ADDIS ABABA UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS

SCHOOL OF COMMERCE

GRADUATE PROGRAME MA IN PROJECT MANAGEMENT

Assessment of Construction Safety and Health Management Practice in Building Construction Projects in Addis Ababa: In case of Yotek Construction P.L.C

By Meti Delessa Geldi

A Project Work Submitted to Addis Ababa University College of Business and Economics School of Commerce In Partial Fulfillment of the Requirements for the Award Masters of Arts Degree in Project Management

Advisor: Adane Atara(Dr.)

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Addis Ababa, Ethiopia

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Approved by:

Advisor	Signature	Date
_____	_____	_____
Internal Examiner	Signature	Date
_____	_____	_____
External Examiner	Signature	Date
_____	_____	_____

DECLARATION

I, the undersigned, declare that the study entitled "***Assessment of Construction Safety and Health Management Practice in Building Construction Projects in Addis Ababa: In case of Yotek Construction P.L.C"*** is the result of my own effort and study that all sources of materials used for the study have been acknowledged. I have conducted the study independently with the guidance and comments of the research advisor.

This research study has not been submitted for any degree in this University or any other University. It is submitted for the partial fulfillment of the degree of Masters of Art in Project Management.

By: Meti Delessa

Signature: _____

Date: _____

LETTER OF CERTIFICATION

This is to certify that Meti Delessa has carried out this research work on the topic entitled "***Assessment of Construction Safety and Health Management Practice in Building Construction Projects in Addis Ababa: In case of Yotek Construction P.L.C"*** under my supervision.

This work is original in nature and suitable for submission in partial fulfillment of the requirement for the award of Master of Arts Degree in Project Management and the student has my permission to present it for assessment.

Advisor: Adane Atara (Dr.)

Signature: _____

Date: _____

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First and for most I would like to thank almighty God for his help till today. Then I would like to extend my sincerely thank to my families for their helping and growing up me which own result in present success. Next I would also like to extend my sincerely gratitude to my advisor Dr, Adane Atara who were devoted a portion of his time in reading the results of this paper thoroughly, and arranging the content, and making constructive correction throughout this paper.

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ACRONYMS

BC	Building Contractor
GC	General Contractor
COA	Cost of accident
COP	Cost of prevention
ETB	Ethiopian Birr
GDP	Gross Domestic product
GTP	Growth and Transformation Plan
H & S	Health and safety
HSC	Health and Safety Commission
HSE	Health and Safety Excusive
HSW	Health and Safety at Work
ILO	International Labor Organization
ISO	International Standardized Organization
NGO	Nongovernmental Organization
PLC	Private Limited Company
PM	Project manager
U.K	United Kingdom
U.S.A	United States of America
WHO	World Health Organization
YOTEK	Yohans Teklay

ABSTRACT

The construction industry has been seen as one of the hazardous industries. This is because the industry has a poor health and safety performance record compared to other industries all over the world. Labor law in every nation provides that it is the duty of an employer to ensure that every worker employed works under satisfactory, safe and healthy conditions. Health and safety at construction sites deals with both physical and psychological well being of workers on construction sites and other persons whose health is likely to be adversely affected by construction activities. The major objectiveof this research is to present findings of health and safety management practices in building construction recently constructed in Addis Ababa, Ethiopia under YOTEK construction plc. 60 of employees were selected for the study for which a questionnaire was distributed and additionally documented sources were looked for more accurate data including site observation. Consequently, the study result revealed that relatively through time the company is developing better Health and safety (HS) practice but there are also limitations such as lack of management motivation and commitment in implementation and workers'carelessness.

KEY WORDS: *Health and Safety management, Construction project, Employee/Worker, Accident, Injury, Cost, YOTEK construction P.L.C, Ethiopia.*

CHAPTER ONE: - INTRODUCTION

1.1) Background of the study

The construction industry plays significant role in the growth of any economy. Particularly in many developing countries, major construction activities account for about 80% of the total capital assets Lioyd (1987) cited in (Wubshet, 2004). In these countries, construction accounts for 10% of their GDP and more than 50% of the wealth invested on fixed assets. In addition to that, the industry provides high employment opportunities, probably only second to agriculture Ofori (2006) cited by (Abadir, 2011). Similarly, in Ethiopia, public construction projects shared an average annual rate of 58.2% of the capital budget between years 1997/98 and 2001/02 (Wubshet, 2004). Moreover, construction industry accounted for 4%- 7.6% of the total GDP of the country between years 2010/11- 2013/14 (MoFED, 2014). This shows that the construction industry plays significant role in Ethiopian economic development.

Its achievement in rebuilding areas devastated by both natural and man-made disasters, and in providing power, services and communications to meet the rising needs and expectations of people throughout the world, has conferred great benefits on the human race. Despite mechanization, construction remains a major employer of labor it often employs between 9 and 12 per cent of a country's working population, and sometimes as much as 20 per cent throughout the world. There has, however, been a price to pay for this continuous growth and activity. Although it is difficult to obtain accurate statistics in an industry in which many accidents go undetected and unreported, in many countries known fatal accidents, and those involving loss of working time, frequently exceed those in any other manufacturing industry. Contributing to the high rate of accidents are those characteristics of the industry which distinguish it from the rest of the manufacturing sector. These are high proportion of small firms and of self-employed workers, variety and comparatively short life of construction sites, the high turnover of workers, large numbers of seasonal and migrant workers, many of whom are unfamiliar with construction processes, exposure to the weather and many different trades and occupations. (ILO, 1999; ILO., Safety and Health in Construction Code of Practice, 1992; ILO., Global estimates of fatal work related diseases and occupational accidents., 2005; ILO I. L., 2001).

Health: - is the general condition of a person in mind, body and spirit, usually meaning to be free from illness, injury or pain. The World Health Organization (WHO) defined health in its broader sense in 1946 as "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity" (WHO, 2006).

Safety is the protection of people from physical injury. It is related to external threats, and the perception of being sheltered from threats.

Safety management is essential knowledge in a project management area which recognized in *The Guide to the Project Management Body of Knowledge* (PMBOK Guide, 2011, cited by Cretu et al.). Safety management is expected to take account of all risks and accidents that may possibly be expected that put project employees at risk. The health and safety (H&S) of any workplace is very important to diminish such risks, legally and ethically, but in mainly dangerous contexts such as the construction industry HS takes on perilous importance as daily activities of the industry are highly unsafe. It is thus important to identify suitable safety activities and strategy, accommodating potential serious H&S problems.

Past research in the areas such as (Lucy Fekele, Emer T. Quezon, Yolente C. Macarubbo, 2016) show clearly that construction projects create frequent possible threats to the lives of employees, and serious injuries and mortalities are frequent in the construction industry. Thus, the consideration and management of safety, along with consideration to H&S generally, is undeniably fundamental to any construction project. By proper H&S planning many of the myriad H&**S** risks in construction can be prevented.

Accordingly, accidents on the construction sites are principally attributable to hazardous human behavior (i.e. individual factors) and/or unsafe working conditions (i.e. system factors). Moreover, it is obvious that there is a serious problem with falls, which is a common problem throughout the global construction industry.

Safety management is the procedure used to recognize H&S risks and implement actions to decrease the possibility of a risk materializing and to diminish or eliminate the potential consequences of identified project H&S risks. (SAEED, 2017). This research focused on principle type of risks in construction projects: risk of construction on health and safety (H&S) of employees.

The improvement of safety, health and working conditions depends ultimately upon people working together, whether government, employers or workers. Safety management involves the functions of planning, identifying problem areas, coordinating, controlling and directing the safety activities at the work site, all aimed at the prevention of accidents and ill health. Effective safety management has three main objectives: to make the environment safe; to make the job safe; and to make worker safety conscious. (ILO, 1999; ILO., Safety and Health in Construction Code of Practice, 1992; ILO., Global estimates of fatal work related diseases and occupational accidents., 2005; ILO I. L., 2001).

Injuries and fatalities resulted in accidents in the construction industry still an obstacle clings construction industry to its infamous position as the industrial sector responsible for more occupation accidents, than any other. Consequently, the improvement of H&S in construction is still an essential goal for all contributors in the construction processes. Safety management is taking account of all risks and accidents that may believably be expected that put project employees at risk, to minimize such risks. It is thus important to identify appropriate safety actions and strategies to accommodate potential serious H&S problems. (SAEED, 2017).

1.2) Brief history of the company

YOTEK construction is a full service general contractor established in 2000 (GC). It is a certified company registered and licensed as BC-1 in the country in accordance with commercial code of the Federal Democratic Republic of Ethiopia. This Company is founded by engineer YOHANS TEKLAY by being general contractor 6 (GC-6). Within 15 years by getting experiences, developing sound financial assets and by creating strong mutual benefit and thorough trust with its clients it has now reached to this level. The company is established with the purpose of providing various construction services like construction of buildings, roads, factory foundations, bridges, Airfields and various types of civil engineering edifice contributing to the development of the construction industry. The company is mainly engaged in the construction sector and undertakes construction of Real Estate, Airport lane constructions, Governmental buildings, Offices, Halls, Residential buildings, Apartments, Universities, and other construction works. It has planned basically to satisfy need of its different customers like, the government, private companies, NGOs and as well as individuals of real estate owners. Customer satisfaction, construction expertise and strong capabilities are the driving force behind its new venture.

1.3) Statement of the Problem

Ethiopia targeted to be one among lower middle income countries by 2025G.C (GTP2, 2016-2020). It is planned to achieve through industrial transformation. Construction industry which takes 8.5% share of GDP registered remarkable average growth rate of 28.7% in the first growth and transformation plan implementation years (GTP1, 2010-2015national planning commission Ethiopia). Construction is a vast and an active sector, which is a backbone of the world's economy in general and Ethiopia in particular; mobilizing an enormous amount of various resources and budgets and embracing huge manpower by creating a large job opportunity. The construction industry is divided into three major segments. Construction of buildings contractors or general contractors builds residential, industrial, commercial, and other buildings. (Dadzie, 2013). Annually, throughout the world, an estimated number of 271 million people suffer with work-related injuries, and 2 million die as a consequence of these injuries. The estimated economic loss caused by work-related injuries and disease was equivalent to 4 % of the world's gross national product. (Eijkemans, 2003).

The construction industry, employing the largest labor force, has accounted for about 11% of all occupational injuries and 20% deaths resulting from occupational accidents. International Labor Organization estimates that at least 60,000 fatalities occur at construction sites around the world every year. This means that one fatal accident occurs every ten minutes in the sector. Most of these accidents are created due to unsafe behavior and unsafe conditions. (K.Mouleeswaran, 2015). Hence, health and safety problem in building construction is the major and worldwide issue which needs strong consideration since it affects the life of the workmen (manpower), project time, project cost and also project quality. However safety consideration in construction building has not yet been studied and evaluated as problem in Ethiopia. The selected area of this study is in Addis Ababa due to a lot of construction and consulting companies and building construction found here. (Fekele et.al, 2016), this research dealt with the current situation of safety consideration and the ways of achieving free of injury and zero accident environment of building construction.

A variety of studies, for example (Glendon and Litherland, 2001, Kheni, 2008, Zeru Tariku, July 2014) have investigated the construction health and safety within developed countries. In the majority of these studies, researchers have either developed a new framework model or

replicated an already tested one with a view to improving its adequacy. However, there is a lack of research in this area in the context of developing countries with specific requirements. Although much research has been directed at health and safety, very little is concerned with the Ethiopia and the particular characteristics of health and safety management practice in their environment. (Alhajeri, 2011). Some prior studies, Evaluation of Health and Safety practice in building construction a case study in Addis Ababa by (Fekele et.al, 2016), Occupational safety and health profile for Ethiopia by (Dawit Seblework, ILO Consultant, Oct.2016), Study of Health and Safety performance indicators on Ethiopia public (road & Building) construction project in case of Addis Ababa city by (Zeru Tariku, July 2014) and others few studies has been done in relating to safety and health management in Ethiopia. But from practice and experience in the construction industry injuries and fatalities resulted from accidents in the construction industry still are an obstacle in the building constructions and to identify which phase of building construction need more focus or emphasis of health and safety management practice.

1.4) Research Questions of the study

The researcher will investigate and try to find more of empirical answers to the following issues that are related to the main subject matter under study.

- What is the current level of safety and health management practice in Addis Ababa building projects of Yotek Construction PLC?
- What are the major safety and health measures used in currently constructing building projects at Yotek Construction PLC?
- What are the weaknesses and strengths of safety and health management in construction buildings projects of Yotek Construction PLC?
- What are the reinforcement techniques on safety and health regulation on building construction sites of Yotek Construction PLC?

1.5) Objectives of the Study

1.5.1) Main Objective

This study will focuses the practice on of health and safety management at construction site in Addis Ababa, Ethiopia. The main objective will be to assess the current safety and health management practice in building construction sites at Yotek Construction PLC.

1.5.2) Specific Objectives

The research will be conducted:

- To examine the major safety and health measures used in building construction today.
- To identify the weaknesses and strengths of safety and health management practice in building construction projects.
- To identify the reinforcement techniques on safety regulation at building construction sites.

1.6) Significance of the study

The importance of the research stems from the need to develop an understanding and investigate the problem of health and safety in construction company (YOTEK) and make a contribution to knowledge in this area where very little information exists. Addressing health and safety issues should not be seen as a regulatory burden as it offers significant opportunities and benefits to the construction companies. Such benefits include:

- Less absences by employees and hence increased productivity,
- Provide a safe and healthy working environment.
- Provide all personnel in the company have access to discuss Health, Safety and Environmental Issues.
- Minimize the risks in the site and control all hazards those are identified.
- Reduce the number of accidents less threats and create accident /injury free work place and obviously reduced costs off the project.

For the other construction companies in Ethiopia it offers a best practice guide to health and safety and solutions to health and safety problems in one country may readily be adapted to other countries to generate further improvements this will obviously have a positive impact to the global. And last but not least it makes a contribution to knowledge for further researches in the area of safety and health management practice in building construction projects where very little information exists.

1.7) Scope of the Study

The scope of the research is limited to assess safety and health management practice in building construction projects which are constructed by Yotek construction PLC and projects located in Addis Ababa, Ethiopia.

1.8) Limitation of the study

The subject of safety and health management practice of construction projects in general, the case in the Ethiopian construction industry have not been adequately researched; hence, it may take time to collect all the data necessary about all stakeholders for the research. Because of the time limitation the research addresses only building construction projects that constructed in Addis Ababa. It was difficult to collect sufficient data and gave more empirical results and the finding of the result may not represent as a general representation in the construction industry. Questioner data collection was limited to YOTEK construction P.L.C and building projects located at Addis Ababa.

1.9) Organization of the Study

This study paper is organized into five chapters. Chapter one provides the introductory aspect of the study which encompasses the background of the study, statement of the research problem, objective of the study, the research question, significance of the study, scope of the study, limitation of the research and organization of the research. Chapter two presents literature review with general descriptions by different researchers on construction, safety and health management practice. Chapter three will be about research design and methodology Chapter Four will present data analysis and interpretation. And the last chapter will present conclusion and recommendations.

CHAPTER TWO: - REVIEW OF LITERATURES

2.1) Introduction

The main aim in carrying out the literature reviews is to gather information on the research topic. The study begins with a detailed literature review on health and safety in the construction industry focusing firstly on the nature of the scope of the construction industry and the most activities that involve perilous and dangerous operations.

2.2) Theoretical review

2.2.1) Health and safety definitions

Before a detailed discussion of health and safety issues can take place, some basic occupational health and safety definitions are required as well as the legal framework for health and safety because it seems important to have a clear understanding of the nature and working conditions in the construction industry and safety organizations to develop an efficient tool for health and safety issue.

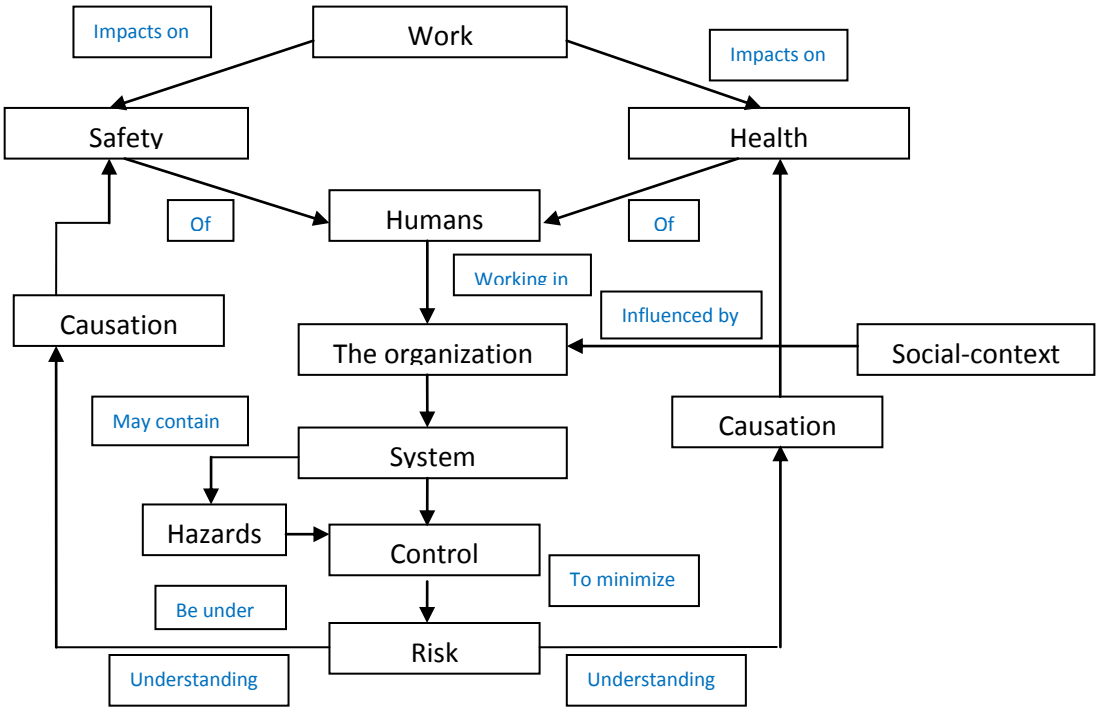

Figure 2.1 Overview of a health and safety framework (Cooney, Nov 2016)

Health: - is the general condition of a person in mind, body and spirit, usually meaning to be free from illness, injury or pain. The World Health Organization (WHO) defined health in its broader sense in 1946 as "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity" (WHO, 2006).

Safety is the protection of people from physical injury. It is related to external threats, and the perception of being sheltered from threats. According to the business Dictionary, safety is defined as a relative freedom from danger, risk, or threat of harm, injury, or loss of personnel and/or property, whether caused deliberately or by accident. The borderline between health and safety is ill-defined and the two words are normally used together to indicate concern for the physical and mental well-being of the individual at the place of work.

Welfare is the provision of facilities to maintain the health and well-being of individuals at the workplace.

Accident is defined by the Health and safety Executive (HSE, 2003) as _any unplanned event that results in injury or ill health of people, or damage or loss to property, plant, materials or the environment or a loss of a business opportunity'. In the UK, the Health and Safety Executive (HSE) is responsible for the enforcement of the Health and Safety at Work (HSW) Act and carrying out the day-to-day work to enable the Health and Safety Commission (HSS) to carry out its functions. The HSC is responsible for the promotion of the HSW and encouraging research, training, providing an information and advisory service. Other authorities define an accident more narrowly by excluding events that do not involve injury or ill-health. However this research will always use the Health and Safety Executive definition.

2.2.2) Importance of health and safety

The European Agency for Health and Safety at Work (1999) has seemingly highlighted and identified some of the possible benefits in this regard, while White and Benjamin (2003) have emphasized how implementing the standards would contribute towards greater prosperity within the organization and increase worker productivity since there would be lower rate of absences due to injuries and illness. This would enhance the stature of the organization and contribute to greater profit and turnover. Because of lower expenses connected with work environment

accidents, a superior relationship with builders and contractors has an additional minimized probability of prosecution and ensuing penalties.

2.2.3) Health and safety management

A health and safety management framework can be seen as a coordinated arrangement of work practices, beliefs and techniques for observing and enhancing health and safety of all parts of the operations of an organization (Civil Aviation Safety Authority, 2002). According to the European Union (1997); "The safety management system should include the part of the general management system which includes the organizational structure, responsibilities, practices, procedures, processes and resources for determining and implementing the major-accident prevention policy."

Safety Management exhibits the systematic application of management policies, procedures and practices to the tasks of analyzing, evaluating and controlling safety risks (Papadakis and Amendola 1997). This also includes safety policy, initiatives, programs, training, campaigns, future research etc. Occupational accidents are never intentional and can occur through risk being unidentified, incorrectly analyzed or the response being ineffective.

2.2.4) Scope of the construction industry and general problem description

The construction industry plays a vital role in the social and economic development of all countries. its scope is very wide from larger civil engineering projects such as road and bridge, building, water supply and sewerage schemes and river and canal work etc. construction works are also needed in agriculture, industry, education, health and other service industries. It is classified into various segments industrial, housing, commercial, utilities and infrastructure work. Thus the construction industry is a mixture of different organizations, which directly and indirectly influence the construction process. These organizations include property developers, architects, engineers, quantity surveyors, accountants, lawyers, civil engineering contractors, engineering contractors, management contractors, laborers, subcontractors and specialist trades. The construction industry‘s importance has been confirmed by several studies (Coble and Haupt,1999).

The most common activity in construction is general building work which is domestic, commercial or industrial in nature. This work may be new building work, such as a building

extension, or, more commonly, the refurbishment, maintenance or repair of existing buildings. The buildings may be occupied or unoccupied. Such projects may begin with a partial or total demolition of a structure which is a particularly hazardous operation. Most construction projects cover a range of activities such as site clearance, the demolition or dismantling of building structures or plant and equipment, the felling of trees and the safe disposal of waste materials. The work could involve hazardous operations, such as roof work or contact with hazardous materials, such as asbestos or lead. The site activities will include the loading, unloading and storage of materials and site movements of vehicles and pedestrians. Finally, the construction processes themselves are often hazardous. These processes include fabrication, decoration, cleaning, installation and the removal and maintenance of services (electricity, water, gas and telecommunications). Construction also includes the use of woodworking workshops together with woodworking machines and their associated hazards, painting and decorating and the use of heavy machinery. It will often require work to take place in confined spaces, such as excavations and underground chambers. At the end of most projects, the site is landscaped which will introduce a new set of hazards. Hence throughout the world, construction is one of the most hazardous industries and it is generally recognized that health and safety on construction on sites is not satisfactory as the level of occupational accidents is high when compared to other industries. The same complexity can be found with construction workplaces. Within the workplace Construction processes involve hazardous activities, such as working at height, manual handling, exposure to hazardous materials, demolition, frame erection, lifting operations, scaffolding and ground works, bulk materials and heavy equipment handling, as well as the varying jobsite personnel and the regularly changing worksites.

Nearly all construction sites are temporary in nature and, during the construction process, are constantly changing. This always leads to the temptation to compromise on health and safety issues, such as the provision of adequate welfare facilities or the safe re-routing of site traffic. In addition the construction sector is characterized by a very fragmented structure in the production phase with a large number of independent companies. This type of organization often makes management assignments in the building sector difficult and complex. It is not unusual that several sub-contractors are involved in a single construction project, often more than one at a time, with varying influence on their own and other sub-contractors‘working conditions. A division of decisions and authority between different, legally separate companies have often

made placing responsibility diffuse and difficult. The client, the consulting engineers, architects, general contractor and a number of subcontractors carry out the building jointly. Moreover, at any given time, there are many young people receiving training on site in the various construction trades. These trainees need supervision and structured training programs. A further characteristic of the construction industry, that makes management of this sector more troublesome, is the unfavorably high supervisor-worker ratio. Supervisors who have more a personal and positive relationship with workers have more favorable safety performance records (Hinze, 1997; Levitt &Samelson, 1993). This relationship is harder to develop if the ratio is too high, which is generally the case within the construction industry (Smallwood, 2000). Rowlinson and Lingard (1996) have attributed the prototype nature of construction projects, the transient nature of work, low education levels of the workforce and high levels of subcontracting, as major contributing factors to poor safety records within the construction industry worldwide. To summaries, it can be said that the majority of the contractors especially the sub contractors are reluctant to implement occupational health and safety program at construction sites. Thus, hopefully this study results can determine the factors that influences the implementation of occupational health and safety program and it could benefit the contractors, employers and the construction industry as a whole. Besides, there are some other problems that may be stated as follows:

- The construction industry has a poor safety and health record
- There are good reasons to improve the safety and health performance
- Accident causation is complex but important
- It is important to measure safety and health performance
- Existing safety measurement systems are limited in scope and effectiveness
- Concentrating on proactive measures instead of reactive measures should improve safety and health performance

2.3) Empirical Review

2.3.1) Health and safety management in construction

The activities of the construction industry have raised serious health and safety concerns amongst governments, health and safety stakeholders, health and safety professionals and researchers over the past few decades (Enshassi and Mayer 2002, Gibb 2005, International Labor Organization (ILO) 2005, Kaplinski 2002, Leopold and Leonard 1987, Rowlinson 2004). In response, health and safety legislation has been developed to ensure management of construction businesses, and recently many other participants in a project, assume responsibility for managing the risks associated with construction projects. Health and safety management in the construction industry has evolved from measures adopted in accident prevention to more systematic and proactive approaches to minimizing the risk of hazards in the industry.

Past research has shown certain practices can lead to improved health and safety performance and therefore constitute good health and safety practices. Some health and safety practices are required by health and safety legislation to be implemented on construction sites in some countries. For instance worker involvement in health and safety, training in health and safety, and health and safety committees, are covered by health and safety regulations in the UK.

2.3.2) Successful health and safety management practices

Table 2.1 Summary of literature review in successful health and safety management practices

Year and author(s)	Summary of research	Health and safety management practices
Simonds and Shafai-sahrai (1977)	Identified factors that distinguished firms with lower injury frequency rates from those with higher rates	The distinguishing factors include the following: • top management involvement; • higher average age of workers; • longer average length of employment; • adequate working space and neat environment; and, • higher percentage of married workers.

Liska et al., (1993)	Identified zero accident techniques	Identified the following to be associated with safety success: • safety training and orientations; • provision of safety incentives; • safety pre-task planning included in safety goals; • safety person or personnel; • safety policies and procedures; • fire protection program; • accountability/responsibility and safety budget; • alcohol- and substance-abuse program in place; • accident and near-miss investigation; and, • record keeping and follow-ups.
Jaselkis et al., (1996)	Strategies for achieving excellence in construction safety performance	Companies with lower recordable incidence rates were characterized by the following: • more detailed safety programs; • expended large percentage of revenue on safety programs; • greater safety training time; • more formal safety inspections per month; and, • more safety meetings.
Gallagher (1997)	Identified factors associated with improved health and safety performance	The study identified the following factors to the associated with better health and safety performance: • high level of top management commitment; • health and safety responsibilities known; • supervisor involvement encouraged; • active involvement of health and safety representatives who have a broad role; • effective health and safety committees; • planned identification of risk and hazard elimination/ control emphasis; and, comprehensive approach in inspections and investigations.

Tam and Fung (1998)	Investigated effectiveness of management strategies on safety performance	The study concluded the following management strategies were effective in reducing accidents: • post-accident investigation; • safety awards; • safety training; and, • use of more directly employed labor
Wright (1998)	Identified factors motivating proactive health and safety management	Factors that create positive pressure to proactively manage health and safety were identified as follows: • fear of prosecution by maintaining image of responsibility thereby avoiding adverse regulatory, customer or public reaction; • belief that it is necessary and morally right to comply with health and safety regulations; • compliance with customer or regulator certification schemes; • minimization of cost of ill-health and injury; • conformity with principles of total quality management, empowerment etc. ; and, • desire to improve staff morale and productivity. Factors that reduce the motivation resulting from factors that create positive pressure to proactively manage health and safety were identified as follows: • cost of health and safety improvements; • ease of implementation; • existence of corporate entity and personal accountability of decision makers; • background of employees and managers; and, • sector specific obstacles eg short term contracting.

Gad (2002)	Literature review of safety culture	The findings of the study demonstrated the following factors influence safety: • safety culture affects the attitudes and beliefs of workers in terms of health and safety performance; • management is the key influence of organization's safety culture; and, • financial incentives to improve productivity or to compensate for working in hazardous conditions can lead to safety being compromised.
Hinze (2003)	Identified factors influencing safety performance of specialty contractors	Factors found in the study to positively affect safety performance include the following: • minimizing worker turnover; • implementing employee drug testing; • training with assistance of contractor association; and, • growth in company size. Safety incentives were not necessarily associated with better safety performance.
Baldock et al (2005)	Identified main influences on the adoption of improvement measures by small businesses	Factors identified as being particularly associated with a propensity to make health and safety related improvements were found to be following: • regulatory enforcement activity; • use of external assistance with respect to health and safety issues; • management training and experience; and, • membership of trade/business association.

Aksorn and Hadikusumo (2008)	Investigated the effectiveness of safety programmes in the construction industry	Safety performance was found to be influenced by the nature of the implemented programs. Particular elements of safety programs found to be positively associated with safety performance included: •accident investigations; •jobsite inspections; •job hazard analysis; •safety inductions; •safety record keeping; •safety committees; •safety incentives; and, •control of subcontractors.

2.3.3) Health and Safety Management Systems

A number of construction businesses manage the health and safety function in their businesses by carrying out health and safety activities aimed at minimizing or eliminating the risk of hazards on their sites. A growing number of construction businesses, particularly larger ones, have tended to adopt health and safety management systems which have their origin in Deming's Plan-Do-Check-Act model of continuous quality improvement (Hamid et al. 2004). Essentially, a health and safety management system has four primary elements:

- planning;
- implementing the plan;
- reviewing the plan; and,
- Evaluating and taking measures to improve strategy.

Despite the popularity of literature on health and safety management systems, a commonly accepted definition is lacking due to the variable nature of the elements often composing them. Robson et al. (2007) found that health and safety management lack a common definition and reported on health and safety management systems having up to 27 elements.

Helledi (1999) reported on the adoption of a simple, non-bureaucratic health and safety management system by SMEs in the Finnish construction industry which proved effective in

bringing down the numbers of site accidents experienced by contractors. The elements of the health and safety management system comprised: a planning phase involving the assessment of risk; an implementation phase involving communication of critical tasks to be carried out on site; a control phase involving monitoring the activities; and, a follow up phase which provides feedback and enables corrective measures to be taken.

Approaches to health and safety management reported in construction hardly qualify as health and safety management systems because they lack one or more of the elements of Deming's Plan-Do-Check-Act (PDCA) cycle. For instance, Agrilla's (1999) 3Es suggested for achieving high safety performance comprises; safety engineering, safety education and safety rule enforcement. This health and safety management system involves planning as part of the safety engineering process but lacks clear elements or procedures on how to continuously improve health and safety performance.

The effectiveness of health and safety management systems in the construction industry has not been assessed. At best, it is only the individual elements that make up the system which have been shown to be associated with improved health and safety performance. The adoption of comprehensive health and safety management systems has been shown to be a difficult task for SMEs (Dawson et al. 1988, Eakin et al. 2000, Mayhew 2000). Some reasons as to why SMEs might find it difficult adopting such systems include lack of adequate resources, the fact that they operate in a competitive environment and operate under relatively informal management procedures (Banfield et al. 1996, Mayhew 1997, Vassie et al. 2000). There is, therefore, reason to doubt the applicability of comprehensive health and safety management systems to construction SMEs.

2.3.4) Health and safety integrated management systems

Research suggests integrating the health and safety management function of a business with other management functions could enhance the overall performance of the business (Kam and Bansch 1998, Koehn and Datta 2003, Taylor et al. 2004:544). Besides the benefits to be derived from such an integrated management system, Gibb and Ayoade (1996) have pointed out client pressure, cost reduction, legislation and total project management as factors promoting their adoption.

Many management systems, especially health and safety, environment and quality have many identical elements. For instance, policy, training of personnel, auditing, responsibility for task and controls are common elements in all three areas of management. This, therefore, makes it possible to integrate them as a single management system. Proponents of integrated systems argue that such an integrated system will lead to management effectiveness, reduced duplication, elimination of conflicting responsibilities and harmony of objectives (Douglas and Glen 2000, Scipioni et al. 2001).

Dias (2000) examined the possible integration of the elements of families of standards, ISO 9000, ISO 14000 and a similar standard in health and safety in construction. Many elements of the three standards were found to be candidates for possible integration. Hamid et al. (2004) investigated the integration of safety, health, environment and quality in the construction industry. Their findings indicate that safety, health, environment and quality have many common grounds which make integration possible. Based on the similarities in many areas of these management functions, the authors proposed a model of integrated management system for the construction industry. Similarly, Kirbert and Coble (1995) explored the integration of health and safety regulations with environmental regulations in the construction industry. Arguing that environmental issues are safety issues, the authors suggest a single administrative procedure for safety and environment via an environmental safety plan. The benefits of such a procedure include fewer processes involved in regulatory agency reviews and workers benefiting from training in both environmental and safety aspects of their work environment.

2.3.5) Behavioral approaches to health and safety management

Seventy to ninety per cent of accidents are caused by unsafe behavior. A number of theories have linked accidents to the failure of persons (by their actions or omissions) in the accident chain to avert accidents (Adams 1976, Bird 1974, Haslam et al. 2003, Suraji et al. 2001). These explanations have therefore formed the basis of psychological approaches to health and safety management which have as their aim, the modification of behavior so as to break the chain of events leading to most accidents.

Duff et al. (1994) reported on behavioral modification procedures used in improving construction site safety. The authors of the study used a combination of goal-setting and feedback to influence the behavior of site operatives. The findings of the study suggest goal

setting and feedback can greatly enhance health and safety performance. Duff (1998) has pointed out that behavioral methods should not be restricted to site operatives but could be extended to include site management staff and senior corporate management. Lingard and Rowlinson (1994) examined the effectiveness of the goal-setting and feedback approach in the Honk Kong construction industry. It was found that labor commitments to the group and to the organization are intervening variables in the application of behavioral techniques.

Workers need to behave on site in a manner that will not expose them or their colleagues to hazard, particularly workers need to:

• Report incidences to their employers;

• take care of their health and safety;

• abstain from alcohol and drugs that would otherwise increase their exposure to hazards;

• take care to avoid adversely affecting the health and safety of fellow workers and persons likely to be adversely affected by their actions and omissions;

• follow health and safety rules on site; and,

• use PPE when provided.

2.3.6) Integration of health and safety with project management

Studies in construction accidents suggest many accidents on construction sites could be prevented by taking appropriate steps in all phases of the project life. Thus, participants in a project have a role to play in improving the health and safety performance of construction sites and completed projects. Current thought on health and safety in construction put emphasis on integrating health and safety management into the entire construction process. This view of health and safety management is, at least to some extent, largely driven by developments in health and safety legislation in Europe and USA.

This view of integration of health and safety management into construction processes requires responsibility for health and safety to be equitably shared between the key participants in a construction project. This view therefore requires project participants to "think health and safety" throughout the phases of a project. As Hinze (1998) has emphasized, addressing the safety of construction workers in the design phase involves recognizing the potential impact designers'

decisions can have on the health and safety of construction site workers. Similarly, owners' involvement in construction safety could reduce cost of safety to minimum.

2.3.7) Factors affecting safety and health performance in construction

Previous literatures have pointed out different factors that affect the performance of safety and health in construction. These factors includes

Weather Condition

Extreme weather conditions have direct effect on safety and health performance. There are signs for heat stress like: nausea, headache, fatigue, excessive thirst, profuse sweating, confusion, painful large muscle cramps and loss of consciousness. Those signs of heat stress can lead to heat cramps, heat exhaustion, or heatstroke, which if untreated or sufficiently severe, may lead to death (Brake & Bates, 2002), (Neitzel, et al., 2001).

Complexity of the Design

Safety and health performance was found to be influenced when designers improve awareness to the safety consequences of their design decisions like reduction in injuries and decrease in redesign costs and in operating costs for special procedures and protective equipment (Hinze&Wiegand, 1992), (Kartam, et al., 2000).

Type of Owners

Owners can take processes to accomplish better safety and health performance such as: provide safety and health guidelines that the contractor must follow; Implement, the use of work permit systems for potentially harmful activities; Oblige the contractor to elect a responsible supervisor to coordinate safety in the workplace; Discuss safety at owner-contractor meetings; Conduct safety audits during construction; Enforce prompt reporting and full investigation of accidents (Hinze & Gambatese, 2003), (Report-A-3, 1982).

Project Duration

Tight project schedule had high rank on safety performance of the project (Zou, et al., 2007), (Report-A-3, 1982)

Safety and Health Policy

The reduction of accidents would be accomplished when top management takes a dynamic attention and is dedicated to safety and health improvement as well as maintaining good safety and health policy (Sawacha, et al., 1999), (Shibani, et al., 2012).

Safety Signals, Signs and Barricades

Warnings in the forms of signs and symbols have been recognized as one of the effective tools to influence behavior and develop the risk awareness of stakeholders (Chapanis, 1994), (Edworthy& Adams, 1996).

Role of Government and Engineering Societies

The engineering societies shall help to extend engineering knowledge by developing the awareness of safety and health issues among engineers. In developing countries, there are no strong laborer unions like industrial countries have, which own the power to defend on their laborers and to enforce contractors to provide safe working conditions and safety tools to their laborers (Fang, et al., 2004), (Teo, et al., 2005).

2.3.8) Legal aspect of safety and Health management and challenge in developing countries

There is a wide variation in economic structures, occupational structures, working conditions, work environment, and the health status of workers in different regions of the world, in different countries and in different sectors of the economy. Therefore the mechanization of the construction industry is not uniform throughout the world. However, as stated earlier, the construction industry plays a vital role in boosting the economy of any country, especially a developing country. It provides the infrastructure required for other sectors of the economy to flourish. Many studies, such as Coble and Haupt (1999) have shown that construction industry reflects the level of economic development within the country. The construction sector everywhere faces problems and challenges. However, in developing countries, these difficulties and challenges are present alongside a general level of socio-economic stress and a lower productivity rate when compared to developed countries (Ofori, 2000). Nevertheless it is generally believed that the construction industry is a good source of employment at various levels of skills, from a general labor to semi-skilled, skilled and specialist workforce. Other

major areas that impact on this sector are lack of research and development, lack of trade and safety training, client dissatisfaction, and the continuously increasing construction costs (all of which result in less profitability).

Construction within developing countries often fails to meet the needs of modern competitive businesses in the marketplace and rarely provides the best value for clients and taxpayers (Datta, 2000). Additionally, this sector also demonstrates poor performance in respect of health and safety due to the absence of any stringent safety and construction laws. International labor organization (ILO, 1987) attributes the poor health and safety records in construction projects within developing countries to:

• The high proportion of small firms and the high number of self-employed workers;

• The variety and comparatively short life of construction sites;

• The high turnover of workers;

• The large proportion of seasonal and migrant workers; Kartam et al. (1998) found that, in most developing countries, for example like India, there are no training programs for staff and workers; therefore, no orientation for new staff or workers is conducted; hazards are not pointed out; and no safety meetings are held. Employees are expected to learn from their own mistakes and experience.

In adopting different approaches to health and safety in developed and developing countries, two main differences can be identified. The first is the existence of legislation and its effective implementation; the second is hazard awareness. In developed countries, many safety acts and legislation exist and are implemented effectively. Nominated safety officers promote hazard awareness with the help of regular safety training sessions. In developing countries, however, safety rules barely exist at all; and when they do, they are inappropriate, ineffective, out-of date and based on conditions that prevailed while the country was still being colonized. Additionally, the regulatory authority is usually very weak in implementing rules effectively, and work hazards are either not perceived at all, or perceived to be less dangerous than they actually are (Larcher and Sohail, 1999; Hinze*et al*., 1999).

Unlike many countries, in Ethiopia there is one comprehensive labor law (Ethiopia, Labor Proclamation 377/2003, 2003) that is operating in order to address all aspects of ensuring labor

relation to be governed with basic fundamental rights and obligation focusing on industrial peace in all work places. The law is also formulated in order to guarantee and maintain all fundamentals rights at work and to define the powers and duties of the organ charged with enforcing of the implementation of the ideals of the law which is tantamount to the labor inspectorates.

The law applies to all employer employee relationship or undertaking that employs one or more persons, and clearly states duties and responsibility of the employer and employees and addresses the issues of work injuries, accidents and diseases which result in connection of during performing of his work, and the liability, medical benefits, compensation (cash benefits) in different sections of, part seven of the proclamation 377/06 (the occupational safety, health and working environment). And other related laws like regulations directives can be found, a directive by Ministry of Labor and Social Affairs (MoLaSA) 2007G.c was issued for General Occupational health and safety ,Environment protection , a specific section five is dealing about construction health and safety industry and another Directive by Ministry of Works and Urban Development (Ethiopia, Ethiopian Building directive 5/2003, 2003)in its section four discuses about the health and safety of the workers on the construction activities.

Table 2.2 Applicable Laws and standards of HS in Ethiopia (H/Mariam, June, 2017)

No	**Applicable laws or directives, standards**	**Specific area**	**Remark**
01	Proclamation No. 1/1995 (constitution)	Article 42 sub (2) & 44(1)	
02	Labor Proclamation no 377/2003 (labor law)	Part seven	
03	Occupational Safety and Health Directive 2008	Section five	
04	Building directive 5/2003	Section four	
05	Civil code 1960	Section for 2548-2559	
06	Ethiopian Building Code Standards (EBCS 14)	Whole code of standard	

Though the existing labor Legislation obliges employers to report all accidents occurred at work places the employers do not usually comply to the law. Due to this there is high under reporting. The accidents are reported only from around 10% of the undertakings that are covered by the legislation (Dawit, 2006). Accidents that occurred and reported during the years 1993-2004 for 11 years, Total sum of 44903 non-fatal and 101 fatal accidents were reported during these years

(Dawit, 2006). In Ethiopia there is no work place and plant registration system put in place due to absence pertinent law which obliges occupier or employer to do so (Adane, 2009). No arrangement designed so far to do so both at the regional and national levels. Even the system that was working in order that work places include safety, health and working environment issues at their planning and establishment level is not working very well and the Ethiopian national occupational safety and health information center (National C/S center) though established in 1992, due to absence of trained manpower in information and lack of requisite materials especially Internet and Web site it could not function very well.

CHAPTER THREE:-METHODOLOGY OF THE STUDY

3.1) Introduction

This chapter discusses how the works were carried out in order to meet the study's aims and objectives. The first section of the chapter considers the philosophical assumptions and research strategy that were adopted for the study. The section presents discussions of literature on paradigms that inform the study's underlying philosophical assumptions and the different research strategies available which could be used as means of solving specific research problems. Discussions on the relative merits of the different research strategies are also presented in light of the particular characteristics construction.

The surveys were conducted with a variety of constructions sites under Yotek construction. It comprised a total of 60 original structured questionnaires that were distributed to over employees of the company. The population comprised employees that are operating in the company. The sampling frame comprised this general building contractor which has been registered as GC-1 and has Construction Authority. Of these, questionnaires were sent personally to each site. In the questionnaire, respondents were requested to provide information relating to safety and health management aspects for achieved projects, recently completed or ongoing projects. Respondents were also asked about factors that affect safety and health performance in the construction industry on a five scale. Thus the scales that will be used in this study will be listed below:

5 = very high

4 = high

3 = medium (high average)

2 = low

1 = very low (exceptional).

3.2) Research design

According to Adams, Khan, Raeside and White (2007) research design is the blueprint for full filling research objectives and answering research questions. In other words, it is a master plan specifying the methods and procedures for collecting and analyzing the needed information.

According to Kothari (2004) the major purpose of descriptive research as the term implies, is to describe characteristics of a population phenomenon. Descriptive research seeks to determine the answers to who, what, when, where and how questions but not why questions. The researcher adopted a descriptive survey research design for the study as the study conducted to answer questions of how health and safety management practiced in building construction projects in Addis Ababa at YOTEK construction P.L.C. it helped to identify the nature of the health and safety measures used on the construction sites and evaluate their enforcement mechanisms on construction sites. Direct observation was also used in visits to construction sites to directly observe and document the identified hazards, tasks, job site organization, work practices, equipment and tools being used.

3.3) Research approach

To assess health and safety management practiced in building construction projects in Addis Ababa at YOTEK construction P.L.C. the researcher employed quantitative research methods. For this purpose a questionnaire were developed and quantitative data were obtained through questionnaire. The data collected through these methods were analyzed and presented.

3.4) Types and Sources of Data

Both primary and secondary data were used in relation to the topic under discussion. Primary source of data were obtained through questionnaire results. Secondary data were collected from secondary sources of data such as books, journals, reports, and related articles from the internet. The sources of data were from the main parties in the construction projects namely contractor side. Those Secondary data were then used to prepare questionnaires in relation to the topic under discussion. Closed ended questionnaires were prepared and distributed for all selected respondents. The aim of the questionnaire were to collect a wide range of opinions from the experience professional people working in different construction sites and collect real information from them. The survey questionnaire were developed and distributed to various employees of the company (project managers, site engineers, office engineers, safety n engineers, and others) involved in construction projects. To understand and analyze the best strategies and issues about safety management in construction projects, structured questionnaire tool for research methodology were used.

3.5) Data collection and Instrument

This study targeted building projects which are constructed by YOTEK construction P.L.C located in Addis Ababa. The data used in this study were gathered from 60 employees of the company that participated in the building construction project using questionnaire and document review. Questions used in the questionnaire were 'close ended' (based on likert scale). Document reviews were employed to collect relevant secondary data from secondary sources (project completion reports, books, journals, reports, contract documents). The questionnaire used in this study was based on the literature review and some additional suitable questions developed with the expert assistance in the field under study.

3.5.1) Pilot questionnaire

There are some key considerations the researcher were take into account while developing the questionnaire for the purpose of the current research. The design of the questionnaire were based upon the research objectives and theoretical directions derived from the literature review as well as a preliminary questionnaire which consisted of a few simple questions about their health and safety awareness and practice. A pilot study was conducted with one project managers and four project engineers in the company who are working on building projects, to test whether the questions are understandable, easy to answer, unambiguous, cover most the required questions, etc. Valuable comments were obtained to improve the quality of the questionnaire. After a refinement, the questionnaires were developed.

3.5.2) Observations

The goal of obtaining rich data justified a research design that combined other methods of collecting primary data such as observations. This involves observing workplace relationships among the workers and work processes/procedures, recording, description, analysis and interpretation of research subjects' behavior. Observations of are two types; structured observations and participant observation. The former assumes a systematic, predetermined structure of collecting data on the frequency of behavior that interests the researcher while the latter originates from the field of ethnography involving the participation of the researcher in the everyday life of a social setting (Coffey 2006:214). Photographs were taken of practices on site which, in the opinion of the researcher, represented workplace culture and also safe or unsafe behavior and unsafe conditions.

The present study will adopt a structured observation technique in which the researcher was one of staff member of project sites. This will afford the researcher an opportunity to develop rapport with both site management staff and operatives. Observations on site related to health and safety procedures, site processes and health and safety measures and use of personal protective equipment. Recording of observations involved writing field notes during and after each day's activities.

3.5.3) Documentary sources

Documentary secondary data formed part of the data collection methods. These were including written materials such as annual reports, administrative records, statutes, laws, acts, regulations, and minutes of meetings. Analysis of these sources help to triangulate findings based on primary data.

3.6) Study Population and Sampling procedure and Sample Size

3.6.1) Study Population

The population of the study comprises 60 employees of the company that engaged in the building construction projects (PM, safety engineer, office engineers, site engineers, quality engineers, electrical engineer, sanitary engineer & others) with engineering educational background.

3.6.2) Sampling method and sample size

Census sampling techniques were used to select the respondents under contractor. This method is used because of the small number of study population. The sample sizes taken were all population in projects which are constructed by YOTEK construction P.L.C in Addis Ababa which are four in number. The whole Projects were taken as sample since they are small in number and convenient.

3.7) Data Analysis

Data collected through questionnaires were analyzed using quantitative descriptive statistics with the help of Microsoft excel. The quantitative data collected from sample respondents who are working in the yotek construction were analyzed using averages, percentages, frequency, mean and important index. tables and figures used as data presentation tools to answer safety and health measures used, weakness and strength of safety and health management, reinforcement

techniques on safety regulation in currently construction of building sites. The observed and document reviewed data's were analyzed separately but presented in combination with the quantitative information.

Rating Scale

Rating scale is one of the most common formats for questioning respondents on their views or opinions of an event or attribute. In this regard, participants were asked to indicate degree of impact of factors (research variables) by rating them on a five point scale, (1= very low, 2 = low, 3 = high average, 4 high and 5 = very high). This statistical technique is intended to establish the importance of the factors. Each of the factors has been assigned an importance index or degree of influence index, to help rank them according to their importance, as follows.

$$\text{Importance index} = \frac{(\Sigma i=0\ Wi \times fxi) \times 100)}{3n} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots [4.1]$$

Where Wi = weight given to the response; i = 1, 2, 3, 4,5

fxi = Responses frequency

n = total No of responses

3.8) Reliability and Validity

Neuman (2007) emphasizes that reliability and validity are important in establishing the truthfulness, credibility, or believability of findings. Reliability refers to the extent to which the same answers can be obtained using the same instruments more than one time. 'Reliability is a concern every time a single observer is the source of data, because we have no certain guard against the impact of that observer's subjectivity, (Babbie 2009, p.189)''. Validity, on the other hand, refers to the extent to which an empirical measure adequately reflects the real meaning of the concept under consideration. In Neuman's (2007) words, it refers to _'how well an idea about reality fits with actual reality''.

In an effort to avoid/minimize problems related to reliability and validity, previously designed questionnaires and successively were be used in surveys that directly and indirectly relate to safety and health management will carefully be examined and adopted. In this regard, North Carolina State University (NC State 2015), KPMG (2013), Zhao, Hwang and Low (2015) and

Deloitte and Touche (2014) are to be mentioned. Moreover, contents and structure of the questionnaire were discussed with practitioners in the construction industry prior to the finalization and administration of the questionnaire in order to test the relevance of the sections outlined in the questionnaire. To test the internal reliability of the questionnaire, Cronbach‟s alpha test was used and found to be 0.78 which is higher than 0.7, thus the construct has been believed to have adequate reliability.

CHAPTER FOUR: - DATA PRESENTATION, ANALYSIS AND INTERPRTATON

4.1) Introduction

This chapter analyses the results of collected data from of the questionnaire, observation and documented source in five major sub topics on health and safety management practice in building projects in Addis Ababa. The topics are mainly emphasized local grade one contractor which is YOTEK construction P.L.C. The analysis have five parts, the first part, deals about the General information /description of respondents, company and current projects and accident on it, the second part contains information on the current safety and health practice of the companies/projects, the third part shows the major safety and health areas to be considered during building construction projects, the fourth part is about factors that affect safety and health performance of in building construction projects and the last part deals about the construction phase that needs more emphasis of health safety management . This is to reorganize the data in a systematic manner so that they are clear and unambiguous to be understood and hence to be analyzed. The methods of analyzing are by using averages and percentages. Tables and charts are used because this method of data presentation is much more preferred among others, as it provides easier understanding and clearer picture of information to be delivered.

4.2) Data presentation

The analysis of the main questionnaire distributed for the purpose of this research is presented in this chapter. The analysis presents statistical results of the collected questionnaire based on quantitative method. The following section explains the number of survey questionnaires distributed to the projects of the construction company and provides a general picture of the response rate.

The questionnaire was designed and distributed to investigate health and safety management practice in building construction projects held by Yotek Construction Company in the Addis Ababa sites. 60 copies were distributed to PM, safety engineer, office engineers, site engineers, quality engineers, electrical engineer, sanitary engineer & others employees in each project sites. From the 60 questionnaires, about 44 questionnaires were filled out and returned representing 73 % response rate. Despite several follow ups 27 % failed to respond. A response rate of 50% was deemed adequate for analysis and reporting, response rate of 60% was good and a response rate

of 70% and over was considered very good (Mugenda &Mugenda, 2003). Thus, the study returned a very good response rate at 73 % and was considered adequate for analysis and reporting. Figure 4.1 below shows the percentage of both distributed and received questionnaires:

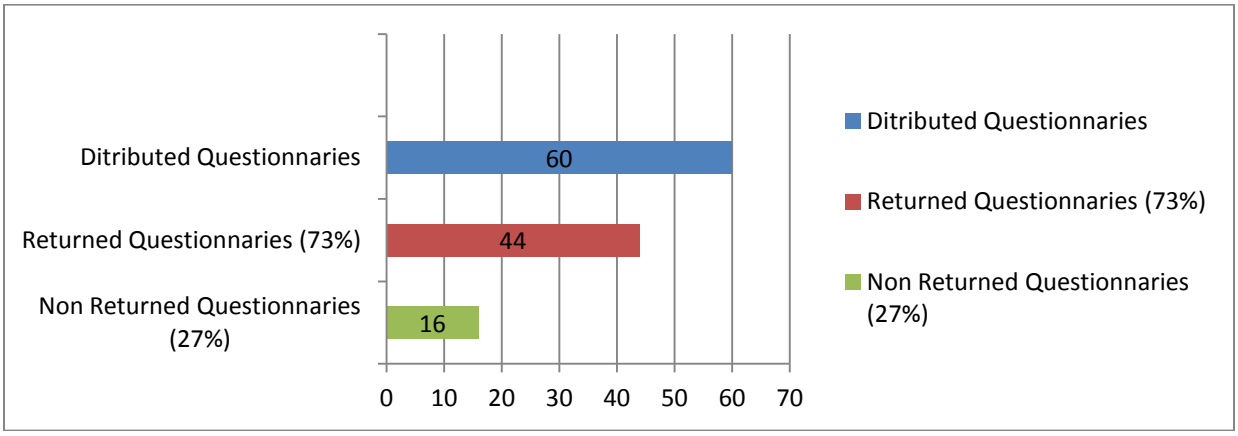

Figure 4.1 Questionnaires distributed vs. Questionnaires returned

4.3) Demographic Characteristics

As remarked in the introduction, the questionnaire consists of 5 parts in total. The responses to each question are analyzed as a whole so that an overall view of the health and safety situation in the YOTEK construction is presented. Also, in depth analysis by company type is conducted to determine the extent of those problems in each category. The purpose of each question is stated while carrying out the analysis and the result is demonstrated using appropriate charts. In some parts, a number of questions are grouped together as some questions are relevant to each other, making the analysis of responses to those questions more sensible.

This section outlines the findings on the demographic characteristics of the sample, which includes job title of respondent, educational background, year of experience, cost of project and average no of employees.

4.3.1) Job title of respondent

In order to ensure that the responses were reliable and valid, it was important to determine the position of the person who answered the questionnaire within the company.

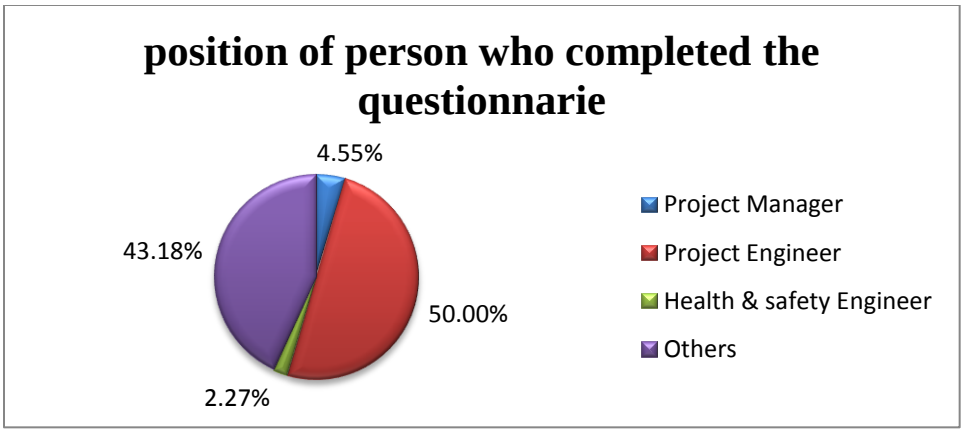

Figure 4.2 Position of person who completed the questionnaire.

As figure 4.2 displays, 4.55% of persons who filled out the questionnaire were project managers of the sites and 50% were Project engineers. Besides, 2.27% and 43.18% of the questionnaires were completed by health and safety engineers and others employees of the company respectively. This shows, health and safety engineer in each project site has no significant number compared with the other profession.

4.3.2) Educational status of respondents and their work experience

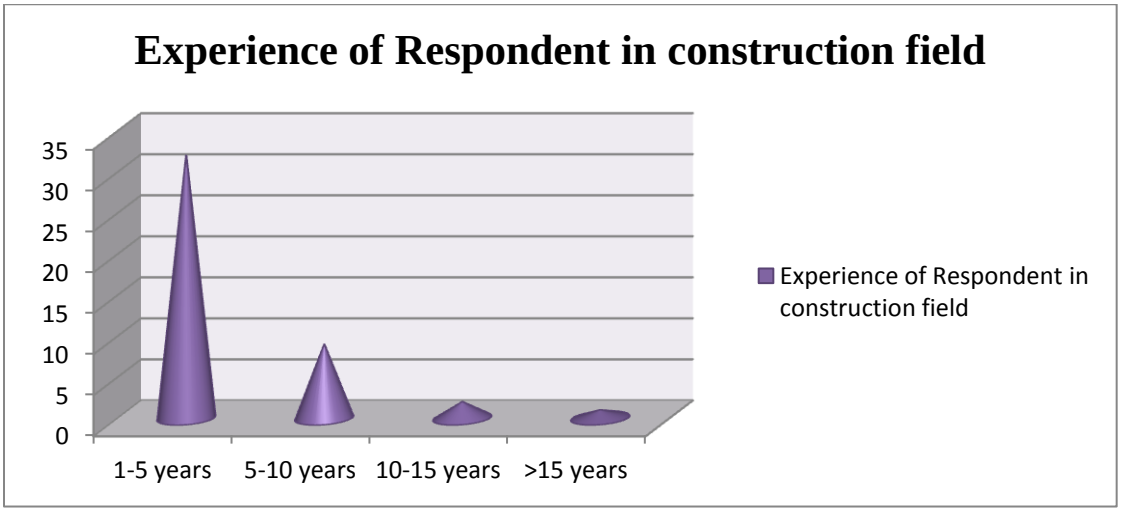

Figure 4.3 Experience of respondents in the construction field

As figure 4.3 shows that among the 44 respondents 2.27% of the respondents have an experience of fifteen and above years in the construction industry, 4.55 % have 10 up to 15 years of

experience, 20.45% have 5 up to 10 years of experience and 72.73% have less than 5 years of experience in the construction industry and only one respondent have diploma, 75% or 33 respondents have 1st degree, and 22.73% or 10 respondents have 2nd degree (Masters Degree) in civil engineering and related fields. This implies that respondents involved in the study have significant work experience in the area, which implies that the information forwarded could be important as required in the study.

4.3.3) Cost of projects (in of ETB) and Average number of employees

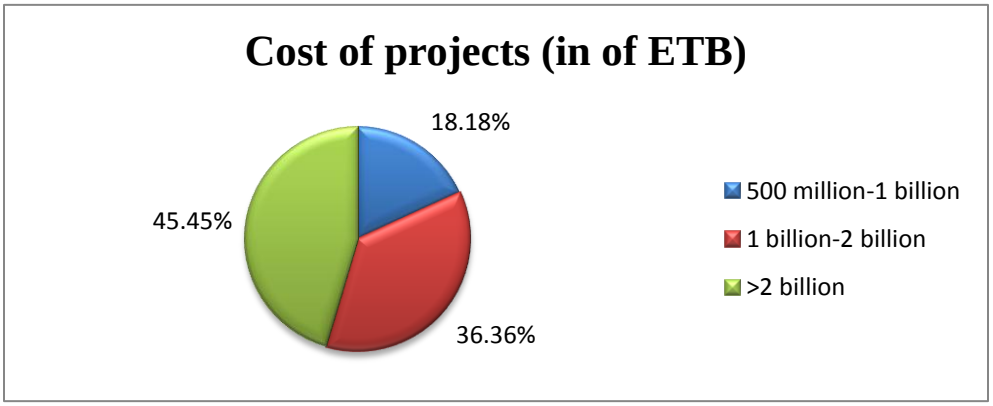

Figure 4.4 Cost of projects (in of ETB)

The above figure shows none of the projects have a cost of <500 million of ETB and about 18.18% of the projects have a cost of 500 million up to 1 billion ETB, 36.36% of the projects have 1 billion up to 2 billion of ETB and 45.45% of the projects have >2 billion ETB. This indicates the projects have huge amount of money which implies it participate many man power and the data analysis also certifies this. About 40.91% of the projects/ sites have <500 and above daily average workers and 36.36% of the projects had 700- 1000 workers where as 22.27% of the projects/ sites have 1000 and above daily average workers. These indicate majority of the projects have high number of workers which implies the project needs safety & health professional. But from the data analysis and observation there are projects sites which do not have health and safety officer.

4.4) Practice of health and safety system

4.4.1) Fatalities which takes the highest number in each projects during the past 3 years

All the project sites have an accident during the construction in the past 3 years. Some of the fatalities of works take the highest number. From the data temporary disablement take almost 100% of the work fatalities which is the highest rate. This indicates almost all of the project fatalities are temporary disablement which results a reduction of workers capacity and prevent from work partially or totally for a limited period of time this leads to reduced productivity of injured party, reduced productivity of workforce which results Cost of delays, Costs for provision of supervision Costs resulting from rescheduling, Costs of transportation, Cost of replacing injured party, Wages paid while the injured party is non-productive and recuperating and other related costs. The rates of these accidents on construction sites are due to different reasons. The respondents answer shows that due to lack of legislation 2.27% of the accidents occur in the construction sites. About 44.31% of the accident occurs due to lack of safety knowledge the other 13.63% of the accident occurs due to management carelessness and the remaining 39.76% of the accident occurs due to careless worker attitudes. This indicates the highest rate of accident in the construction sites is due to lack of safety knowledge which implies that the workers do not have enough awareness or knowledge about health and safety.

4.4.2) Reasons of accident on site are that the management and workers is short of:

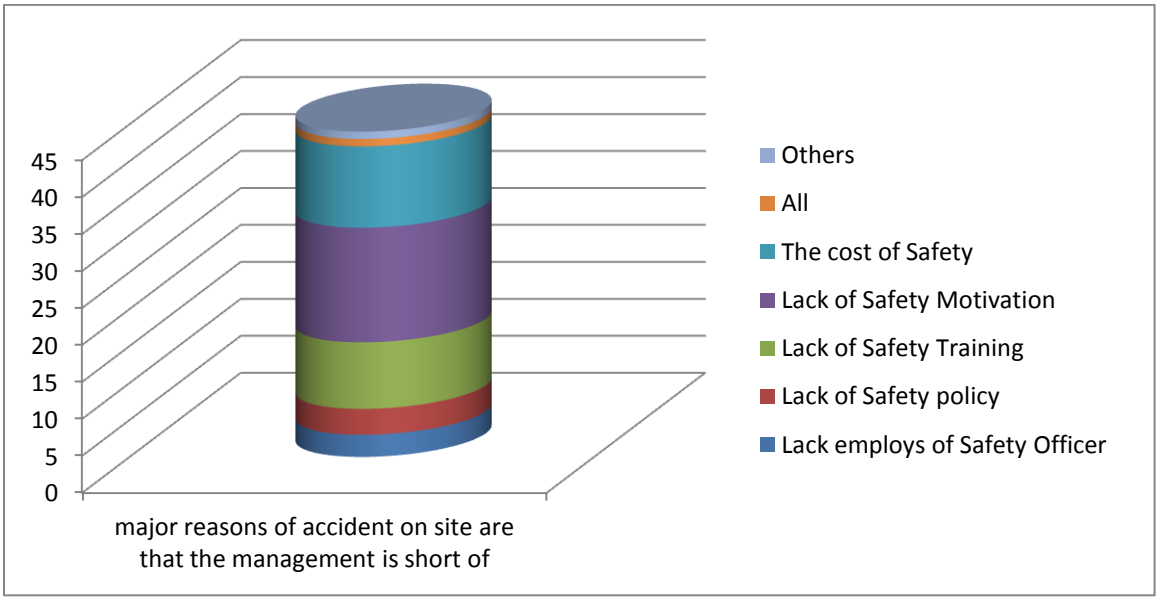

Figure 4.5 Reasons of accident on site are that the management is short of

From the data analysis the respondents believed that 35.23 % of the major reasons of accident on site due to management short is lack of safety motivation, 25 % is cost of safety, were as 20.45% is lack if safety training and each lack of safety officer & safety police takes 6.82% . This indicates that the management has substantial weakness in safety motivation and has a shortage of cost for safety and health.

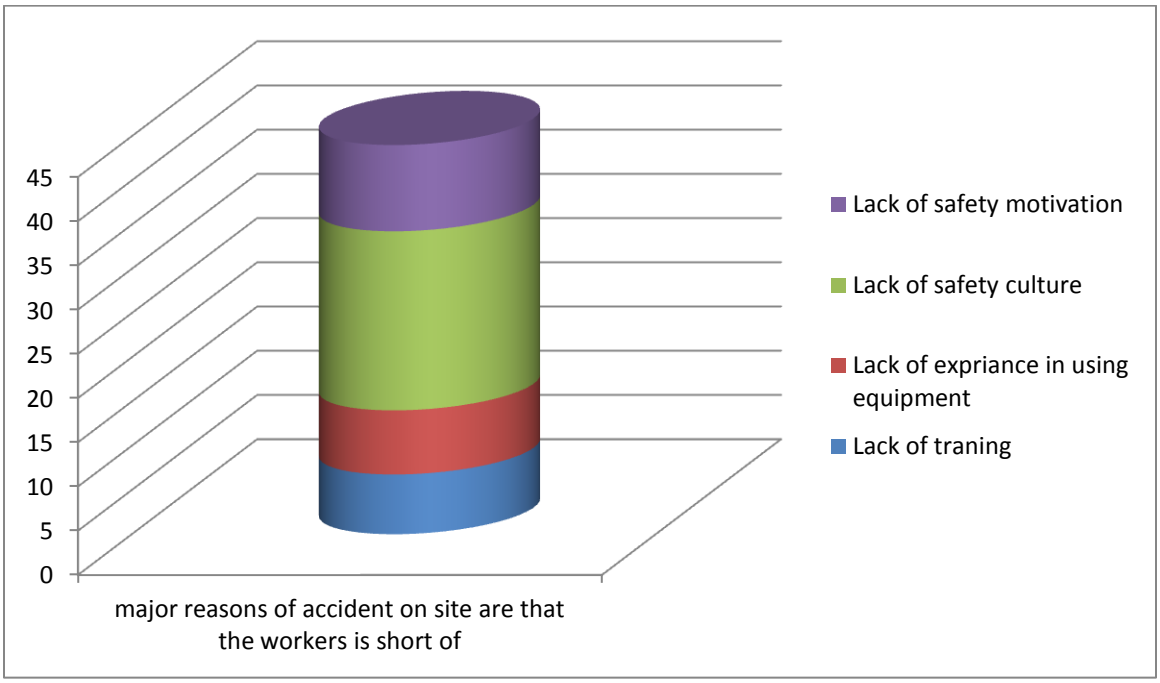

Figure 4.6 Reasons of accident on site are that the workers is short of

the data analysis shows that 46.02 % of the major reasons of accident on site due to workers short is lack of safety culture, 22.16% is lack of safety motivation , were as 16.48% is lack of experience in using equipment and 15.34% takes lack of training. This indicates that the safety culture in construction sites is not adopted well yet and there is no training of workers in the construction projects in how to use the equipment in the construction sites.

4.4.3) Who should be responsible for the accidents occur during construction on site

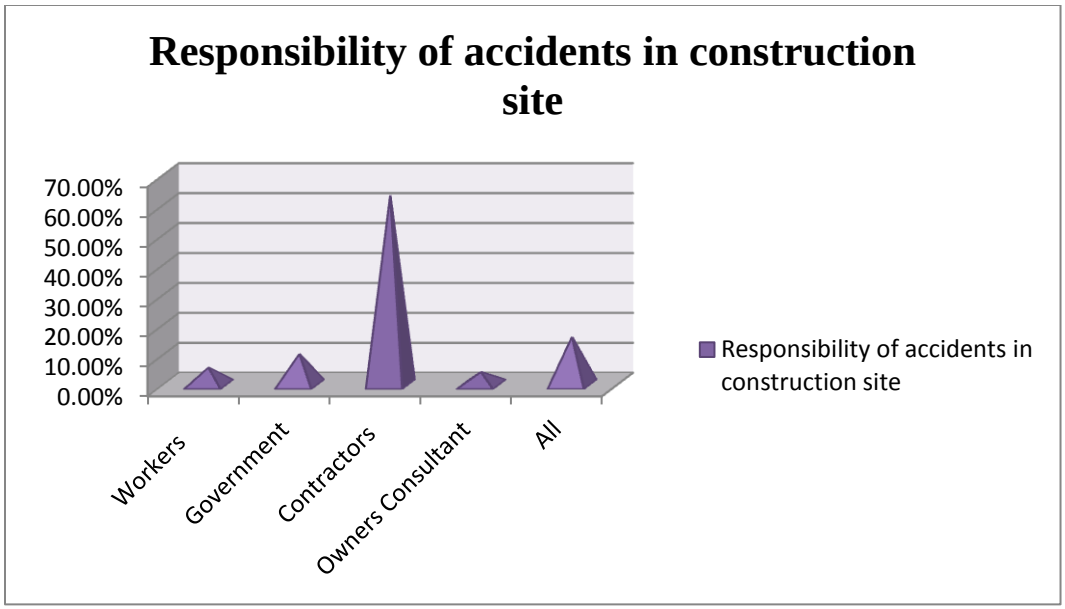

Figure 4.7 Responsibility of accidents in construction site

In addition to the measure accident in the site, respondents were requested to respond who is responsible for the accidents occur during the construction and resulted were analyzed as shown in figure 4.7. Accordingly, 5.68% believed that it is workers responsibility, 10.22% has replied it is government's responsibility while the other 4.16% replied it is owners consultant responsibility where as majority of the respondent which is 63.25% supposed that the contractor is responsible for accidents that occurs during construction. But some of the respondents think all the stakeholders of the construction have a responsibility.

4.4.4) Government organization follows up and contributes in improving safety

Only 27.27% of the respondent have witnessed governmental organization called ministry of labor and social affair follow their projects and contribute in improving safety but from the observation of the researcher those governmental organizations do not follow up frequently or it is not time bounded, whereas 72.72% of respondents agreed governmental organizations do not follow their projects and they do not contribute in improving safety. From this most of the respondent witnessed that there is no any governmental organization who follows up the construction projects health and safety aspects during the construction and does not contributes anything in improving safety in construction projects. But government shall conduct a periodically site inspection through an experienced safety engineers and subjecting the contractors to a warning or fine for unsafe conditions or hazards existing on a workplace.

Moreover, the engineering societies shall help to extend engineering knowledge by developing the awareness of safety and health issues among engineers, (Fang, et al., 2004). Therefore, the finding in the study did not much with the study of Wright (1998), identified factors motivating proactive health and safety management and concludes in the study compliance with customer or regulatory certification schemes and complies with health & safety regulations create positive pressure to proactively manage health & safety.

4.4.5) Suggestion about expense of safety management in terms of contract cost

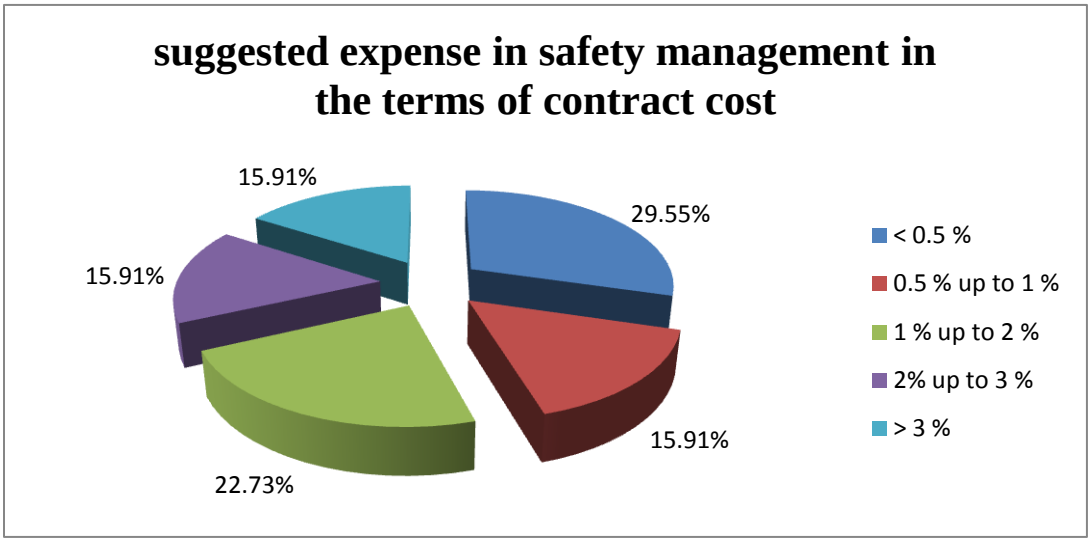

Figure 4.8 Suggested expense in safety management in the terms of contract cost

As the figure explains 29.55% of the respondents suggested that the expense in safety management in terms of the project contract cost should have to be less than 0.5%, 22.73% of them suggested that it should have to be between 0.5 % up to 1%, 15.91% of them suggested that it should have to be between 1 % up to 2%, 2% up to 3% and greater than 3% each. Even if estimating health and safety costs in the construction presents various difficulties, including the complexity of cost allocation, the inadequacy of data available to managers and the absence of an accounting model designed specifically for safety cost management. Very often, the costs arising from accidents in the work place are not fully identifiable due to the hidden costs involved. (Lozep-Alonso m, 2016).

4.4.6) Organizational, Technical, procedural and environmental factors

4.4.6.1) Appointment of Health & Safety staff

Table 4.1 Appointment of health & safety staff

Item no	Description	Frequency		Percent	
		Yes	No	Yes	No
01	Do your construction projects/sites have a Safety Officer?	40	4	90.91	9.09
Reason for "No" answers					
A	Budget constraint	1		25	
B	Upper level management and commitment problem	2		50	
C	Lack of H&S policy implementation on projects	1		25	

The above table shows that 90.91% of the respondent has witnessed they appointed health and safety officer; whereas 9.09% of projects/site did not have appointed health and safety officer. The reasons not to appoint safety and health officer were 50% believed upper level management and commitment problem in the company, 25% believed budget constraint & lack of H&S policy implementation on projects each.

4.4.6.2) Project planning of Health & Safety

Table 4.2 Project planning of health & safety

Item no	Description	frequency		Percent	
		Yes	No	Yes	No
01	Does your project have cost of Prevention COP	29	15	65.91	34.09
02	Does your project have cost of Accident COA	40	4	90.91	9.09
03	Does your project have a site-specific Health &Safety plan?	26	17	59.09	38.64
04	Does the Layout of the site consider Health & Safety aspects? (During constructing site offices, access	34	9	77.27	20.45

	roads, temporary structures while constructing the project)				
05	During construction period of your project does Health & Safety aspect reviewed periodically or frequently?	18	24	40.91	54.55
Reason for "No" answers					
A	Lack of awareness by all parties in the industries			6.16	13.70
B	Budget constraint			4.41	9.81
C	Upper level management and commitment problem			6.25	13.90
D	There is no enforcement law in the contract agreement with the client /No contractual obligation			3.08	6.85
F	Lack of skilled personnel			1.83	4.07
G	There is no standard in the code of practice			1	2.22%
H	Lack of H&S policy implementation on projects			8.24	18.32%

AS indicated in the above table (4.2), 34.09% of the respondents witnessed they have no projects cost of incurring to administering health & safety program and while 65.91% of the respondents witnessed they have cost of incurring to administering health & safety program and 9.09% of the respondents witnessed they have no cost the treatment of the injury and any unique compensation and while only 90.91% of the respondents witnessed they have cost the treatment of the injury and any unique compensation.

For the question does your project have a site-specific Health &Safety plan, 38.64% of the respondents witnessed they have no a site specific health and safety plan and while 59.09% of the respondents witnessed they have site specific health and safety plan and 20.45% of them agreed that the layout of the site do not consider Health & Safety aspects during constructing site offices, access roads, temporary structures while constructing the project but the majority which 77.27% has certified that the layout of the site do not consider Health & Safety aspects.

During the construction period of their project the data analysis shows that 54.55% of the project did not reviewed Health & Safety aspect periodically or frequently. On the other hand 40.91% of

the project reviewed Health & Safety aspect periodically or frequently. The reasons for the answer "no" for the above project planning of health and safety aspects were lack of awareness by all parties in the industries which takes 13.70%, budget constraint 9.81%, upper level management and commitment problem 13.90%, because of no enforcement law in the contract agreement with the client (No contractual obligation) 6.85%, lack of skilled personnel 4.07%, there is no standard in the code of practice 2.22% and lastly18.32% agreed it is due to lack of H&S policy implementation on projects. Integration of health and safety into project planning has been promoted by authors such as Kartam (1997), Cameron and Duff (2002), Murray (2002), Saurin et al. (2004), Pavitt et al. (2004), Gibb and Pendlebury (2005) and Hare et al. (2006). The work of these authors have each sought to explore avenues for managing health and safety as integral aspect of projecting planning during one or more of the phases of project execution. Hare et al. (2006) investigated the integration of health and safety with the pre-construction phase of project and highlighted the importance of effective teams and effective two-way flow of information for successful integration.

4.4.6.3) Health &Safety policy

Table 4.3 Health & safety policy

Item no	Description	frequency		percent	
		Yes	No	Yes	No
01	Does your construction firm have Health & Safety policy?	41	3	93.18	6.82
02	Does your construction firm have a written in house Health & Safety rules & regulations and implementation for all workers reflecting management concerns for safety and health?	32	11	72.73	25
03	Does your firm coordinate its Health &Safety policies with other human resource policies to ensure wellbeing of workers?	25	17	56.82	38.64
Reason for "No" answers					
A	Lack of awareness by all parties in the industries			3.5	11.29
B	Budget constraint			1.0	3.23

C	Upper level management and commitment problem	9	29.03
D	There is no enforcement law in the contract agreement with the client /No contractual obligation	1.5	4.84
E	No company Health & Safety policy in the firm	1	3.25
F	Lack of skilled personnel	1	3.23
G	There is no standard in the code of practice	2	6.45
H	Lack of H&S policy implementation on projects	5	16.13

As presented in the above table (4.3), 93.18% of the respondents said that their construction firm has is no health & Safety policy and while the remaining 6.82% of the respondents said their construction firm did not have health & Safety policy. when respondents are asked if their construction firm have a written in house Health & Safety rules & regulations and implementation for all workers reflecting management concerns for safety and health, about 25% of the respondent say no and more than 72% of them said yes and from the researcher observation there are there were safety signs and procedures that every person in the construction must be observed and protection and safety equipment must be worn at all times for zero tolerance operates on the site.

When respondents were asked about their firm coordinating its health and safety policies with other human resource policies to ensure wellbeing of workers, more than 56% of the respondent agreed on that and said that their firm coordinates its health and safety policies with other human resource polices to ensure wellbeing of workers were as the remaining 38.64% of them do not agree on this.

The reasons for the projects not have health and safety police and safety rule and regulation, if they have why do not coordinate this policy with other human resource policy are upper level management and commitment problem which takes the larger percent which is about 29%, lack of H & S policy implementation on projects takes about 19 % and lack of awareness by all parties in the construction industry takes 11.29%, while the other budget constraint, lack of skilled personnel, no code of practice, no health and safety policy and no enforcement law in the contract agreement takes smaller percent as mentioned in the table.

Building construction projects in Addis Ababa constructed by YOTEK Construction Company, majority of respondents show their firm/projects did not have safety & health policy. A policy is an administrative belief used to set a path in an organization. It can be a sequence of actions and an effective decision. (Sawacha, et al., 1999) discussed numerous variables that effect safety on construction sites. The results propose that variables correlated to organization policy are the most main group of factors affecting the safety performance in the U.K. construction industry. Liska al., (1993) also identified zero accident techniques by practicing having safety policies and procedures on project sites.

4.4.6.4) Formal and informal written Communication

Table 4.4 Formal and informal written communication

Item no	Description	frequency		percent	
		Yes	No	Yes	No
01	Does your firm provide awareness with written information about Health & Safety procedures?	32	12	72.73	27.27
02	Does your firm prepare written circular / brochure or orientation that to make workers aware of the risks in their work and preventive measures to reduce those risks?	30	14	68.18	31.82
Reason for "No" answers					
A	Budget constraint			0.33	1.03
B	Upper level management and commitment problem			4	12.50
C	There is no enforcement law in the contract agreement with the client /No contractual obligation			1	3.13
D	Lack of skilled personnel			2.83	8.85
E	There is no standard in the code of practice			4	12.50
F	Lack of H&S policy implementation on projects			9.83	30.73

The research indicated that respondents predominantly (more than 72%), witnessed that their firm provide awareness with written information about Health & Safety procedures, while the remaining 27.27% witnessed that their firm do not provide awareness with written information about health and safety procedures. When the respondent asked about their firm prepares written

circular (brochure) or orientation that to make workers aware of the risks in their work and preventive measures to reduce those risks 68.18% of them certify that it does but the remaining 31.82% of them certifies it does not prepare circular (brochure) or orientation that makes the workers aware of the risks in their work and preventive measure to reduce those risks.

The respondents explains different reasons for the absence of providing awareness with written information about Health & Safety procedures and preparing written circular (brochure) or orientation that to make workers aware of the risks in their work and preventive measures to reduce those risks. From those reasons lack of H&S policy implementation on projects takes the largest percent which is 30.73% and both upper level management and commitment problem and no standard in the code of practice takes 12.50% each while the others lack of skilled personnel, no enforcement law in the contract agreement with the client (No contractual obligation) and budget constraint takes the smallest percent as indicated in the above table.

4.4.6.5) Upper management commitment & involvement in Health & safety

Table 4.5 Upper management commitment & involvement in Health & safety

Item no	Description	frequency		percent	
		Yes	No	Yes	No
01	Do Managers encourage and support worker participation, commitment and Involvement in Health &Safety activities?	30	14	68.18	31.82
02	Do Managers encourage and support training of employees in Health &Safety?	27	17	61.63	38.64
03	Do Managers actively monitor the Health &Safety performance of their projects and workers through reports?	26	18	59.09	40.91
04	Do Managers ensure that the Health & Safety budget is adequate?	18	26	40.91	59.09
Reason for "No" answers					
A	Lack of awareness by all parties in the industries			2	2.67
B	Budget constraint			17	22.67

C	Upper level management and commitment problem	23.83	31.78
D	There is no enforcement law in the contract agreement with the client /No contractual obligation	3.33	4.44
E	Lack of skilled personnel	3.33	4.44
F	There is no standard in the code of practice	1	1.33
G	Lack of H&S policy implementation on projects	1.5	2.00

Respondents have also exhibited more or less similar perceptions as to the managers encourage and support worker participation, commitment and involvement in health and safety activities, training of employees in health and safety and actively monitor the health &safety performance of their projects and workers through reports. Referring to the respective tables in the respective sections above, similar observations can be made with regard to respondent majority of them (more than 60%) agreed on their firm managers train their employees in health and safety activities and also have commitment and involvement in it with active monitoring. Whereas above 30% of the respondent do not agree on upper managers commitment, involvement and active monitoring in health and safety aspects and also employees training. As respondent response the reasons behind this are many from this budget constraint and upper level management and commitment problem takes 22.67% and 31.78% respectively, beside this no contractual obligation and lack of skilled personnel takes 4.44% each and lack of awareness by all parties in the industries and lack of H&S policy implementation on projects takes the remaining 2.67% and 2.00% respectively.

In Addis Ababa city, building construction projects held by YOTEK construction P.L.C, majority of respondents reflects their firm did not have upper management and commitment & involvement in health and safety. The finding did not much the findings of (Teo, et al., 2005), found that the reduction of accidents would be accomplished when top management takes a dynamic attention and is dedicated to safety and health improvement as well as maintaining good safety and health policy. Moreover, (Hinze & Raboud, 1988) concluded in their research, that top management must be supportive to have better health and safety performance. And also Tam and Fung (1998) investigated effectiveness of management strategies on safety performance and the study concluded one of the effective strategies in reducing accidents were safety training.

Gallagher (1997) identified factors associated with improved health & safety performance and the study concluded one of the factors to increase health & safety performance were high level of top management commitment.

4.4.6.6) Health & Safety resources

Table 4.6 Health & safety resources

Item no	Description	frequency		percent	
		Yes	No	Yes	No
01	Is there adequate first aid and first aider(s) on your construction projects/sites	43	1	97.73	2.27
02	Does your firm Provide personal protective equipment (PPE)?	40	4	90.91	9.09
03	Does your firm provide right tools, equipment and plant to execute construction?	37	3	84.09	11.36
04	Does your firm Provide good welfare facilities such as showers, canteens, toilets?	31	13	70.45	29.55
05	Does Material schedule data sheets provided for all hazardous materials on site?	20	22	45.45	50
Reason for "No" answers					
A	Lack of awareness by all parties in the industries			7.5	14.71
B	Budget constraint			12.5	24.51
C	Upper level management and commitment problem			9.5	18.63
D	Lack of skilled personnel			6	11.76
E	Lack of H&S policy implementation on projects			2.5	4.90

When we came to health and safety resource of the company, as examined in each project sites through questioner, 97.73% of the respondent certifies that there is adequate first aid and first aider(s) on their construction project sites. Similarly, 90.91% of the respondents witnessed that their firm provides personal protective equipment (PPE) for employees and about 84% of them

said there is a right tools, equipment and plant to execute construction in their firm. Concerning good welfare facilities such as showers, canteens and toilets 70.45% of the respondents certify that is it is full filled in their project site and the other 11.36% certify that these facilities are not full filled. Based on respondent answer providing material schedule data sheets for hazardous materials on site for each projects takes 50% and not providing also has the same percent. However, some of the respondents disagreed on the above issues (adequate first aid and first aider(s) on your construction projects/sites, Providing personal protective equipment (PPE), right tools, equipment and plant to execute construction and good welfare facilities such as showers, canteens, toilets). The reason behind were lack of awareness by all parties in the industries (14.71%), Budget constraint (24.51%), Upper level management and commitment problem (18.63%), Lack of skilled personnel (11.76%) and Lack of H&S policy implementation on projects (4.90%).From researcher site observation the company provides personal protective equipments to each site but there is upper level management and commitment problem in implementation in some sites and also worker careless in using theses equipments.

4.4.6.7) Training in Health &Safety

Table 4.7 Training in Health & safety

Item no	Description	frequency		percent	
		Yes	No	Yes	No
01	Do Workers undergo induction on Health &Safety before commencing work on a particular site?	26	18	59.09	40.91
02	Do Workers are regularly trained in Health & Safety?	9	34	20.45	77.75
03	Do Workers trained in proper care & use of personal protective equipment?	20	24	45.45	54.55
04	Instruction manuals or safe work procedures are used to aid in preventive action?	25	17	56.82	38.64
Reason for "No" answers					
A	Lack of awareness by all parties in the industries			1.33	1.45
B	Budget constraint			6.5	7.09
C	Upper level management and commitment problem			18.5	20.18
F	Lack of skilled personnel			9.33	10.18

G	There is no standard in the code of practice	3.5	3.82
H	Lack of H&S policy implementation on projects	17.5	19.09

The above table show 59.09% of respondents believed their firm/projects provide or give induction before commencing work, 20.45% agreed their firm/project provide regular training for their workers on health & safety, 45.45% witnessed their firm/project provide training on how to care and use of personal protective equipment's and 56.82% agreed their firm/project provide instruction manuals or safe procedures, whereas about 77.75% of the respondent believed their projects/sites do not provide training in health & safety and an average of 44.7% of the respondent believed that their firm do not give safety induction before commencing work, trained in proper care & use of personal protective equipment and use instruction manuals or safe work procedures to aid in preventive action. The reasons were lack of awareness by all parties in the industry (1.45%), budget is not considered for safety &health (7.09%), upper level management & commitment problem (20.18%), Lack of skilled personnel (10.18%), absence of standard in the code of practice (3.82%) and Lack of H&S policy implementation on projects (19.09%).

Most of the majority of respondents from YOTEK construction reflects their firm did not give training in health & safety. Training provide workers with ways to obtain added information about potential hazards and their control; they could gain skills to assume a more active role in implementing hazard control programs or to effect organizational changes that would enhance worksite protection. The finding of the study did not much with the finding of Aksorn and Hadikusumo (2008), investigated the effectiveness of safety programs in the construction industry and concluded one of the safety programs found to be positively associated with safety performance is safety induction.

4.4.6.8) Project supervision

Table 4.8 Project supervision

Item no	Description	frequency		percent	
		Yes	No	Yes	No
01	Do Proper supervision by staff trained in Health & Safety carried out on your project?	28	14	63.64	31.82

02	Does specific Health & Safety inspections done regularly?	22	21	47.73	50
03	Do Local authorities and Health &Safety enforcement agencies visit sites for inspection?	16	28	36.36	63.64
Reason for "No" answers					
A	Lack of awareness by all parties in the industries			10.8	16.93
B	Budget constraint			3	4.69
C	Upper level management and commitment problem			3.83	5.99
D	There is no enforcement law in the contract agreement with the client /No contractual obligation			4	6.25
E	There is no standard in the code of practice			8	6.77
F	Lack of H&S policy implementation on projects			4.33	12.50

Concerning proper supervision by staff trained in Health & Safety carried out on project sites, regular specific Health & Safety inspection and site visit for inspection of local authorities and Health &Safety enforcement agencies, an average of 49.24% of the respondents were agreed on that their firm carried out proper supervision by staff in health & safety with regular specific health & safety inspection and site visit. An average of 48.48% of respondent does not agree and list different reasons. Among these, Lack of awareness by all parties in the industries and H&S policy implementation on projects caches 16.93% and 12.50% respectively. In similar way, no standard in the code of practice, no enforcement law in the contract agreement with the client and upper level management and commitment problem takes about 6% each. From the response analysis of respondents from the contractors reflects relatively their firms have proper supervision by staff trained in health &safety. Therefore the finding of the study much with the findings of Aksorn and Hadikusumo (2008) investigated the effectiveness of safety programs in the construction industry and concluded one of the safety programs found to be positively associated with safety performance is having safety committee (ad-hoc). Gallagher (1997) identified factors associated with improved health and safety performance and the study identified with conclusion of supervisor involvement and effective safety & health committee associated with better health and safety performance.

4.4.6.9) Accident and fatal Reporting

Table 4.9 Accident and fatality

Item no	Description	frequency		percent	
		Yes	No	Yes	No
01	Are all injuries, fatalities filed & reported to the concerned body?	39`	4	88.64	9.09
02	Is there a governmental organization follow up and contribute in improving safety in the Construction projects?	8	35	18.18	79.55
Reason for "No" answers					
A	Lack of awareness by all parties in the industries			7.66	19.65
B	Budget constraint			2.5	6.41
C	Upper level management and commitment problem			0.5	1.28
D	There is no enforcement law in the contract agreement with the client /No contractual obligation			4.66	11.95
E	Lack of skilled personnel			1	2.57
F	There is no standard in the code of practice			5	12.83
G	Lack of H&S policy implementation on projects			1.66	4.26

Regarding the trend to which all injuries and fatalities filed & reported to the concerned body, results of the survey show that more than 88.00% of the respondent have said these fatalities and accidents were reported to the concerned body but 9.09% of them does agree. The reasons projects/sites not to records and reports site accidents, injuries and illness were 19.65% believed lack of awareness by all parties in the industry, 12.83% no code standard code of practice and 11.95% no enforcement law in the contract agreement with the client takes the largest percent. While in contrast, budget constraint, lack of skilled person and H & S policy has insignificant values.

According to this result almost all the projects has a trend of reporting all injuries and fatalities to the concerned body. This finding much with researchers Aksorn and Hadikusumo (2008), investigated the effectiveness of safety programs in the construction industry and concluded one

of the safety programs found to be positively associated with safety performance is having accident investigations, safety record keeping and safety reporting. Liska et al., (1993) identified zero accident techniques and concluded the study accident & near miss investigation; and record keeping and follow-ups associated with safety success.

Concerning governmental organization follow up majority of the respondent means 79.55 % of the respondent witnessed that there is no governmental organization follow up and contribute in improving safety in the construction projects and set out reasons as shown in the table. While, the remaining 18.18% said there is governmental organization follow up and contribute in improving safety in the construction projects. Based on the result, In Addis Ababa city, building construction projects, most of the majority of respondents from the contractor (YOTEK construction) reflects their firm did not have follow-ups from governmental organizations. But government shall conduct a periodically site inspection through an experienced safety engineers and subjecting the contractors to a warning or fine for unsafe conditions or hazards existing on a workplace. Moreover, the engineering societies shall help to extend engineering knowledge by developing the awareness of safety and health issues among engineers, (Fang, et al., 2004). Therefore, the finding in the study did not much with the study of Wright (1998), identified factors motivating proactive health and safety management and concludes in the study compliance with customer or regulatory certification schemes and complies with health & safety regulations create positive pressure to proactively manage health & safety.

From document review, there are project sites which had arrangements for controlling health and safety risks and place some form of documentation on their accidents. Accident investigations and reporting are mostly the responsibility of site managers or safety engineers. Documentation of minor incidents was often overlooked. Safety engineer or site managers recorded accidents in report format or site diaries and reported to owner/managers or senior management in writing or through telephone calls depending on the severity of the case. Hospital forms were in some cases available and given to employees who complained of illness or who were injured in the course of site operations. These procedures were necessary; they provided the businesses with a means of measuring health and safety performance and a way of complying with the Workmen's Compensation Law. The company has the following H & S report format.

4.5) Challenges in the practice

4.5.1) Injuries in construction sites

Table 4.10 Frequency of causes of Injuries in construction sites

Item no	Description	Frequency of injuries and fatalities			
		High	Medium	Low	Exceptional
01	Falling (Objects falling from a height)	15.91%	29.55%	50%	4.55%
02	Falling Stairways and ladders	15.91%	34.09%	38.64%	11.36%
03	Scaffolding (Falling from scaffolding during construction)	15.91%	25%	40.91%	18.18%
04	Excavations (Slides, collapse, not shored protection…etc.)	13.64%	25%	25%	36.36%
05	Electricity (Electric power Accidents)	4.55%	9.09%	45.45%	38.64%
06	Construction Hoists &Elevators and Cranes & Derrick (sudden dismantling)	2.27%	6.82%	31.82%	59.09%
07	Hazardous substances (careless /miss use)	15.91%	27.73%	38.64%	27.73%
08	Noise	15.91%	38.64%	25%	20.45%
09	Tools and Machinery (Drilling, Grinding, Bending…etc.)	11.36%	18.18%	56.82%	11.36%
10	Fire（from electric, fuel, chemical et.）	4.55%	2.27%	29.55%	63.64%

The above table shows that in their construction sites, a high percentage of the respondents believed that objects falling from a height, falling stair way and ladder, workers falling from scaffolding during construction work, Electric power Accidents cause, careless /miss use of hazardous substances and tools &machinery cause injuries &fatalities in a low rate. Whereas, accidents occur due to un-shored protection of excavation, sudden dismantling of construction hoists &elevators and cranes & derrick and fire is exceptional. According to the surveying data the respondent agreed that noise has a medium frequency in causing injury.

4.5.2) Factors that affect safety and health performance in the construction industry

Table 4.11 Factors that affect safety and health performance in the construction

Item no	Description	mean	Important index
01	Complexity of the Design	3.15	105.30
02	Type of Owner/attitude of owner/	3.15	105.30
03	Weather Condition	3.25	108.33
04	Project Cost	3.34	111.36
05	Project Duration	2.86	95.45
06	Contractual Specification of Safety health	3.35	112.12
07	Safety and Health Policy	3.68	122.72
08	Accidents / Incidents / Near Miss Report	3.04	99.2
09	Fire prevention and control	2.81	93.93
10	Risk Assessment	3.54	118.18
11	Safety and Health Training	3.93	131.06
12	Personal Protective Equipment (PPE	3.09	130.30
13	Emergency Planning and Procedures	2.69	81.06
14	Safety and Health Inspection	3.83	125
15	Safety and Health Management Meeting	3.46	112.87
16	First-Aid Provision	3.76	119.69
17	Safety Signals, Signs and Barricades	4.51	146.96
18	Work environment	3.90	127.27
19	Reward and Punishment System (Incentives)	3.63	121.21
20	Role of Government and Engineering Societies	3.74	121.96

Priority index is used for analyzing question in which respondents were asked to place a set of attitudes in ranking order, indicating their importance priorities or preferences. Accordingly, the factor, safety and health training personal protective equipments got the highest priority index (131.06%) and to the other extreme, the other factor, whenever Emergency Planning and Procedures (81.06%) priority index as pointed out in the table above.

Item no	Description	Degree of impact in percent				
		Very high	high	high average	Low	Very low
01	Complexity of the Design	20.45%	18.18%	22.73%	34.09%	4.55%
02	Type of Owner/attitude of owner/	15.91%	27.27%	29.55%	11.36%	15.91%
03	Weather Condition	20.45%	18.18%	29.55%	29.55%	2.27%
04	Project Cost	29.55%	22.73%	22.73%	20.45%	9.09%
05	Project Duration	11.36%	27.27%	27.27%	27.27%	9.09%
06	Contractual Specification of Safety health	29.55%	18.18%	20.45%	22.73%	9.09%
07	Safety and Health Policy	40.91%	15.91%	20.45%	15.91%	6.82%
08	Accidents / Incidents / Near Miss Report	15.91%	20.45%	20.45%	34.09%	6.82%
09	Fire prevention and control	20.45%	18.18%	9.09%	27.27%	25%
10	Risk Assessment	6.82%	27.27%	20.45%	15.91%	4.55%
11	Safety and Health Training	45.45%	13.64%	31.82%	6.82%	2.27%
12	Personal Protective Equipment (PPE	20.45%	15.91%	25%	11.36%	4.55%
13	Emergency Planning and Procedures	6.82%	11.36%	40.91%	9.09%	22.73%
14	Safety and Health Inspection	36.36%	22.73%	27.27%	9.09%	2.27%
15	Safety and Health Management Meeting	25%	20.45%	31.82%	15.91%	4.55%
16	First-Aid Provision	31.82%	29.55%	15.91%	15.91%	2.27%
17	Safety Signals, Signs and Barricades	34.09%	29.55%	20.45%	9.09%	4.55%

18	Work environment	45.45%	13.64%	22.73%	15.91%	0%
19	Reward and Punishment System (Incentives)	36.36%	11.36%	34.09%	15.91%	2.27%
20	Role of Government and Engineering Societies	38.64%	15.91%	27.27%	11.36%	4.55%

Most of respondents realized, factors such as project cost, safety and health contractual specification of, policy, training, inspection, signals, signs and barricades, personal protective equipment (PPE), first-aid provision, work environment, reward and punishment system (incentives) and role of government & engineering societies has a very high degree of impact on safety and health performance in the construction industry. As presented in the above table, safety and health performance in the construction industry is highly affected by project duration and risk assessment. From respondents' perspective, type of owner/attitude of owner/, weather condition, emergency planning and procedures and H&S management meeting has an average high effect on safety and health performance in the construction industry. But the other factors, complexity of the design, accidents / incidents / near miss report and fire prevention and control has low degree of impact on safety and health performance in the construction industry.

4.5.3) Construction phase which require emphasis of health and safety management practice

Table 4.12 Construction phase which needs more emphasis of health and safety management practice

Item No	Construction Phases	mean	Important index	Rank
01	Excavation and Earth work	2.09	68.18	3
02	Concrete Work(concrete , form work & rebar)	1.88	59.84	4
03	Finishing Work	3.15	105.3	1
04	Electrical Work	2.85	90.90	2

Even if health and safety management practice is required throughout the construction phases of every building project, but the emphasis in each phase might be different. As respondent

agreement, finishing work requires more focus or emphasis of health and safety management practice among the others. Respondent rank shows that electrical work comes to the second place, excavation and earth work is the third one and concrete work takes the last rank.

CHAPTER FIVE: - SUMMARY, CONCLUSION AND RECOMMENDATION

5.1) Introduction

The fifth and last chapter of this study revolves around the major findings of the study, what we can conclude from the findings and recommendation based on these findings. This chapter highlighted the limitations of this work and indicated future research areas for anyone interested in the applicability of college choice decision/preference.

5.2) Summary of major finding

The construction industry has been seen as one of the hazardous industries. As empirical reviews revealed that the industry has poor health and safety performance record. This paper is conducted on safety and health management practice in yotek building projects in Addis Ababa city.

The company is established with the purpose of providing various construction services like construction of buildings, roads, factory foundations, bridges, Airfields and various types of civil engineering edifice contributing to the development of the construction industry. This Company is founded by engineer YOHANS TEKLAY by being general contractor 6 (GC-6). Within 15 years by getting experiences, which should make them, familiar with safety and health related issues. The overall body of the paper is summarized as follows .Out of the total respondents only (2.27%) respondents were from safety & health department. This shows, health and safety engineer in each project site has no significant number compared with the other profession.

45.45% of the projects costs more than 2 billion ETB beside this 22.27% of the projects/ sites have 1000 and above daily average workers. These indicates majority of the projects have high number of workers which implies the project needs more than one safety & health professional to be assigned. But from the finding there are projects sites which do not have health and safety officer or very small number relatively.

All the project sites have an accident during the construction in the past 3 years. From the finding temporary disablement take almost 100% it leads to additional cost. The occurrences of these accidents are more or less due to careless of management & worker attitudes and lack of safety knowledge. From perspective of management it was lack of motivation and budget constraint but from workers side it was luck of safety culture and training.

From the researchers finding majority of the respondent agreed 63.25% supposed that the contractor is responsible for accidents that occur during construction.

Concerning governmental organization follow up and contribution in improving safety, 72.72% of respondents reveal that governmental organizations do not follow their projects and they do not contribute in improving safety.

Out of the total respondent, 90.91% of the respondent has witnessed they appointed health and safety officer on their site and 65.91% have cost of incurring to administering health & safety program with site specific health and safety plan consider Health & Safety aspects during constructing site offices, access roads, temporary structures while constructing the project.

In terms of periodically or frequently reviewing Health & Safety aspect the finding shows there no frequent review of health & safety aspects.

From the finding, 93.18% of the respondents said that their construction firm has health & Safety policy with written in house Health & Safety rules & regulations and implementation for all workers reflecting management concerns for safety and health. Majority of the respondent agreed that was awareness with written information about Health & Safety procedures, written circular / brochure or orientation that to make workers aware of the risks in their work and preventive measures to reduce those risks, adequate first aid and first aider(s), personal protective equipment, right tools, equipment and plant to execute construction and good welfare facilities such as showers, canteens, toilets.

On majority of the project sites, Managers encourage and support worker participation, commitment and Involvement in Health &Safety activities, training of employees, actively monitor the Health &Safety performance of their projects and workers through reports and ensure adequacy of the budget.

Concerning the health and safety induction training, the questionnaire reveal the general poor attitude of YOTEK construction company toward the continuous health and safety training of their employees as only 20.45% of respondents confirmed having such training and lack of regular specific Health & Safety inspections. According to researcher finding all injuries and fatalities filed & reported to the concerned body.

objects falling from a height, falling stair way and ladder, workers falling from scaffolding during construction work, Electric power Accidents cause, careless /miss use of hazardous substances and tools &machinery cause injuries &fatalities in a low rate. Further, the majority of respondents agreed the main factors that affect the performance of health & safety in building construction are project cost, safety and health contractual specification of, policy, training, inspection, signals, signs and barricades, personal protective equipment (PPE), first-aid provision, work environment, reward and punishment system (incentives) and role of government & engineering societies and finally as respondent agreement, concrete work requires more focus or emphasis of health and safety management practice among the others.

5.3) Conclusions

The importance of health and safety in companies, especially construction ones is not well established. In reality since the early sixties of the last century, the construction industry passed through a tremendous growth and development and now it is essential for employers and employees to be aware of the health and safety issues that concern them and demand for qualifications in this area is increasing especially in the emergent or developing countries. Indeed the construction industry is working very hard to improve its health and safety record. These paper based on the analysis concluded that;-

- In the company there is a shortage of health and safety officer or they are very small in number relatively; there is careless and lack of motivation of management for implementation of health and safety practice, training and also budget constraint. Additionally, there is carelessness of worker attitudes and lack of safety knowledge.

- Although there are appropriate health and safety legislation for governing construction works there is lack of enforcement of regulations from government & regulatory bodies responsible for ensuring compliance are not properly resourced to carry out their legal responsibilities.

- Clients & consultants do not consider as perquisites for awarding projects and they do not even include as criteria in the contract documents in contractual specification of health and safety.

5.4) Recommendation

Based on the study, the following are key recommendations that can help improve health and safety practice in building construction.

- It is imperative for the construction company to increase the quality and quantity of safety and health supervisors since poor supervision is the main reason which is responsible for the accident occurrence.

- Contractors must ensure that their labor force is properly trained for their specific tasks. This will empower them to teach their peers and regular safety meeting during the work in the construction site.

- More efforts need to be done by the construction company to improve awareness and the training for the workforces. In addition, an adequate budget for safety and health provision should be stated in the contract document which should be approved by all parties. Safety as a pay item in contract document is suggested to be included.

- The company should adopt proactive and continuous learning approaches to manage health and safety of the projects workers.

- The contractors should train the workers, promote the safety culture for workers and educate them on how to avoid the risk and use the equipment properly in the construction site and make sure that all the workers wear the personal protection equipment and punish the workers who make safety violation.

- To monitor health and safety performance (such as reports, audits and inspections) during bid the contractors should have to incorporate Safety audit report for their qualification. The contract document prepared for tender should have guidelines for health and safety regulation and enables the enforcement of rules and regulations for health and safety problem minimization.

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APPENDIX A

ADDIS ABABA UNIVERSITY

School of commerce

Department of Project Management

Assessment of Construction Safety and Health Management Practice in Building Construction projects in Addis Ababa: In case of Yotek Construction P.LC.

Dear Participant

This MBA thesis research questionnaire is designed to assess the practice of construction of health & safety management in building construction projects in Addis Ababa in a case of Yotek construction P.L.C. The main objective will be to assess the current safety and health management practice in building construction sites at Yotek Construction PLC.

The information obtained will be used for academic purpose only; all information and feedbacks will be kept strictly confidential. Your experience and educational background in the construction industry will greatly contribute to the success of my study and I believe this kind of study will be an input for the development of Ethiopian construction industry. So, I am kindly requesting you to respond each and every question and I would like to thank you in advance for sharing your time and information with me.

For further inquiry, if you have any questions you can reach me at

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Part one (About the respondents, company and current projects)

Mark "√"on the space provided

About respondents

1) Job title of respondents"

Project Manager ☐ Project Engineer ☐ Health & Safety engineer ☐Others☐

2) Educational status of respondents

MSc/MA ☐ Degree ☐ Diploma ☐ Others ☐

3**)** Respondents work experience (years)

1-5 ☐ 5-10 ☐ 10-15 ☐>15 ☐

About the company and current project

4) Project/construction Cost (ETB)

<500 Million ☐ 500Million-1 Billon ☐ 1 Billon -2 Billon ☐>2 Billion ☐

5) Average number of employees

<500 ☐ 500-700 ☐ 700-1000 ☐>1000 ☐

6) Which fatalities on work (years in 2009-2011 E.C) hold the highest number in your project?

Death ☐ Permanent total disablement ☐

Permanent partial disablement ☐ Temporary disablement ☐

- **Permanent total disablement: -** means incurable employment injury, which prevents the injured worker from engaging in any kind of remunerated work.
- **Permanent partial disablement**: - means incurable employment injury decreasing the injured workers capacity.
- **Temporary disablement:** results a reduction workers capacity which prevents from work partially or totally for a limited period of time.

About the accident current project

7) High accident rates on construction site are due to:

A. Lack of Legislation B. Lack of Safety Knowledge

C. Management Carelessness D. Careless worker attitudes

E. Carelessness of the Consulting

F .Others……

8) The major reasons of accident on site are that the management is short of:

A. Lack employs of Safety Officer

B. Lack of Safety policy C. Lack of Safety Training

D. Lack of Safety Motivation E. The cost of Safety

F .Others……

9) The major reasons of accident on the site are that the workers are short of:

A. Lack of training B. Lack of experience in using equipment

C. Lack of safety culture D. Lack of safety Motivation

E .Others…….

10) In your opinion, who should be responsible for the accidents occur during construction on site?

A. Workers B. Government C. Contractors D. Owners Consultant

E .Others…….

11) Is there a governmental organization follow up and contribute in improving safety in the Construction projects?

A. Yes B. No

C. If yes, who is this? And how it works? …….

12) What is your suggested expense in safety management in the terms of contract cost in construction projects?

A. < 0.5% B. 0.5-1% C. 1-2% D. 2-3% E. >3%

Part two:- Organizational, Technical, procedural and environmental factors

Use "√" for Yes or No" on the space provided and **choose the reasons listed below for each questions if your answer is "No"** it is possible to choose more than one answer.

- **Possible reasons for answer "No**

A) Lack of awareness by all parties in the industries

B) Budget constraint

C) Upper level management and commitment problem

D) There is no enforcement law in the contract agreement with the client /No contractual obligation

E) No company Health & Safety policy in the firm

F) Lack of skilled personnel

G) There is no standard in the code of practice

H) Lack of H&S policy implementation on projects

Note: - you will get the Acronyms COP and COA below in the questions. Their meaning is defined below.

- **Cost of Prevention (COP):-** means cost incurring to administering a Health & Safety program.
- **Cost of Accident (COA):-** means cost the treatment of the injury and any unique compensation. Offered to workers as a consequence of being injured and are covered by workmen's compensation insurance premiums and includes all incurred costs.

Item no	Description	Yes	No	Choice
	13) Appointment of Health & Safety staff			
01	Do your construction projects/sites have a Safety Officer?			
	14) Project planning of Health & Safety			
01	Does your project have cost of Prevention COP			
02	Does your project have cost of Accident COA			
03	Does your project have a site-specific Health &Safety plan?			
04	Does the Layout of the site consider Health & Safety aspects? (During constructing site offices, access roads, temporary structures while constructing the project)			
05	During construction period of your project does Health & Safety aspect reviewed periodically or frequently?			
	15) Health &Safety policy			
01	Does your construction firm have Health & Safety policy?			
02	Does your construction firm have a written in house Health & Safety rules & regulations and implementation for all workers reflecting management concerns for safety and health?			
03	Does your firm coordinate its Health &Safety policies with other human resource policies to ensure wellbeing of workers?			
	16) Formal and informal written Communication			
01	Does your firm provide awareness with written information about Health & Safety procedures?			
02	Does your firm prepare written circular / brochure or orientation that to make workers aware of the risks in their work and preventive measures to reduce those risks?			
	17) Upper management commitment & involvement in Health & safety			
01	Do Managers encourage and support worker participation, commitment and Involvement in Health &Safety activities?			
02	Do Managers encourage and support training of employees in Health &Safety?			

03	Do Managers actively monitor the Health &Safety performance of their projects and workers through reports?			
04	Do Managers ensure that the Health & Safety budget is adequate?			
	18) Health &Safety resources			
01	Is there adequate first aid and first aider(s) on your construction projects/sites			
02	Does your firm Provide personal protective equipment (PPE)?			
03	Does your firm provide right tools, equipment and plant to execute construction?			
04	Does your firm Provide good welfare facilities such as showers, canteens, toilets?			
05	Does Material schedule data sheets provided for all hazardous materials on site?			
	15) Training in Health &Safety			
01	Do Workers undergo induction on Health &Safety before commencing work on a particular site?			
02	Do Workers are regularly trained in Health & Safety?			
03	Do Workers trained in proper care & use of personal protective equipment?			
04	Instruction manuals or safe work procedures are used to aid in preventive action?			
	19) Project supervision			
01	Do Proper supervision by staff trained in Health & Safety carried out on your project?			
02	Does specific Health & Safety inspections done regularly?			
03	Do Local authorities and Health &Safety enforcement agencies visit sites for inspection?			
	20) Accident, fatal Reporting			
01	Are all injuries, fatalities filed & reported to the concerned body?			
02	Is there a governmental organization follow up and contribute in improving safety in the Construction projects?			

Part Three

The Major Health &Safety areas to be considered during construction of building construction projects in Addis Ababa.

Frequency of causes of Injuries in construction sites Please Mark "√" on the space provided

Item no	Description	Frequency of injuries and fatalities			
		High	Medium	Low	Exceptional
01	Falling (Objects falling from a height)				
02	Falling Stairways and ladders				
03	Scaffolding (Falling from scaffolding during construction)				
04	Excavations (Slides, collapse, not shored protection…etc.)				
05	Electricity (Electric power Accidents)				
06	Construction Hoists &Elevators and Cranes & Derrick (sudden dismantling)				
07	Hazardous substances (careless /miss use)				
08	Noise				
09	Tools and Machinery (Drilling, Grinding, Bending…etc.)				
10	Fire（from electric, fuel, chemical etc.）				

Part Four

Factors that affect safety and health performance in the construction industry

Please Mark "√" on the space provided.

Item No	Description	Degree of impact				
		Very high	high	high average	Low	Very low
01	Complexity of the Design					
02	Type of Owner/attitude of owner/					
03	Weather Condition					

04	Project Cost					
05	Project Duration					
06	Contractual Specification of Safety health					
07	Safety and Health Policy					
08	Accidents / Incidents / Near Miss Report					
09	Fire prevention and control					
10	Risk Assessment					
11	Safety and Health Training					
12	Personal Protective Equipment (PPE					
13	Emergency Planning and Procedures					
14	Safety and Health Inspection					
15	Safety and Health Management Meeting					
16	First-Aid Provision					
17	Safety Signals, Signs and Barricades					
18	Work environment					
19	Reward and Punishment System (Incentives)					
20	Role of Government and Engineering Societies					

Part Five

In which construction phase does safety health management practice needs more focus or emphasis.

Rank them from 1-4 on the space provided.

Item No	**Construction Phases**	**Rank**
01	Excavation and Earth work	
02	Concrete Work(concrete , form work & rebar)	
03	Finishing Work	
04	Electrical Work	

What do you recommend to improve building construction project safety and health management practice of construction projects in Addis Ababa to make it accident free?

_____
_____
_____
_____
_____

THANK YOU!!!

APPENDIX B

YOTEK construction weekly HSE report format

Weekly HSE REPORT

Report Number: ----------Date: ----------

Week Start Date----------WeekEnding Date: ----------

1. Weekly Cumulative Safety Statistics

S/#	Title	This Week Figures		Cumulative
01	Safe Man Hours Worked			
02	Total Man Hours			
03	Man Hours Since LTI			
03	Man Power	Direct		
		In-Direct		
		Total		
04	Fatality Case (Fatal)			
05	Lost Workday Case (LWC)			
06	Restricted Workday Case (RWC)			
07	Medical Treatment Case (MTC)			
08	First Aid Case (FAC)			
09	Property Damage (PD)			
10	Near Miss (NM)			
11	Motor Vehicle Accident (MVA)			
12	Fire Incident (FI)			
13	Environmental Incident			
14	Total Number of First Aid Cases			
14	Total Number of Recordable Injuries			
15	Number of Lost Work Days			
16	Number of Restricted/ Job Transfer Days			
17	Total Number of Days Lost			
18	Total Recordable Incident Rate (TRIR)			
19	Lost Time Incident Rate (LTIR)			
20	Safe Man Days			

Note:

2. Narration of Incident/Accident and Near Miss Reported This Week

Events

3. Other HSE Activities

Description	This Week	Cumulative
Safety Walkthrough		
Safety Audits		

Safety Highlights

- **INSERT WEEKLY HIGH POINTS**

4. Observations and Findings (Current Week)

Sr. No	Contractor/Subcontractor Name	Observations		Remarks
		Pending	Closed	
1.				
2.				
3.				
4.				
5.				
6.				
TOTAL				

5. Toolbox Topics / Training Delivered

This Week	Cumulative

5.1 List of Toolbox Topics

	TOPIC	HOURS	PERSONNEL	TIME
1				

2				
3				
4				
5				
TOTAL				

5.2 List of Training Topics

	TOPIC	HOURS	PERSONNEL	TIME
1				
2				
3				
4				
	TOTAL			

Prepared By:----------

Approved By:----------

YOTEK construction monthly HSE performance report format

YOTEK CONSTRUCTION PLC	Monthly HSE Performance Report	**RELATED DOCUMENT**
	Last Reviewed: / Version: 01	

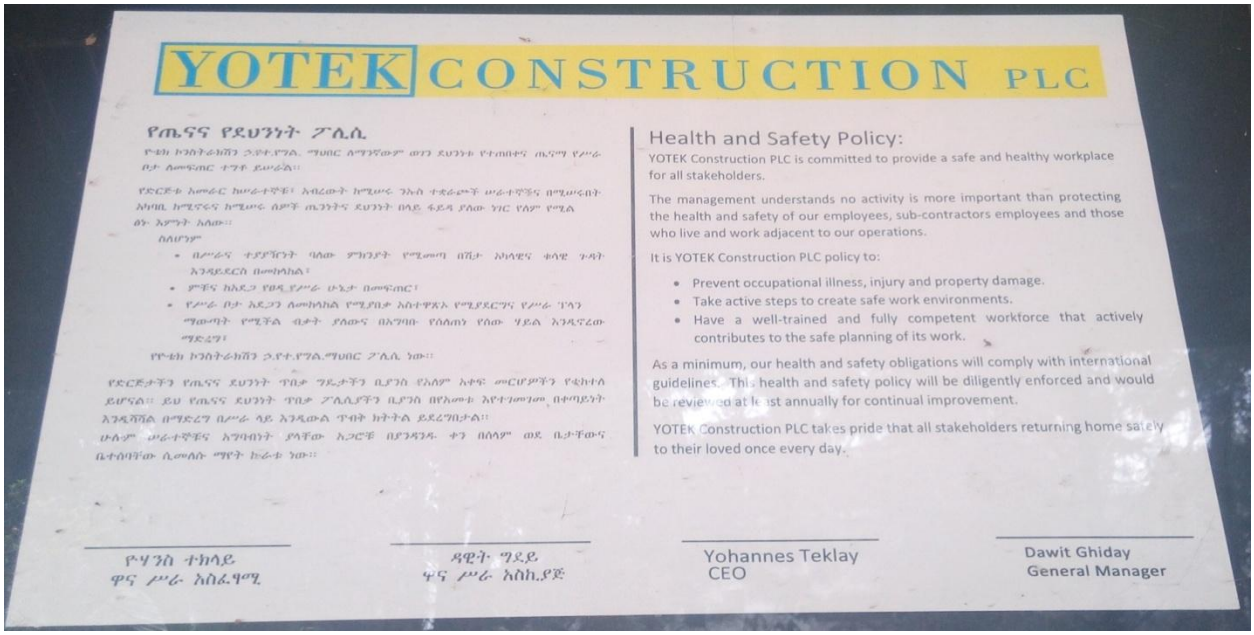
***** Mandatory reporting fields ***Month of:** **Year:**

***Business Area :**	☐Building ☐road ☐real state	
Operation / Project:		
***JV:**		
SUB-CONTRACTOR COMPANIES:		
Contacts:	Name	Contact Number
Project Manager		
Health & Safety		
Environment		
Owner's Representative:		

MONTHLY HS&E PERFORMANCE

LAGGING INDICATORS	Monthly Total	Year to Date	LEADING INDICATORS By Business	Monthly Total	Year to Date
*Near Misses (#)					
*First Aids (#)			Toolbox Talks		
*Medical Treatments (#)			Safety Meetings		
*Lost Time (#)			Orientations		
*Other Recordable			Inspections /		

(Restricted Work Case, Loss of Consciousness) (#)			Observations		
*Lost Work Days			Corrective Actions completed		
*Restricted / Modified Work Days			Property Damage		
*Vehicle Incidents			Other (Fire, Theft):		
*Environmental Incidents (#)			**Please attach or provide Incident date and details here:**		
*Hours Worked (Regular)					
Hours Worked (Overtime)					
***Total Exposure Hours**					
Total Recordable Injury Frequency					
REGULATORY ACTIONS OR INSPECTIONS					
*Did your company experience any regulatory actions OR			☐Yes ☐No If yes, provide regulatory agency		

APPENDIX C

Safety notice set on the entrance of construction project sites and safety police