their ac-

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tive participation and promotes a culture of safety. By involving workers in these processes, companies can leverage their experience and knowledge to identify potential risks and address them before they become more significant.In summary, for companies to improve their OHS practices, they need to create a culture of safety, establish clear policies and guidelines, and provide adequate resources to ensure effective and efficient implementation. They also need to involve their workers in all stages of OHS management to ensure a proactive approach towards hazard identification, risk assessment, and continuous improvement.

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This questionnaire is designed to collect data for preparation of research paper on challenges and practices of occupational health and safety standard at Mesay Oli construction plc. that is aimed to assess the level of implementation of the standard and the challenges and practices of its implementation. It is intended for fulfillment of requirements of Masters of Quality and Productivity . I believe that your accurate and truthful response will greatly contribute to the success of the research paper. The information that you provide will be confidential and not bring any problem on you. You are kindly requested to give accurate and relevant information honestly.

Thank you

Meron Daniel

Direction

Please provide your response based on the instruction given for each group of questions

Questioner
I. **Company information**

1. . Number of projects the company has in Addis Ababa

2. Below 3 □ 3-5 □ 6-10 □ over 10

   II. Personal Information

   1. Position in organization _____

   2. Year of service in the company Below 2 years □ 2-5 years □ 5-10 years □ above 10 years □

   3.Level education

   III. Occupational Safety and Health related questions

1. Does your company have a specified occupational safety and health handling mechanism?

   Yes □   No □

   2. Do you have a occupational safety and health plan? Yes □ No □

   3. Have you ever faced an occupational safety and health problem?

   Yes rarely □ Yes less frequently □ Yes every time □ Not at all □

    4. If your answer to question no. 3 is 'yes_" what do you think of the reason for that?
   _____ _____
   _____ _____ ____
   _____
   _____

   5. If your answer for question number 3 is 'not at all' what helped your organization to succeed? _____ __

_____

_____

_____

6. What mechanisms does your organization use to collect information that helps to evaluate the status of occupational health and safety practices?

_____

_____

— _____.

7. Do you use a different method to manage occupational health and safety on building projects than other types? Yes ☐ No ☐

8. If your answer to question no. 7 is 'yes" please can you specify the reason?

_____

_____.

IV. Sign'×' mark on the option that you agree on the space provided

SN	Options	Strong-ly agree	Agree	Less prob-ably	Disagree	I don't know
Level of awareness on OSH standard						
1.	Your company has information on occupational health and safety standard for construction(CES 166)					
2	Your company has the copy of occupational safety and health standard at head office level					
3	Your company applies the requirements of occupational safety and health standard at all levels					
4.	The copy of occupational safety and health standard is available at each project site					
Practices of occupational safety and health in the company						
5	All activities in the construction site have an integration with occupational safety and health issues					
6	The company has a function/office that manage occupational safety and health issues					
7	The company has professionals working on occupational safety and health					

8	The company considers occupational safety and health during planning and execution of projects					
9	The company follows requirements stated in occupational safety and health standard for construction					
10	There are manuals and guidelines developed to support implementation of occupational safety and health					
11	During commencement of any project the site plan is developed and implemented to ensure health and safety of workers					
12	There is continues training and follow up on occupational safety and health related issues					
13	There is a formal reporting procedure on occupational safety and health situations					
14	The company assigns budget to manage occupational safety and health issues					
15	The frequency of accidents in the project sites is very low					
16	The workers in the project site are aware of occupational safety and health practices					
17	Workers are willing to follow guidelines and procedures in the work site					
18	Workers participate in planning and hazard identification of processes for occupational safety and health					
Challenges of implementing occupational safety and health practices						
19	Implementing occupational safety and health practices is expensive					
20	Following occupational safety and health procedures reduces productivity					
21	The top management is highly concerned with occupational safety and					

	health issues					
22	Occupational safety and health related accidents are difficult to manage					
23	Workers are not willing to wear protective clothing					
24	There is no inspection of occupational health and safety practices					

Any other issue you want to discussed

_____

_____

_____

_____

_____

THANK YOU!!!!!!!!!

Interview

Proposed Questioner for Top Management

1. What was the biggest challenge your organization faced during the implementation process?

2. How did you involve employees in the implementation process and ensure their buy-in?

3. Have you identified any areas for improvement in your current health and safety processes through ISO 45001 implementation?

4. What measures have you put in place to ensure ongoing compliance with ISO 45001 requirements?

5. How has the implementation of ISO 45001 affected your organization's health and safety performance?

6. Have you seen any positive impacts on employee engagement or productivity since implementing ISO 45001?

7. How have you ensured effective communication and training to ensure all employees understand their role in maintaining compliance with ISO 45001?

8. What has your experience been with engaging external auditors to ensure ongoing compliance with ISO 45001?

_____

Annex 2

ITEM	AMOUNT
Stationary	
Flash disk	1,000
Reams of Paper	670
Pens	200
Traveling and communications	
Transport	5000
Sub Total	**6,870**
Typing and photocopying	
Questionnaires	500
Typing the final Research	2000
Printing and	500
Binding	200
Sub total	**3200.00**
GRAND TOTAL	**10,070.00**