



ST. MARY' S UNIVERSITY
SCHOOL OF GRADUATE STUDIES

PERFORMANCE ASSESSMENT OF PUBLIC CONSTRUCTION
PROJECTS IN ADDIS ABABA: THE CASE OF KOLFE KERANIYO
SUB-CITY CONSTRUCTION OFFICE

BY: Elizabeth Teshome Esheta

February, 2022
Addis Ababa, Ethiopia

PERFORMANCE ASSESSMENT OF PUBLIC CONSTRUCTION PROJECTS IN
ADDIS ABABA: THE CASE OF KOLFE KERANIYO SUB-CITY
CONSTRUCTION OFFICE

BY:

Elizabeth Teshome Esheta

A THESIS TO BE SUBMITTED TO THE DEPARTMENT OF PROJECT
MANAGEMENT AS A PARTIAL FULFILMENT OF THE REQUIREMENTS
FOR THE AWARD OF MASTER OF ARTS DEGREE IN PROJECT
MANAGEMENT

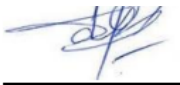
February, 2022
Addis Ababa, Ethiopia

ST. MARY'S UNIVERSITY
SCHOOL OF GRADUATE STUDIES
FACULTY OF BUSINESS
PERFORMANCE ASSESSMENT OF PUBLIC CONSTRUCTION
PROJECTS IN ADDIS ABABA: IN THE CASE OF KOLFE
KERANIO SUB-CITY CONSTRUCTION OFFICE

BY:

ELIZABETH TESHOME ESHETA

APPROVED BY THE COMMITTEE OF EXAMINERS

_____ Dean, Graduate Studies	_____ Signature	
<u>Dereje Teklemariam (PhD)</u> Advisor	 Signature	<u>June 13/2022</u> Date
Berihan Muche (PhD)	_____	_____
External Examiner	Signature	Date
Misganaw Solomon	_____	_____
Internal Examiner	Signature	Date

DECLARATION

I hereby declare that this thesis report entitled “ PERFORMANCE ASSESSMENT OF PUBLIC CONSTRUCTION PROJECTS IN ADDIS ABABA: THE CASE OF KOLFE KERANIYO SUB-CITY CONSTRUCTION OFFICE” is submitted by me to the Department of Project Management, Faculty of Business and Economics, St. Mary's University. It is a confidential work undertaken by me and it is not submitted to any other University or Institution for the award of any degree diploma, certificate or published any time before.

Elizabeth Teshome Esheta

St. Mary's University, Addis Ababa

Signature

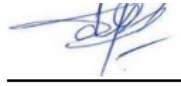
Date

LETTER OF CERTIFICATION

This is to certify that Elizabeth Teshome has carried out this project work on the topic performance assessment of public construction projects in Addis Ababa: the case of Kolfe Keraniyo sub-city construction office under my supervision. This work is original and suitable for the submission in partial fulfillment of the requirement for the award of Master of Arts degree in project management.

Dereje Teklemariam (PhD)

Advisor



Signature

June 13/2022

Date

Table of Contents

DECLARATION	iii
LETTER OF CERTIFICATION	iv
ACKNOWLEDGMENT	viii
ACRONYM	ix
ABSTRACT	x
CHAPTER ONE	1
1. INTRODUCTION	1
1.1. Background of the Study	1
1.2. Statement of the problem	3
1.3. Research Question	5
1.4. Objective of the Study	6
1.4.1. General Objective	6
1.4.2. Specific Objective	6
1.5. Significance of the Study	6
1.6. Scope of the Study	7
1.7. limitation of the Study	7
1.8. Ethical Standards and Procedures	7
1.9. Organization of the Study	8
CHAPTER TWO	9
2. REVIEW OF RELATED LITERATURE	9
2.1. Definition and concept	9
2.2. Theoretical Review	10
2.2.1. Classification of construction projects	10
2.2.2. Phases of construction projects	11
2.2.3. Construction Projects and Performance	11
2.2.4. Construction project performance measurement models	12
2.2.5. Performance Measurement Theory	12
2.2.6. Measurement of Project Performance	14
2.2.7. Factors of Cost and Time Performance	15
2.2.8. Factors of Quality Performance	16
2.3. Empirical Review	17
2.4. Research Gaps	19

2.5. Conceptual Framework.....	21
CHAPTER THREE.....	22
3. RESEARCH METHODOLOGY	22
3.1. Introduction.....	22
3.2. Research Design and Approach.....	22
3.3. Data Type.....	23
3.4. Data sources.....	23
3.5. Target population and Sample.....	24
3.5.1. Target population.....	24
3.5.2. Sampling size determination	24
3.5.3. Sampling technique.....	25
3.6. Data collection methods and tools	25
3.7. Data Analysis and Presentation	26
CHAPTER FOUR.....	28
4. RESULTS AND ANALYSIS.....	28
4.1. Introduction.....	28
4.2. Demography of the participants	28
4.3. The cost factor performance of public construction project.....	33
4.4. The Time factor on performance of public construction project	37
4.5. The quality factor performance of public construction project	44
4.6. The performance of public construction project.....	46
4.7. Main challenges and gaps the performance of public construction projects.....	47
CHAPTER FIVE	50
5. SUMMERY, CONCLUSION AND RECOMMENDATION	50
5.1. Summery	50
5.2. Conclusion	52
5.3. Recommendations	54
5.3.1. Recommendation for Owner	54
5.3.2. Recommendation for Contractors	56
5.3.3. Recommendation for Consultant.....	56
APPENDIX I	63
List of table	page
Table 4.1. Sex of respondent.....	30

Table 4.2. Type of organization _____	32
Table 4.3. The respondent of work experience with public construction project_____	33
Table 4.4. The respondent of work position with public construction project_____	34
Table 4.5. The respondent of number of project with public construction project_____	35
Table 4.6. The cost factor of project with public construction project_____	38
Table 4.7. The time factor of project with public construction project_____	43
Table 4.8. The quality factor of project with public construction project_____	46
Table 4.9. The overall factor of project with public construction project_____	48

List of figure	page
Figure 2.1: Conceptual framework of the study_____	21
Figure 4.1. Sex of respondent _____	31
Figure 4.2. Type of organization _____	31

ACKNOWLEDGMENT

First of all I would like to thank Almighty God who has graciously blessed me all my life and given me the strength and resolve to complete this work. Nothing would have been possible without Him. I would then like to express my heartfelt gratitude to my advisor Dr. Dereje Teklemariam (Associate Professor.) for his continual support, patience, guidance and supervision throughout this journey. I am grateful for his generosity in sharing his expertise and his mentorship throughout and beyond the semesters I spent as his student.

Especially, thanks goes to project management department and St. Marry University whose collaborative efforts have made this Master' s program possible.

I would also like to thank all the people (contractor and consultant staff) and Kolfe Keraniyo Sub-city construction office staff that have kindly opened their doors and accepted me and filled my questionnaires for this research work. They are too numerous to name. I want to appreciate them all for their cooperation and their time. Finally I would like to express my eternal gratitude to my beloved family.

ACRONYM

GDP	Gross Domestic Product
ILO	International Labor Organization
KPIs	Key Performance Indicators
PM	Project Management
PMI	Project Management Institute
RII	Relative Important Index method
SPM	Stakeholder Perspective Measurement
UK	United Kingdom

ABSTRACT

Construction industry is complex in nature because it contains large number of project parties as clients, consultants, contractors, shareholders and regulators. Construction projects investigated in this study include administrative buildings, school buildings, medical centers, communication facilities and shades. The general objective of this study is to performance assessment of public construction projects in Kolfe keraniyo sub-city construction office. The results were analyzed, discussed to obtain the most performance indicators. The relative importance index method (RII) was used here to determine cost, time and quality factor of the relative importance of the key performance indicators. Cost factor, quality factor, and time factor were considered the first, second and third respectively with RII has effect on public construction of public construction projects. Quality is an essential component and one of major factor for public construction project while lack of quality assurance training and follow up have contributed to the public construction project. Time is one of major factor for public construction project while contractor is factor of project and all these factor are affect time performance cause RII is above financial problems, subcontractor, site management, construction methods, improper planning, mistakes during construction, Inadequate contractor experience, Shortage of material, labor supply problem and labor productivity, consultant absence of consultant' s site staff, lack of experience on the part of the consultant, contract management problem and quality assurance. The cost factor of the performance public construction project while fluctuations in the cost of materials, project materials monopoly by some suppliers and design changes. To carry out the project activities of a public construction project, the government should prioritize the selection of capable consultants and dependable contractors. Clients are recommended to consider appropriate inflation factor during cost estimation process. Contractors should be very strong in bidding for the project so that they estimate the exact cost rather than low cost in order to win the bid, collect the advance payment, and then disappear. Consultants are recommended to hire qualified technical personnel to manage and improve the projects achievement timely with its cost and quality.

Key words; public construction project, RII, time, quality, cost and performance

CHAPTER ONE

1. INTRODUCTION

1.1. Background of the Study

The construction business as a whole could be a multibillion-dollar industry that is nearly always growing in size and complexity of innovation. The construction industry is complicated by the number of extend parties involved, such as clients, consultants, contractors, stockholders, and regulators. Because of the industry's complexity and fragmentation, as well as its extremely informal work environment, it's risky to rely on client, consultant, and contractor performance alone. The development division of the economy may be a crucial division that has a significant impact on the proficiency and efficiency of other industry segments. Within the development process, the rate of development activity outpaces the population and GDP growth rates. (Chitkara, 2004; pp 35-44)

The construction business as a whole could be a multibillion-dollar industry that is nearly always growing in size and complexity of innovation. The construction industry is complicated by the number of extend parties involved, such as clients, consultants, contractors, stockholders, and regulators. Because of the industry's complexity and fragmentation, as well as its extremely informal work environment, it's risky to rely on contract, consultant, and contractor performance alone. The development division of the economy may be a crucial division that has a significant impact on the proficiency and efficiency of other industry segments. Within the development process, the rate of development activity outpaces the population and GDP growth rates.

In terms of their contribution to Gross Domestic Product (GDP), business era, and provision of a significant showcase for materials and commodities produced by other sectors of the economy, public sector building projects play a critical role in the development of economies in developing nations (ILO, 2001). According to Khan (2008), there is a direct link between construction activity, economic growth, and development. According to a survey, global infrastructure construction spending was \$4.7 trillion in 2007, \$7.2 trillion in 2010, and is anticipated to reach \$12 trillion in 2020 (Global construction 2020, 2010). The public construction industry accounts for a large part of this spending.

Studies were carried out to examine the elements that influence project performance in developing nations. Construction delays are caused by a lack of worker skills, poor supervision, poor location administration, ineffective leadership, and equipment shortages and breakdowns, among other factors. (Faridi and El-Sayegh, 2006: pp. 1167-1176)

According to Ajayi et al. (2010; pp 529-536), the choice of contractor(s) is a critical factor for the project manager and typically has a significant impact on the success or failure of a project. The performance of a contractor would unquestionably be linked to the performance of the expert. Consider that the assessment of execution has been a challenge for the construction industry for decades. Analysts have proposed a few models and strategies for assessing venture execution. In any case, the majority of these strategies also limit their examination to measures such as cost, schedule, or labor efficiency. Construction execution considers client satisfaction, time performance, cost performance, construction quality, and long-term progress.

Ethiopia's construction sector comprises innate and indigenized firms, as well as various major foreign civil engineering and construction companies. Construction industry in Ethiopia endures from numerous issues and complex issues in execution. Performance is related to numerous subjects and components such as time, cost, quality, client satisfaction; productivity and safety.

Fetene (2008 ; pp 65-70) investigated the causes and effects of cost overruns on public building construction projects in Ethiopia; Siraw (2014; pp 40-42) investigated the variables contributing to time overruns on building construction projects under Addis Ababa city administration; and Tekalign (2014; pp 56-63) investigated the role of project planning on project performance in Ethiopia. Based on these considerations, there is a need for future studies to focus on the following areas: The effects of a construction project manager's abilities on project execution. Determine which construction project, public or private, has a higher performance level. It is also advised to create an execution estimation system and a modeling framework in plans to measure the performance of construction companies.

The effects of a construction project manager's skills on project execution. Determine which of the public and private construction projects has a higher performance level. It is also recommended to create an execution estimation system and a modeling framework in plans to measure the performance of construction organizations and projects. Furthermore, it is suggested that the most important factors influencing the performance of construction projects be studied and evaluated. Therefore, this research investigated tried to find out mainly the performance of assessment public construction projects in Kolfe keraniyo sub-city construction office.

1.2. Statement of the problem

The purpose of public-sector construction projects is to provide services to the general population for a low cost. These construction projects in many developing countries include those that aim to provide critical educational offices, health care facilities, business chances, and employment opportunities, among other things. To enable the community to realize the rewards of the above projects, they must be evaluated on all relevant aspects, including economic, social, and environmental ones. However, as previously stated, these projects have largely been evaluated on the basis of traditional performance assessment criteria such as time, cost, and quality, all of which are considered relevant for commercial projects.

Since completion on time, within budget, and with demand quality has been widely acknowledged as the three main objectives of project success, construction projects commonly confront problems of poor performance in terms of time delays, cost overruns, and a lack of quality. Time, cost, and quality were recognized as important markers of poor project success by Meng (2011). Traditional project performance, which measures cost, quality, and time; and non-traditional project performance, which measures health and safety, the environment, management, worker skills, industrial relations, and facilities, according to Rwelamina and Savile (1994).

As previously noted, any construction project has risk, and the consequences can be devastating in a developing country like Ethiopia. According to Hillson D. (2009, pp 417-422), the most critical thing that a project can do is ensure that the unavoidable risk associated with each stretch is at a level that is acceptable to the organization and is properly managed. This statement implies that different organizations accept varying levels of risk, and Ethiopia as a nation or the organizations involved in building may, in a sense, bear to accept low levels of risk due to their little capital. This suggests examining a variety of factors, particularly those

that are burdensome in developing countries, in order to control cost, time, and quality issues that influence the Project performance.

Wubishet (2017; pp 64-68) has conducted a survey and case study on Causes of Cost Overrun in Federal Road Projects of Ethiopia in Case of Southern District. The study has identified six top rated factors for a project cost overrun and these were material price fluctuation, cost underestimation, delay in supply of raw materials, inadequate review of contract documents, lack of coordination at the design phase and lack of cost planning during pre- and post-contract stage have the highest impacts on the performance of project costs from the client's, consultants' and contractors' perspective.

Siraw (2014; pp 40-42) did studied the analysis of factors contributing to time overruns on building construction projects under Addis Ababa city Administration; Fetene (2008; pp 65-70) examined the causes and impacts of cost overrun on public building construction projects in Ethiopia. In the acting construction a project comprises from several processes starting from initiation to completion, it passes a few activities in each significant stage to achieve the project goals.

Only 2.5 percent of projects are described as successful (scope, cost, schedule, and business) (Rivera, 2016; pp 21-16), when it was found that cost overruns were documented in the United States and the United Kingdom, with an average of 27 percent over the provided starting cost from 2006 to 2016. This cost overrun, according to the author, might be happening all across the world. This is concerning because, if this is the situation of the global construction sector, it indicates a high level of inefficiency. If this is the case, it is vital to determine why this is occurring and what the causes are. By doing so, a solution to the industry's cost overrun can be found, making the industry more competitive.

In Ethiopia construction project performance problems appears through different directions. Due to several reasons construction projects in Addis Ababa public projects challenges in their performance instead of achieving their planned goals. In the construction industry, consultants are usually approached and commissioned by clients to provide services relating to the conceptualization, planning as well as the execution of the construction projects. (Mohammad et al., 2014; pp175-186.)

The current situation of Ethiopia's construction industry falls short of satisfying domestic and international quality requirements, as well as the sector's performance expectations (MoWUD, 2006). Construction projects have challenges in terms of construction techniques and management, as well as budget and time constraints. The major problems are inability to execute the projects on schedule, low quality work and cost overrun. During the execution phase of most (if not all) construction projects, schedule and cost overruns occur often. Morris et al. (1998; pp 132-154) examined the data of over 4,000 construction projects and discovered that projects were rarely completed on schedule or within the budget. Time and expense overruns are widespread in the construction industry, according to other researchers. It has also become very common to observe construction projects going over budget, low quality and extended period. One major problem for this is delay incomplete drawing.

The study was provide insight and understanding into assess the performance of public project the main project players: clients, contractors and consultants. It is expected that findings from this study was guide efforts to improve the performance of public construction project in addition to providing better ways and methods of delivering construction projects. Construction projects investigated in this study include administrative buildings, school buildings, medical centers, communication facilities and shades to performance of assess factor of public construction project in Kolfe keraniyo sub-city construction office.

1.3. Research Question

The study was guided by the following key research questions:

- **What are factors the performance of public construction projects in terms cost?**
- **What are factors the performance of public construction projects in terms time?**
- **What are factors the performance of public construction projects in terms quality?**
- **What are the main challenges and gaps observed the performance of public construction projects resides in Kolfe Keraniyo sub-city construction office?**

1.4. Objective of the Study

1.4.1. General Objective

The general objective of this study is performance to assessment the factor of public construction projects in Kolfe keraniyo sub-city construction office.

1.4.2. Specific Objective

The study specifically aims to:

- **To determine factors the performance of public construction projects in terms of cost.**
- **To examine factors the performance of public construction projects in terms of time.**
- **To identify the factors the performance of public construction projects in terms quality.**
- **Identify the main challenges and gaps observed the performance of public construction projects resides in Kolfe Keraniyo sub-city construction office**

1.5. Significance of the Study

Construction projects in the Kolfe Keraniyo sub-city construction office suffer from many problems and complex issues in performance of public construction because of many reasons and factors. This work is very important to identify and to evaluate the time, cost, quality and the performance of public construction projects in the Kolfe Keraniyo sub-city construction office. The practices concerning with the KPIs such as time, cost and quality as were analyzed in order to know the main practical problems of projects performance regarding factors public construction project in Kolfe Keraniyo sub-city construction office and then to formulate recommendations to improve performance of public construction projects. This study is significant to professionals, decision makers, policy designers and practitioners to look for the best performance, methods and process of doing and managing public construction projects and to use and coordinate human, material and other resources efficiently and effectively. It also helps to review existing policies, regulations, and manuals to create conducive environment for effective and efficient managing for project objectives. Based on the findings, it differentiates the best performance of the public construction project.

1.6. Scope of the Study

This study focuses on performance assessment of public construction projects Sub-city to satisfaction of client projects and the study was cover performance of public construction project during the year 01/11/2010-29/08/2013 E.C. The researcher used descriptive research design and mixed research method and descriptive statistics RII, frequency, percent and graph analysis. Questionnaire and document review was used for the study. Public construction projects reside in Kolfe Keraniyo sub-city construction office is considered for the study. This study is limited to Addis Ababa specifically Kolfe keraniyo sub-city construction office. And covers whose work only participates on public projects under in the sub-city level.

1.7. limitation of the Study

In this study two major constraints which influence the efficient accomplishment of the intended objective of the study; no doubt that the realization of the objective of the study is hinge on the quality as well as availability of adequate data about the foundation for public construction project in the study area, but there would be not organized data available as the study requires from all a stakeholder. Because most of the propose respondents for the study may full of activity and they could not in a position to fill the questionnaires as it necessitate. This study doesn' t focus on the consequence of project and limited to Kolfe Keraniyo sub-city construction office.

1.8. Ethical Standards and Procedures

The researcher was sustaining scientific objectivity throughout the study, recognizing the limitations of study competence. Although this research was consisting of the analysis and review of scholarly literature, such as books and journal articles, every respondent were involve in the study is be entitled to the right of privacy and dignity of treatment, and no personal harm is cause to subjects in the research. Information obtained is said in strict confidentiality by the researcher. All assistance, collaboration of others and sources from which information was drawn will acknowledge. The following ethical considerations would be at the base these research are Fairness, openness of intents, discloser of methods, respect or the integrity of individuals, inform the willingness of on the part of the subjects to the participants who were the research activity.

1.9. Organization of the Study

This study work is organized in the first chapter presents introduction of the study and presents the statement of the problem, research objectives, scope, limitation and significance of the study. The second Chapter is contains Literature Review chapter reviews literature related with the topic of the research and attempts to present a theoretical background and framework for the research. Performance of Construction project in Addis Ababa: A Study of Current Practices. Third Chapter contains Methodology chapter explains the approaches and methods followed to achieve research objectives. It presents the how implement to collect as well as analyze and present results. Chapter four contain result and discussion, chapter five summary, conclusion and recommendation and the last page will reference and appendix.

CHAPTER TWO

2. REVIEW OF RELATED LITERATURE

2.1. Definition and concept

The construction business faces a significant issue: project performance. Project deliverables such as on-time completion and client satisfaction are frequently utilized as success indicators. A construction project, according to Kerzner (2006; pp 75-78), is a complicated set of actions and tasks with a defined start and end date that consumes resources such as budget, human resources, outputs, and equipment in order to achieve certain goals. A project is temporary, according to the Advance Project Management Institute (PMI, 2008), because it has a stated start and end date, as well as a defined scope and resources. It's also distinctive in that it's not a typical procedure. Construction is defined as the process of combining materials, equipment, and machines into a permanent structure. It is broadly defined to include the construction of physical infrastructure (roads, trains, and harbors), as well as all construction work (including housing) and the maintenance and repair of existing structures. To distinguish between them, construction projects have been categorized in a variety of ways.

Cost overrun: This is the amount by which the actual expenditure exceeds the budgeted cost of the project. It can also be referred to as cost escalation.

Cost Performance: This is a comparison between actual expenditure and budgeted cost.

Key performance indicators: Metrics upon which performance is measured.

Project Performance: This is the extent to which a project achieves the intended objectives on prescribed metrics. In this study project performance is expressed in terms of time, cost, quality, safety, site disputes and environmental impact.

Quality performance: During project inception, certain technical and quality specifications are prescribed for a project. The extent to which a project adheres to the specifications indicates the level of its quality performance.

Time Performance: The degree to which a project achieves its time targets and is measured on the basis of scheduled time and the actual time taken by the project. Advance Project Management Institute (PMI, 2008)

2.2. Theoretical Review

2.2.1. Classification of construction projects

Most developing countries' construction projects can be divided into several groups based on their complexity, scope, and intended use. Despite the fact that all projects have unambiguous characteristics such as an objective, budget, and time allotment, Shenhar (2001; pp 394-414) contends that they differ in a few areas, implying that "one size does not fit all." In this way, construction projects can be defined as small, medium, big or mega; private or public ownership; use as residential, commercial, industrial, or utility; and scope as building or infrastructure projects. Project scope, among these classification criteria, provides a far better classification of public construction projects.

As a result, a project is classified as a building or an infrastructural project based on its scope. Engineering industries, highways, large structures, and bridges are examples of infrastructure projects (Grace, 2010 pp 21-14). A construction project is classed as either residential or non-residential based on its intended function. Houses, townhouses, apartments, and cottages are among the residential construction projects. Institutional and commercial buildings, such as hospitals and clinics, schools and universities, sports facilities and stadiums, large shopping centers and retail chain stores, light manufacturing plants and warehouses, and skyscrapers for offices and hotels, are all examples of non-residential buildings. Private building construction is perhaps the most common type of construction project undertaken in developing countries, notably by the private sector, due to its widespread use.

The necessary and major public construction sectors of institutional construction for a country's development to satisfy its people's diverse demands. Although there are a large number of public construction infrastructural projects, they only make up a small part of the overall construction sector; they are a very essential element of it. Though such projects might be either institutional or commercial, the majority of public sector construction projects are for institutions such as schools, hospitals, industrial estates, and agricultural markets. Regardless of classification, every project goes through a series of stages known as phases of construction projects (Kerzner, 2006; PMI, 2008), that are sequentially related.

2.2.2. Phases of construction projects

Undertaken of a number of phases of construction building projects, each of which may be a designated group of activities that regularly result in a milestone. A number of researchers have described project phases in terms of conception, planning, procurement, construction, and start-up (Kerzner, 2006; pp 75-78). Others have simplified it into three stages: conception, design, and construction (Puspasari, 2006; pp 19-23).

PMI (2008) stated that there are four phases to a project namely (1) conception, (2) development, (3) implementation and (4) termination. These phases capture all the activities that take place in construction projects. The four different stages could also be termed as (1) Project conception and planning, (2) Project design and tendering, (3) Project construction and (4) Project operation and maintenance. This nomenclature better reflects the activities carried out during the four phases of construction projects.

2.2.3. Construction Projects and Performance

The success of a construction project is largely determined by how well it performs. Several previous studies looked into the performance of construction projects. According to Dissanayaka and Kumaraswamy (1999; pp. 31-42), one of the guiding causes for the construction industry's poor execution is the inappropriateness of the chosen acquisition framework. The work achievement structure, criticism influences on efficiency and work quality, and impacts from upstream to downstream phases are all cited by Reichelt and Lyneis (1999; pp. 135-150) as three dominating structures that are fundamental to the energetic of a project performance.

Financial stability, progress of work, quality standard, health and safety, resources, relationship with clients, relationship with consultants, management capabilities, claim and contractual disputes, relationship with subcontractors, reputation, and amount of subcontracting are among the main performance criteria of construction projects, according to Thomas (2002; pp. 339-349). Construction time is becoming increasingly important, according to Chan and Kumaraswamy (2002; pp 569-578), because it frequently acts as a critical metric for evaluating project performance and project management proficiency.

While project administration is one of the many variables on which project performance is unexpected, according to Pheng and Chuan (2006; PP 24-37), it is also arguably the most important as persons creating the forms and structures that supply the projects. According to Ugwu and Haupt (2007), an adequate understanding and knowledge of performance are desirable for achieving managerial goals such as improving institutional transformations and making efficient design, specification, and construction decisions at various project-level interfaces using appropriate Decision support tools. Ling et al. (2007; pp 20-22) investigated how Singaporean development enterprises responded to project management (PM) approaches. This project management team determined the performance level of their projects in China, identified PM strategies that led to improved results, and recommended essential PM practices.

2.2.4. Construction project performance measurement models

The key requirements of suitable performance measures and measurement frameworks are identified as having a few but relevant measures, being linked to critical project objectives, providing accurate information, and including financial and non-financial measures (Ankrah & Proverbs, 2005; pp 959– 69). There are numerous performance indicators that can be used to assess the success of a construction project. All of them focus on three key areas of performance: scope, schedule and budget (Alvarado, et al, 2005; pp 92– 105). Akintoye and Takim (2002; pp 545-55) identified seven project performance indicators: construction cost, construction time, cost predictability, time predictability, defects, client satisfaction with the product and client satisfaction with the service, and three company performance indicators specifically, safety, profitability and productivity.

2.2.5. Performance Measurement Theory

The Proposition of Performance develops and connects six underlying generalities to form a framework that can be utilized to explain performance and progress (Don, 2010; pp 132-139). Developing performance is a journey and position of performance refers to where you are on the journey. Environment, position of knowledge, situations of chops, position of identity, unique factors and fixed factors all play a role in current performance. For effective performance enhancements three axioms are presented.

These include a performer's mentality, inundation in an improving environment and engagement in intelligent practice. Performance progressing through levels where the names "Level 1," "Level 2," etc. are utilized to characterize adequacy of performance. That's an individual or organization at Level 3 is performing superior than an individual or organization at Level 2. Performing at a better level produces comes about that can be classified into categories: (i) quality increments; comes about or items are more compelling in assembly or surpassing the desires of partners; sum of squander goes down, (ii) capability increments; capacity to handle more challenging exhibitions or project increments, (iii) capacity increments; capacity to create more throughput increments, knowledge increases, depth and breadth of knowledge increases, (v) skills increase; abilities to set goals persist, maintain a positive outlook, etc. increase in breadth of application and in effectiveness and (vi) identity and motivation increases; individuals develop more sense of who they are as professionals; organizations develop their essences

The UK construction industry's reaction to Egan's study (Construction Industry Task Force, 1998) to measure project performances based on ten selected factors is Key Performance Indicators (KPIs). Seven project performance indicators (construction cost, construction time, cost predictability (design and construction), time predictability (design and construction), defects, client satisfaction with the product, and client satisfaction with the service) are included, as well as three company performance indicators (safety, profitability, and productivity). The overall concepts of this approach are simple to understand and implement by clients, designers, consultants, contractors, sub-contractors, and suppliers. The KPIs are not segregated along project phases, which is one flaw in the methodology. As cited in (Board, 1998) (Mbugua et al., 1999; pp 185-192).

Cordero (1990; pp 43-44) used performance measurement to determine the method and area of measurement. The three performances are based on the methods of measuring performance: technical performance, commercial performance, and overall performance. Measuring areas include planning and design, marketing, and manufacturing, among others, and overall performance is measured at the firm or strategic business unit level. Furthermore, the proposes a performance measurement model in terms of outputs and resources to be measured at various levels. Outputs are measured to see if they help achieve objectives (effectiveness), and resources are measured to see if the least amount of resources is used in the production of outputs (efficiency).

However, in his model, Cordero (1990; pp 43-44) failed to reflect the welfares of stakeholders, their needs and expectations. The construction organizations are to remain competitive in the unless, long run, they need to develop and better understand their relations with their customers, suppliers, employees, lenders and the wider community, as suggested by Love et al., (2000; pp 425-36). Hence, performance measurement has to incorporate the interest of the stakeholders, both economically and morally.

Furthermore, Cherish et al., (2000; pp 13-14) propose a demonstration known as stakeholder perspective measurement (SPM) that adequately considers relationships with customers, suppliers, employees, financiers, and the larger community. All of them are critical to a company's viability, both in the short and long term. SPM considers the firm's three common points of view: as a partner substance, reflecting the interest of clients and shareholders (measures of product/service performance); as a goal-oriented, benefit center (measures of monetary execution); and as a framework that locks in resources gathering, transformation, and trade with the environment (measures of competitive capacity, efficiency and quality).

2.2.6. Measurement of Project Performance

The purpose of performance assessment is to help companies understand how decision-making processes or practices contributed to past success or failure, and how this knowledge may lead to future improvements. According to Samson and Lema (2002;pp 56-60), the kind of work, global rivalry, quality grants, organizational role, external requests, and IT power are all features of growing performance estimation indicators that require examination of both the organization and the environment. The indicators should be able to detect root causes of problems, address all possible performance drivers, and indicate prospective improvement possibilities. And also Cheung et al (2004; pp 361-376) employed that Time, cost, quality, client satisfaction, client changes, company performance and safety and health are the seven essential critical markers for execution.

Those three disciplines, according to Tangen (2004; pp. 726-737), are economics, management and accounting. Performance measurement has sparked a lot of attention recently among academics and practitioners of performance measurement, which is a complicated problem that generally includes. Tangen (2004 pp. 726-737) found that the goal of the measurement, the amount of detail necessary, the time available for the

measurement, the availability of preset data, and finally the cost of measurement all influence the choice of an appropriate measuring approach.

In order to enhance productivity, Lehtonen (2001; pp 107-116) proposed a new framework for measuring construction logistics using two dimensions. There are two types of measures in the primary measurement (measuring use). One of these types is known as development measures, which assist the development industry in identifying flaws with present hones. Typically, these measurements are employed in development initiatives. Another type is monitoring measures, which are used to keep track of processes in real time. The emphasis of measures is the second feature of the framework. It specifies which metrics can be utilized at the organizational level. Information should be available at the company and project levels, as well as at the level of each individual supplier or subcontractor.

2.2.7. Factors of Cost and Time Performance

Chan and Kumaraswamy (2002; PP. 23-35) remarked that studies in various countries the three decades tried to limit and contributed significantly the knowledge of construction project time performance, while Iyer and Jha (2005; pp 283– 295) remarked that project performance in term of cost is studied since 1960s. These studies range from theoretical work based on experience of researcher on one end to structured research work on the other end. Moreover, Pheng and Chuan (2006; PP 24-37) stated that there have been many past studies on project performance according to cost and time factors. Fetene (2008; pp 65-70) found that the most common effects of cost overrun were delay, supplementary agreement, adversarial relations among stakeholders, and budget shortfall of project owners which guides efforts to improve the performance of the construction industry in the future.

Aje, Odusami and Ogunsemi (2009; pp.171– 187) identified that cost and time performance of building projects significantly affected by contractors' management capability. Wiguna and Scott (2005; pp 225-235) revealed the building contractors were similar both project time and cost affected by the critical risks. They were: high inflation/increased material price, design change by owner, defective design, weather conditions, delayed payments on contracts and defective construction work.

According to Iyer and Jha (2005; pp 283– 295), the following factors influence cost performance: project manager competence; higher administration support; project manager staffing and leadership skill; monitoring and feedback by members; take measure; coordination among venture members; owners' competence; social, temperate, and climatic conditions. Coordination among venture members was identified as the most critical of all the variables having the greatest impact on venture execution. Love et al. (2005; pp. 187-194) examined project time-cost execution relationships using extend scope components for 161 development projects completed in various Australian States. It is noted that net floor area and the number of floors in a building are important determinants of project time execution. Furthermore, the findings indicate

2.2.8. Factors of Quality Performance

Curt, (2005; pp 11-12) stated that the quality management system monitors and analyzes quality of the constructed project and predicts quality problems and issues. Typical quality measures include: (i) Quality control tests: number performed, frequency and percentage passed/failed, number of non-conformance issues, number of change requests and root causes, cost of rework, number of exceptions at turnover and cost of quality (ii) Quality Assurance Cost (cost of resources): quality assurance cost as a percentage of construction cost, cost of quality and Cost of quality as percentage of construction cost. Lepartobiko (2012; pp 29-34) stated that quality can be assured by identifying and eliminating the factors that cause poor project performance. Jha &Jha (2006; pp 915-925) found that the project manager' s competence and top management support are found to contribute significantly in enhancing the quality performance of a construction project. Lack of contractor experienced topped the quality related cause of project failure. Ling and Bui (2010;pp 148– 155) discovered that major enablers that lead to project success are foreign experts' involvement in the project, government officials inspecting the project and very close supervision when new construction techniques are employed. A factor which leads to poor performance is the lack of accurate data on soil, weather, and traffic conditions.

2.3. Empirical Review

Fetene, (2008; pp 65-70) did a deliberate on causes and effects of cost overrun on public building construction projects in Ethiopia. From the findings of the study public building construction projects suffered cost overrun about it was 67 out of 70 found that. The rate of cost overrun ranges from a least of 0% to the greatest of 126% of the contract sum for person projects. Iyer and Jha (2006 pp 14-15) did a research on factors affecting cost performance taken a cost execution evidence from Indian construction projects and found out that the significantly change enhance the quality of performance of a construction project by the project manager and top management of the Indian construction project.

Kim et al (2008, pp 54-59), the execution of international construction projects is influenced by more complex and energetic components than residential projects; the construction project frequently suffers or is seriously impacted by external uncertainty such as political, economic, Social, and cultural risks, as well as internal risks from within the project. Puspasari (2005, pp 17-22) identified 46 possible factors as being responsible for poor construction contract Performance. The researcher classified factors into eight categories: those caused by clients, those caused by contractors, those caused by consultants, those caused by subcontractors, those caused by material and labor, contractual relationship factors, project procedures, and those caused by the external environment.

Abdel-Razek et al (2007; PP. 189-197) founded the improving of construction labor productivity in Egypt by applying benchmarking for labor productivity performance. The eleven building projects in Egypt are labor productivity data was used from masonry activities, several measures of benchmarks of construction labor productivity were demonstrated, calculated, and then used to evaluate the productivity and identify the best and worst performing projects.

The ultimate success of the project is a critical issue in any consulting service (Wondie, 2016; pp 1885-1914). Consultants have distinct responsibilities that are critical to the success of a construction project. The duties and responsibilities of a construction consultant are extensive. These obligations are determined by the type of contract condition and project delivery method chosen. A consultant is essential in the completion of a construction project. It is difficult to imagine modern life without the contributions of consulting engineers to fields such as health, sanitation, transportation, public works,

buildings and communications. The profession necessitates a high level of engineering knowledge and ability (Abebe, 2003; cited by Nurham.G, 2018).

Bui et al., (2010;pp 136) discovered that foreign experts' involvement in the project, government officials inspecting the project, and very close supervision when new construction techniques are used are major enablers and leads for project success in Vietnam. Amusan and Adebile (2011) investigated the factors that influence construction cost performance on Nigerian construction sites. The analysis revealed that factors such as contractor inexperience, inadequate planning, inflation, incessant variation order and change in project design were critical to causing cost overruns, while project complexity, project period shortening, and fraudulent practices were also to blame.

According to Al-Momani (2000; pp. 643.651), the success of any project is determined by the service quality provided by contractors and the expectations of the project owner. Managing the construction so that all participants perceive equity of benefits is critical to project success. It is discovered that a complete lack of attention devoted to owner satisfaction contributes to poor performance. Poor performance is also caused by declining market share, low efficiency and productivity and rapid construction cost escalation.

Jin et al. (2006; pp 915-925) investigated the relationship-based variables that influence the performance of common Chinese building projects. Thirteen performance measures were used to assess the success of construction projects. These factors were divided into four categories: cost, schedule, and quality and relationship performance. It was suggested that foreign firms that have entered or plan to enter the Chinese construction industry learn how to build cooperative and harmonious relationships with Chinese partners and ultimately, achieve satisfactory project performance by taking into account the aforementioned variables.

In Malaysia, Wael A., et al. (2007; pp. 192-206) stated that using a survey, they identified the major causes of delays in construction projects in Malaysia. The primary goal is to identify the various parties' perceptions of the causes of delays, the allocation of responsibilities and the types of delays. As a result, the survey classified the causes/factors of delay into four categories based on responsibility: Contractor-related causes, Owner-related causes, Causes associated with the consultant, External factors were identified as causes and the top ten factors were identified. On top of the list of financial and economic difficulties (owner), on the second and third ranks, there are financial issues (contractor)

and late supervision and slow decision-making (consultants). Instructions are given slowly (consultants), a scarcity of materials on the market (external), and Inadequate site management (contractor), On-site material shortages (contractor), Errors in construction and poor workmanship (contractor), Delay in delivering materials to the job site (contractor), Decision-making Slowness (owners), Inexperienced consultants (consultants), Incomplete documents (consultants) are the factors identified from fourth to tenth place.

Wubishet et al (2017; pp 64-68) has conducted a survey and case study on Causes of Cost Overrun in Federal Road Projects of Ethiopia in Case of Southern District. The study has identified six top rated factors for a project cost overrun and these were material price fluctuation, cost underestimation, delay in supply of raw materials, inadequate review of contract documents, lack of coordination at the design phase and lack of cost planning during pre- and post- contract stage have the highest impacts on the performance of project costs from the client' s, consultants and contractors perspective.

Abubeker (2015; pp 48-54) stated the cost overrun problems in road projects in Addis Ababa by using questionnaire survey and desk study. This study identified all road construction projects filled in both time and cost performance. Therefore; the time delay rate in between 25% and 264.38% the contract amount and the cost overrun ranges in between 4.11% to 135.06% of the contract agreement.

2.4. Research Gaps

According to the literature review, one factor may affect another group factor, such as material shortages affecting cost, time, and quality performance, and project complexity affecting time and productivity performance. Dissanayaka and Kumaraswamy (1999), Iyer and Jha (2005), Ugwu and Haupt (2007), Cheung et al. (2004), Okuwoga (1998), Reichelt and Lyneis (1999), Le-Hoai et al (2008), Ankrah (2007), Takim and Akintoye (2007), Takim and Akintoye (2007), Takim and Akintoye (2007) (2002) and essentially from S. A. Shaban (2008), the following summarization is the main and group factors that affect the performance of construction projects based on literature reviews.

Cost Factors

- **Market share of organization**
- **Cash flow of project**
- **Profit rate of project**
- **Material and equipment cost**
- **Project labour cost**
- **Project overtime cost**
- **Cost of rework**
- **Cost of variation orders**
- **Waste rate of materials**
- **Escalation of material prices**
- **Differentiation of currency prices**
- **Incomplete drawing**

- ✓ **Too many change orders from owner**
- ✓ **Poor project management assistance**
- ✓ **Unforeseen ground conditions**
- ✓ **Low speed of decision making**
- ✓ **Project complexity**
- ✓ **Effective communication**
- ✓ **Financial constraints**
- ✓ **Average delay in claim approval**
- ✓ **Average delay in payments from owner to contractors**
- ✓ **Site preparation time**
- ✓ **Time needed to rectify defects**

Time Factors

Quality Factors

- ❖ **Conformance to specification**
- ❖ **Unavailability of competent staff**
- ❖ **Quality of equipment or machineries and raw materials**
- ❖ **Quality assessment system in organization**
- ❖ **Quality training or meeting**
- ❖ **Escalation of material prices**
- ❖ **Incomplete drawing**
- ❖ **Incomplete technical specification**

Fetene (2008; pp 65-70) investigated the causes and effects of cost overruns on public building construction projects in Ethiopia; Siraw (2014; pp 40-42) investigated the factors contributing to time overruns on building construction projects under the Addis Abeba City Administration; and Tekalign (2014; pp 56-63) investigated the role of project planning on project performance in Ethiopia.

Based on the findings of these studies on cost overruns in construction projects, there is a need for future research to focus on the following areas: The impact of a construction project manager's abilities on project performance. Determine which of the public and private construction projects has a higher performance level. It is also suggested that a performance measurement framework and modeling system be developed in order to measure the performance of construction organizations and

projects. Furthermore, it is suggested that the most important factors influencing the performance of construction projects be researched and evaluated.

2.5. Conceptual Framework

In citation of previous studies, little attention is being paid to construction performance in Ethiopia and generally on public construction implemented projects. Based on a literature review of the existing factors affecting performance of public construction projects, they can be grouped as project characteristics related factors, labor and material related factors, contractual relationship, clients' related factors and contractors' related factors. These categories form the basis by which research model developed to measure their effect on public construction performance of this study. It is graphically presented as shown below.

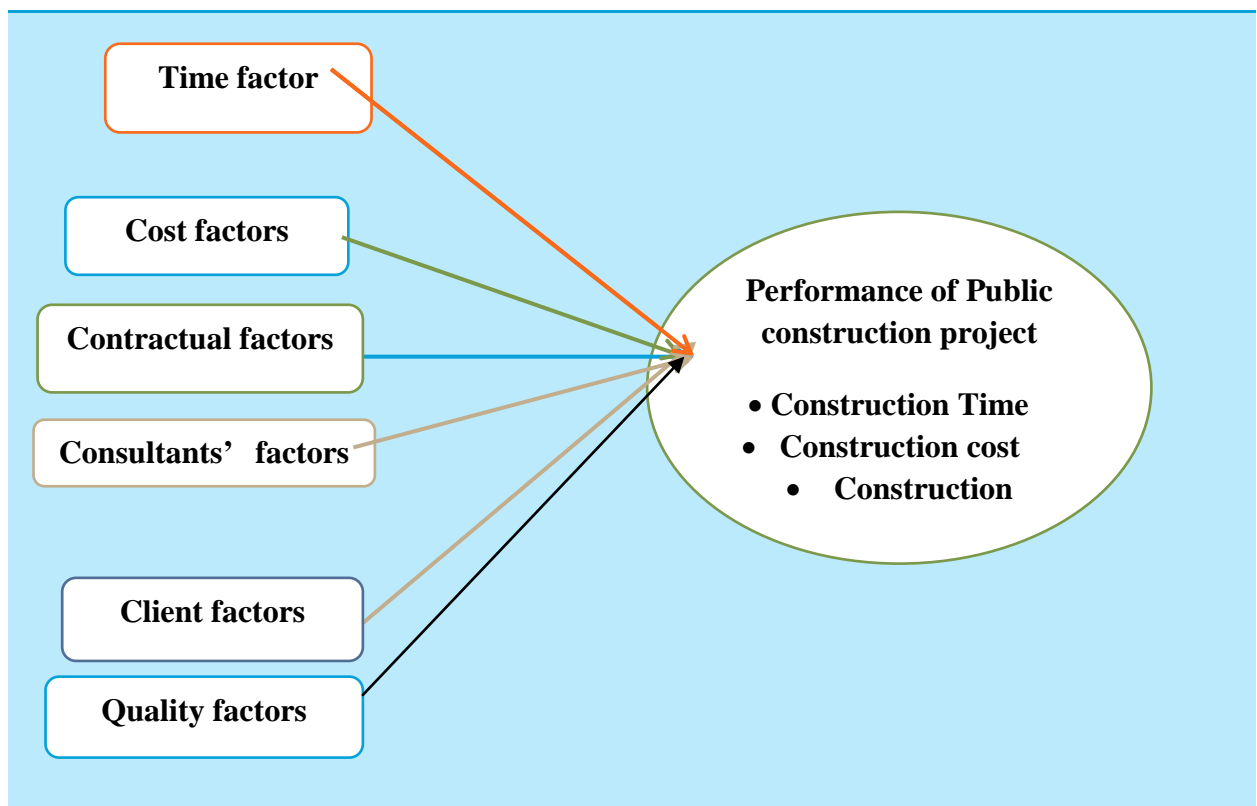


Figure 2.1. Conceptual Framework (Puspassari, 2005)

CHAPTER THREE

3. RESEARCH METHODOLOGY

3.1. Introduction

Research methodology is the step by step procedure used to determine a solution to a particular problem. The methodology adopted in this study provides the procedures that are necessary for obtaining the information needed to structure the research questionnaire, collect data, analyse the collected data, and interpret and present the results. The methodologies followed in this survey are outlined in the following sections.

3.2. Research Design and Approach

There are two basic approaches to research: quantitative and qualitative (Leedy and Ormrod, 2005). The former involves the generation of data in quantitative form which can be subjected to accurate quantitative analysis in a proper and rigorous manner and in the form of a data base from which to realize characteristics or relationships. In quantitative research, samples of a population are studied (observed or questioned) to establish its characteristics, in short, a quantitative approach attempts to produce “real answers” from “hard data”, whereas a qualitative approach is concerned with subjective evaluation of opinions, behaviour and attitudes.

Qualitative methods are not good at giving direct answers, but are good at developing more questions, because of consistent use of “soft data” (Higgins, 2009). Therefore in this research, quantitative and qualitative approaches were used.

According to Kerlinger (1986) research design is the plan and structure of investigation considering so as obtaining answers to research questions or test the research hypothesis. The plan represents the overall strategy used in collecting and analyzing data in order to test research hypothesis.

In this study, a descriptive and explanatory research design used; the major purpose of descriptive research is description of the state of affairs as it exists at present. Then this study describes and critically performance assessment of public construction project.

This part aims at elaborated the methodological process that is use; it outlines how the research is conducted based on the objective of the study. It explains the research design, sampling techniques and sample size determination, data sources, data collection tools use; describe how data collect from the research was analyzed and presented.

3.3. Data Type

In order to draw the true picture of public construction project in terms of the assess performance for it, the study had been employee sources of data: primary source of data. Primary source with the help of survey questionnaires to collected primary data.

3.4. Data sources

The study collected data from primary source. The primary sources of data were employees (professionals) working in difference section of the Kolfe Keraniyo construction office, consultants and contractor who participate in office projects.

The primary data would be gathered from the sub-city construction office, contractors, consultants, officers, where the study has targeted. By using the Five Point Likert Scale questionnaire for different worker at sample project researcher would be obtained quantitative and qualitative data. The information, which is relevant, would be used as a benchmark against primary data collect to support the research.

3.5. Target population and Sample

3.5.1. Target population

As stated on Neelam (2014) population means the totality of individuals from which some sample is drawn. The target population of this research was the Kolfe Keraniyo construction office, consultant and contractor of Public construction project who are working at different level and who have more than one year experience. The target population of the study was 340 from three parties.

3.5.2. Sampling size determination

Sample size to be referred to the appropriate number of respondents would choice for the study, and it is extract from the total population of reason for probability is that to select respondents from the stakeholders.; considering the fact that studying a subset of the population would be manageable size relative to study the entire population due to time, cost and accessibility. Thus, the sample size would be chosen so as to represent the whole population. In this study, the sample size was determined through the use of Yamane' s Statistical.

The sample size was determined by using Yamane (1967:886) that provides a simplified formula to calculate sample sizes: For the sake of cost and time saving, and homogeneity of the population was used degree of precision by 0.08 and it is very vital and usual as well to take a minimum sample size and provides a simplified formula to calculate sample sizes:

$$n = \frac{N}{1+N(e)^2} \dots\dots\dots (1)$$

$$n = 340/(1 + 340(0.08)^2) = 340/2.176 = 107.053 = 107$$

$$n_{cl} = (N_{cl}/N) * n = (35/340) * 107 = 11$$

$$n_{Co} = (N_{Co}/N) * n = (73/340) * 107 = 23$$

$$n_{Ct} = (N_{Ct}/N) * n = (232/340) * 107 = 73$$

Where n is the sample size; n_{cl} is the calculated sample size from client, n_{Co} is the calculated sample size of Consultant and n_{Ct} is the calculated sample size of Contractor; N_{cl}, N_{Co}, and N_{Ct} the population number of client, consultant and

contractor respectively; N is the sum of population client, consultant and contractor; e is the level of precision assumed to be 8%

3.5.3. Sampling technique

The researcher were Stratified sampling technique, and then following random sampling procedure to chosen employees within the stratum from each parts of the total population, and distribute questionnaire and collect the require information from the samples determine. This technique chose to assist in minimizing bias when dealing with the target population. With this technique, the sampling frame is organizing into relatively homogeneous groups (strata) before selecting elements for the sample. According to Janet (2006), this step increases the probability that the final sample would be representative in terms of the stratified groups. The strata are the different construction in public construction project (construction office, contractor and consultant). According to Catherine Dawson (2009), the correct sample size in a study is dependent on the nature of the population and the purpose of the study.

3.6. Data collection methods and tools

The data that was collected from the samples through questionnaire and document review the primary data would be collected from select sample for the data collection. Data was collect under continuous supervision of the researcher. Methods of data collection relatively dependence on standard questionnaires prepared by Swaminathan (2004) which was preparing and for that matter the researcher test the reliability and check the dependability. Data methods would be both qualitative and quantitative. Qualitative because, document review those are completion reports of building construction projects in the reviewed to disclose the extent of building project affected in performance.

Quantitative because the researcher was prepared and distributed questionnaire for all respondents (Questionnaires would be distributed to contractors, owner and consultants of the public construction projects). The researcher hoped that, these sources able to adequate and relevant to investigate the most common and frequent the assessment the performance public construction projects Kolfe Keraniyo

construction project. For the purpose of data collection, the researcher would use closed and open-ended questionnaires and semi structured. Semi structured is a questionnaire is a type of interview in which the interviewer asks only predefined questions while the rest of the questions are not planned in advance. And the data that would collect through questionnaire is analyzed used non-statics or descriptive way.

3.7. Data Analysis and Presentation

As data means row material, it has to pass through a process of analysis and interpreted accordingly before their meaning and implications understand primary data. Hence, both qualitative and quantitative data analysis techniques would be employed to analyze the data. The data from document analysis and questionnaire would be presented in a narrative form by the analysis result were used percentage, tables and graphs as they are simple to work with and easy to understand.

The collected data employed by the software Microsoft Excel 10 to determine the occurrence of assessment the performance of building construction projects Kolfe Keraniyo construction project. These data were test whether there is agreement or disagreement among each pair of parties (the respondents). The ranking of assess based on importance index was calculated using the formula shown below. According to Kometa et al. 2011, relative importance index method used to determine the various the asses performance consultant. The same method would be adopted for this study within various groups (i.e. Clients, consultants or contractors). The five -point scale ranged from 1 (strongly disagreement) to 5 (strongly agreement) is will adopt and transform to relative importance indices (RII) for each factor.

The Relative Important Index method (RII) is use to analysis of the data. The relative important index is compute as;

$$RII = \frac{\sum W}{(A * N)} \dots\dots\dots(2)$$

Where: RII= Relative Important Index W= Weight is given to each factor by the respondent and ranges from 1 to 5 A= the highest weight 5. N= the total number of respondents

The RII was used to rank (R) the different causes. These rankings made it possible to cross compare the relative importance of the factors as apparent by the three groups of respondents (i.e. Clients, consultants, and contractors).

With the rating scale shown below (Abd. Majid and McCaffer, 1997)

- | | |
|-----------------------|-------------------------------|
| 1 = Not important | (1.00 < Average index < 1.50) |
| 2. = Fairly important | (1.50 < Average index < 2.50) |
| 3. = Important | (2.50 < Average index < 3.50) |
| 4. = Very important | (3.50 < Average index < 4.50) |
| 5. = Highly important | (4.50 < Average index < 5.00) |

Also, in the questionnaire, factors that can contribute to improving the performance of construction projects were highlighted and the respondents were asked to tick using the five likert scale.

CHAPTER FOUR

4. RESULTS AND ANALYSIS

4.1. Introduction

This chapter examines the data processing, presentation, and interpretation of the respondents' general information, as well as the demographics of the respondents. It also addresses the research questions, with each question being answered by analyzing the data and presenting the results in tables. Performance assessment of public construction projects in Addis Ababa: in the case of Kolfe Keraniyo sub-city construction office the research findings acquired and examined using frequency; percent, diagram, RII, and Rank of the responses given in the instance of Kolfe Keraniyo sub-city construction office are reviewed. The data for the study was gathered from 100 percent of the sampled population, or 107 respondents. A summary of the analysis is also provided in this chapter.

4.2. Demography of the participants

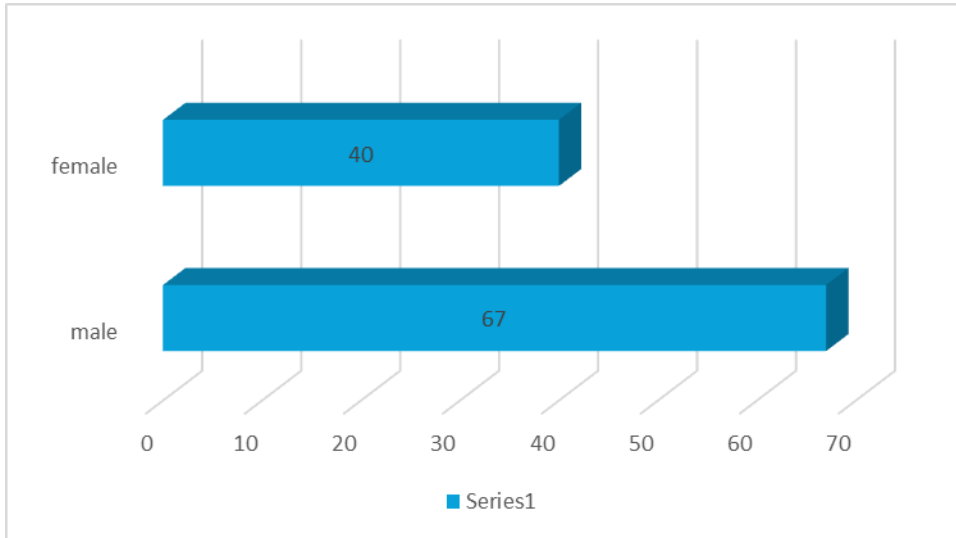
Respondents were asked about their gender and analysis was done using frequencies and percentages. 67(62.6 percent) of the respondents were male while 40(37.4 percent) were female, this indicates that majority of the respondents were male.

Table 4.1 Sex of respondent.

Sex	Frequency	Percent
Male	67	62.6
Female	40	37.4
Total	107	100

Source, own survey 2021

Figure 4.1. Sex of respondent



Source, own survey 2021

Respondents were asked about their form of organization in the table and figure below, and analysis was done using both tables and figures, which display frequencies and percentages. The majority of respondents, 68 percent, were contractors, 22 percent were consultants, and ten percent were owners, indicating that the majority of respondents were contractors.

Table 4.2. Type of organization

Type of Organization	Frequency	Percent
Owner	11	10.28
Consultant	23	21.50
Contractor	73	68.22%
Total	107	100.00%

Source, own survey 2021

Respondents were asked about their project work experience with public construction projects, and analysis was done using frequencies and percentages, as shown in the table below. The majority of the owners 54.55 percent of respondents had more than three years of experience, 27.27 percent had two to three years of experience, and 18.18 percent had one to two years of experience. This clearly demonstrates that the majority of the respondents were over the age of three, implying that the respondents have sufficient experience to adequately reply to the study's topic.

The majority of consultants 39.13 percent of respondents had less than one year of experience, 26.09 percent had one to three years of experience, and 34.78 percent had more than three years. The vast majority of contractors 50.68 percent of respondents had one to three years of experience, 20.55 percent had less than one year of experience, and 28.77 percent had more than three years. This clearly demonstrates that the majority of the respondents were between the ages of one and three, implying that the respondents have sufficient experience to adequately answer to the study's topic.

Table 4.3. The respondent of work experience with public construction project

Work experience	Owner		Consultant		Contractor1	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
1-2years	3	27.27	9	39.13	15	20.55
2 – 3 years	2	18.18	6	26.09	37	50.68
over 3 years	6	54.55	8	34.78	21	28.77
Total	11	100	23	100	73	100

Source, own survey 2021

The respondents were asked about their project work experience with public construction projects, as shown in table 4.4, and the data was analyzed using frequencies and percentages. Site supervisors accounted for 36.36 percent of respondents, Engineers accounted for 36.36 percent of respondents, and Manager/Project manager accounted for 27.27 percent of respondents. The vast majority of consultants Engineers accounted for 47.83 percent of the respondents, Site supervisors for 43.48 percent, and Manager/Project manager accounted for 8.70 percent of the respondents. The majority of contractors 57.53 percent of respondents held the post of Site supervisor, 26.03 percent held the role of Engineer, and 16.44 percent held the position of Manager/Project manager. This clearly demonstrates that the majority of the respondents held the post of Site supervisor, implying that the respondents have essential position to thoroughly respond to the area of the study.

Table 4.4. The respondent of work position with public construction project

Job title of the respondent	Owner		Consultant		Contractor	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Manager/Project manager	3	27.27	2	8.70	12	16.44
Engineers	4	36.36	11	47.83	19	26.03
Site supervisor	4	36.36	10	43.48	42	57.53
Total	11	100	23	100	73	100

Source, own survey 2021

The respondents were asked how many projects they were involved in with public construction projects, as shown in table 4.5, and the data was analyzed using frequencies and percentages. The majority of respondents (54.55%) had 10 or more projects, 27.27 percent had 4– 6 projects, 9.09 percent had up to 3 projects, and 9.09 percent had 7– 9 projects. The majority of consultants had 10 or more projects, 26.09 percent had up to three projects, 17.39 percent had four to six projects, and 13.4 percent had seven to nine projects. The majority of contractors 54.79 percent of those polled said they had Up to three projects, 23.29 percent of respondents had four to six projects, 15.07 percent of respondents had ten or more projects, and 6.85 percent of respondents had seven to nine projects. This clearly indicates that the majority of contractor respondents had up to three projects, the owner respondents had up to ten or more projects, and the consultant respondents had up to ten or more projects, implying that the respondents had sufficient project participation to fully respond to the study's topic.

Table 4.5. The respondent of number of project with public construction project

Number of project the respondent	Owner		Consultant		Contractor	
	Frequency	%	Frequency	%	Frequency	%
Up to 3 projects	1	9.09	6	26.09	40	54.79
4– 6 projects	3	27.27	4	17.39	17	23.29
7 – 9 projects	1	9.09	3	13.04	5	6.85
10 projects and above	6	54.55	10	43.48	11	15.07
Total	11	100.00	23	100.00	73	100.00

Source, own survey 2021

4.3. The cost factor performance of public construction project

The results show that the fifth factor of cost performance is a lack of cost planning/monitoring during the pre and post contract stages, with a RII of 0.728972. This indicates that a public construction project required pre- and post-planning in order to monitor and evaluate contract stage cost performance. Monitoring is a continuous assessment that aims to provide all stakeholders with detailed information on the progress or delay of ongoing assessed activities as soon as possible. It is a blunder in the activity's implementation stage. Its purpose is to determine whether the planned outputs, deliveries, and schedules have been met so that corrective action can be taken as soon as possible. According to information obtained by the researcher during a personal discussion on open ended questionnaire briefing from the project consultants, there is no continuous project work monitoring and evaluation activities in order to evaluate the performance of the project by comparing it to the given time frame, the approved budget, and also to make corrective action for project dalliance.

Therefore the cost planning or monitoring during pre and post contract stages have a significant impact on cost performance of construction project. Wubishet et al (2017) has conducted a survey and case study on Causes of Cost Overrun lack of cost planning during pre- and post- contract stage have the highest impacts on the performance of project costs from the client' s, consultants and contractors perspective.

The results showed that the factor of design change was ranked third by project parts, with a RII of 0.73271. Changes in design are regarded as a major cause of project cost increases. Any changes to the design will have an impact on the project's budget, the volume of required materials, the type of required materials, and the required labor. Sometimes, design changes necessitate the rework of previously completed items, resulting in an increase in project duration and excessive material waste. As a result, the cost performance factors will be present in this case. This result emphasizes the critical importance of managing design change in order to complete

the project on time. The design change problem causes disagreements between the planned cost and the actual cost, and will be even more impacted.

This agreement between parties demonstrates the significance of these factors in project cost overruns. This implies that owners will not pay attention to the future while preparing project design. The top ten factors causing poor performance for public sector projects in Jordan, according to Ashraf and Ghanim (2016), are client design changes, errors in design and contract documents, and changes in the original design.

The results showed that the factor of design change was ranked third by project parts, with a RII of 0.73271. Changes in design are regarded as a major cause of project cost increases. Any changes to the design will have an impact on the project's budget, the volume of required materials, the type of required materials, and the required labor. Sometimes, design changes necessitate the rework of previously completed items, resulting in an increase in project duration and excessive material waste. As a result, the cost performance factors will be present in this case. This result emphasizes the critical importance of managing design change in order to complete the project on time. The design change problem causes disagreements between the projects planned and actual completion costs, and will have a greater impact. This agreement between parties demonstrates the significance of these factors in project cost overruns. This implies that owners will not pay attention to the future while preparing project design. The top ten factors causing poor performance for public sector projects in Jordan, according to Ashraf and Ghanim (2016), are client design changes, errors in design and contract documents, and changes in the original design.

The results show that unpredictable weather conditions are the sixth cost performance factor, with a RII of 0.723364. This indicates that the majority of the projects are in Kolfe keraniyo and its surrounding areas, which have good climatic conditions, so weather conditions may not have a significant impact on the performance of construction projects or cause any damage to these projects. This finding was related to Sambasiva and soon (2007), who conducted a study to

determine the causes and effects of project delays in the Malaysian construction industry the weather conditions

Delays in providing information to the contractor during the construction stage of a project were ranked fourth by respondents, with a RII of 0.730841. This indicates that information delays were a factor in public construction cost performance. Any information should be provided to the contractor on time; any delays will result in additional costs to the contractor. According to the findings of Abdella and Hussien (2002), the causes of delay can be classified as long waiting times for test and inspection approval.

Contractual claims, such as time extension with cost claims in a project, were ranked seventh or lowest by respondents, with RII equal to 0.699065. This indicates that contractual claims, such as extension of time with cost claims, are not important to achieved cost performance and are not a factor of cost performance of a public construction project in Addis Abba. As a result, contractual claims such as time extension with cost claims may not have a significant impact on the performance of a construction project and may result in a cost overrun on these projects.

Respondents ranked project materials monopoly by some suppliers in second place, with RII equal to 0.734579. This indicates that project materials monopoly by some suppliers is important to achieving cost performance and has a significant impact on suppliers as a cost performance factor of public construction projects in Addis Ababa. The project materials are delivered on time and in good condition, and the project activities are completed on time and within budget. The findings of Sambasiva and Soon (2007), who conducted a study to identify the causes and effects of project delays in the Malaysian construction industry, Material quality and scarcity,

Fluctuations in the cost of materials have been ranked first by all responses, with RII equal to 0.736449. This factor has an impact on the project's liquidity, budget, and cost performance. Construction project cost performance in Ethiopia is influenced by material cost fluctuation, which means that inflation of project materials directly overruns the cost of public construction. As a result, fluctuations in material costs have a significant impact on the cost performance of public construction projects in Addis Ababa. Wubishet et al. (2017) conducted a survey and case study on the Causes of Cost Overruns in Ethiopian Federal Road Projects in the Southern District. According to the study, the top six rated factors for a project cost overrun are material price fluctuation, which has the greatest impact on the performance of project costs from the client's, consultants', and contractors' perspectives.

Table 4.6. The cost factor of project with public construction project

Cost factor	Mean	Sum	RII	Rank
Lack of cost planning/monitoring during pre and post contract stages	3.64486	390	0.728972	5
Design changes	3.663551	392	0.73271	3
Unpredictable weather conditions	3.616822	387	0.723364	6
Delays in issuing information to the contractor during construction stage	3.654206	391	0.730841	4
Contractual claims, such as, extension of time with cost claims.	3.495327	374	0.699065	7
Fluctuations in the cost of materials	3.682243	394	0.736449	1
Project materials monopoly by some suppliers	3.672897	393	0.734579	2

Source, own survey 202

4.4. The Time factor on performance of public construction project

Owner perspectives

In the table below 4.7 According to the results, the respondent ranked the Delay to furnish and deliver the site (Right of way problem) in fifth place, with RII equal to 0.676636. This result emphasizes the significance of delivering the site on time in order to complete the project on time. The right of way issue causes disagreements between project parties, causing the completion date to be pushed back even further. This agreement between contractors and owners demonstrates the significance of these factors in project delays.

Finance and payments for completed work have been ranked first by the respondent, while the RII equals 0.734579. This result indicates that finance and payments for completed work have a significant impact on the timeliness of a public construction project. This finding was agreed upon with Sambasiva and soon (2007), who conducted a study to identify the causes and effects of project delays in the Malaysian construction industry. The causes and effects of project delays in the Malaysian construction industry were finance and payment for completed work. Furthermore, according to Abdella and Hussien (2002), the causes of delay can be classified as finance and payment for completed work.

Owners' slow decision-making has been ranked third, with a RII of 0.721495. This result indicates that owners' slow decision-making has had a significant impact on the time performance of public construction projects. While the owner's choice Slow decision-making by owners will cause construction work or project activity to be delayed, and as a result, the public construction project will not be completed on time. This result was related to Sambasiva and soon (2007), who conducted a study to identify the causes and effects of project delays in the Malaysian construction industry.

The design changes by owners are directly affects time performance. This is due to the fact that change orders will disrupt the project's schedule and, in some cases, suspend the project due to incomplete design changes that affect the sequence of project activities. And the time required to implement these variation orders will have an impact on the project's timeliness. This is due to the fact that some variations take or necessitate more time than the initial planned activities. As a result of the time required to implement these orders, the project's success will suffer from time and cost performance issues. This finding agrees with Samarah and Abu Bekr (2016) who studied the causes and effects of delays in public construction in Jordan. The client's design changes were the cause of the delay.

The owner's second-ranked factor was unrealistically imposed contract duration, which had a RII of 0.723364. This demonstrates the critical importance of accurately estimating project duration. Because the project duration is sometimes determined haphazardly, the project may be delayed. One of the most important responsibilities of the owner is to determine the duration of the project based on the volume of activities. This result was related to a study conducted by Sambasiva and Soon (2007) to identify the causes and effects of project delays in the Malaysian construction industry. Contract duration and requirements are unrealistic.

Contractor perspectives

In the table below, 4.7 Results show that the factor of financial problems was ranked second by respondents, while the ranked last, with RII equal to 0.693458. This result indicates that the financial problem has no bearing on the progress of the project's time performance. However, a lack of funds for the parts would cause a slew of issues, including slow progress and a drop in productivity. In addition, the contractors did not purchase the necessary equipment for the job. This result contradicts the findings of Tadesse (2009). This is not an accurate description because the general consensus is that cash is essential for the contractor to complete the project on time. Any cash shortage for the contractor will cause a slew of issues, including slow progress and work decline in productivity.

Subcontractor was ranked first by all responses, with RII equal to 0.736449. This indicates that, in the eyes of the contractors, the subcontractor is a major factor in the time performance of a public construction project. The main cause of delays in building construction projects in Malaysia, according to Alagbari et al (2007), was a lack of sub-contractor skills. Furthermore, Sambasiva et al 2007 discovered that one of the major causes of project delays in Malaysia was problems with subcontractors.

Site management has been ranked by the respondents is the second position with RII equal 0.734579. This indicates that site management is a major and most important factor in public construction project time performance. The findings associated with Alagbari et al (2007) to identify the main causes of delays in building construction projects in Malaysia included the absence of consultant site staff, lack of experience on the part of the consultant, lack of experience on the part of the consultants site staff (managerial and supervisory personnel), delayed and slow supervision in making decisions, incomplete documents, and slowness in giving instructions.

Respondents ranked construction methods in the eightieth position, with RII equal to 0.71215. This finding indicates that the construction method is not a major factor in the time performance of a public construction project. This conclusion was shared by Sambasiva and soon (2007), who conducted a study to identify the causes and effects of project delays in the Malaysian construction industry.

Construction methods

Respondents ranked labor productivity sixth, with RII equal to 0.723464. This is the most important factor for respondents because the availability of productive labor helps to complete projects on time and helps support parts to implement their projects successfully and appropriately. This method of measuring labor productivity does not necessarily indicate the efficiency of labor alone, but rather the combined effects of labor, equipment, and other factors contributing to cost performance. According to the findings of the UNRWA (2006) study, local construction projects suffered from low labor productivity for a variety of reasons, including a lack of skilled labor, a lack of materials, and a lack of leadership skills.

Mistakes during construction were ranked seventh by respondents, with RII equal to 0.723364. This indicates that mistakes during construction are an important factor in meeting deadlines. According to the findings of Sambasiva et al. 2007, the major causes of project delays in Malaysia's construction industry are identified errors during the construction stage. Alagbari et al. (2007) conducted a similar study to identify the main causes of delays in building construction projects in Malaysia construction mistakes and defective work.

Inadequate contractor experiences were ranked fourth by respondents, with RII equal to 0.727103. This implies that insufficient contractor experiences are one factor of time performance to achieve as agreed. The contractor's experience had a significant impact on the timeliness of the public construction project. According to this finding, Guide (2005), the following are the factors that change the time of construction projects was inappropriate contractors related to experience and educational background. In addition, this finding agreed with Sambasiva and soon (2007), who conducted a study to identify the causes and effects of project delays in the Malaysian construction industry.

Shortages of materials were ranked ninth by respondents, with RII equal to 0.704673. This indicates that material shortages are a minor or insignificant factor based on respondents' responses to time performance. However, material shortages have a significant impact on the timeliness of public construction projects. The findings are also consistent with those of Abu-Shaban (2008), who discovered that material shortages and average delays in payment from owner to contractor are two of the most significant time-related factors affecting the performance of construction projects in the Gaza Strip.

Respondents ranked labor supply as the third most important issue, with RII equal to 0.728103. This suggests that the labor supply issue is a major factor in time performance. The problem of labor supply affects daily activity and has a significant impact on the realization of project contract time performance of public construction projects. This finding is consistent with the findings of Koshe and Jha (2016), who investigated the causes of construction delays in Ethiopia and discovered labor-

related and material-related equipment. In addition, Samba Siva et al 2007 identified labor supply as one of the major causes of project delays in the Malaysian construction industry. According to the findings of the UNRWA (2006) study, local construction projects suffered from poor performance, particularly poor contractor performance, for a variety of reasons, including a lack of materials and lack of leadership skills. Any problem associated with this will have negative effect on construction performance.

Consultant perspectives

In the table below 4.7 According to the results, respondents ranked waiting time for approval of tests and inspections fourth, with RII equal to 0.725234. This result indicates that the time spent waiting for test and inspection approval is not a significant contributor to time performance. However, the time spent waiting for consultant approval of tests and an inspection has a significant impact on time performance in Addis Ababa and in Ethiopia public construction projects. A specific time phase is assigned for project delivery, and if that time is exceeded, more money is frequently spent, which can lead to an increase in the final cost of the project, resulting in cost overruns and, eventually, a dispute. This finding was in agreement with Sambasiva and soon (2007), who conducted a study to identify the causes and effects of project delays in the Malaysian construction industry.

Quality assurance/control was ranked fifth or lowest by respondents, with a RII of 0.719626. This demonstrates that quality assurance/control has no significant impact on the timeliness of public construction projects. Ugwu and Haupt (2007) concur with our findings, stating that this factor is unimportant to contractors due to the lack of quality assurance assessment systems in South African construction projects. However, Samson and Lema (2002) and Iyer and Jha (2005) disagree with our findings, despite the fact that this factor is important for contractor performance in Tanzania and India construction projects. This could be due to differences in location and managerial characteristics.

The respondents ranked contract management as the second most important issue, with a RII of 0.727203. This suggests that the contract management issue has a significant impact on the timeliness of public construction projects. This finding agreed with Sambasiva and soon (2007), who conducted a study to identify the causes and effects of project delays in the Malaysian construction industry.

Lack of experience on the part of the consultant was ranked third by respondents, with RII equal to 0.725334. This indicates that the consultant's lack of experience has a significant impact on time performance in public construction projects. Because consultant experience is a critical component of project performance and can provide timely and appropriate supervision, a lack of experience is a significant impediment to project completion. According to this finding, which agrees with Algabari et al, 2007, the main causes of project delays in Malaysian building construction projects were identified as a lack of consultant experience and an incomplete document.

The absence of consultant site staff was ranked first by respondents, with RII equal to 0.728972. This finding indicates that the absence of a consultant's site staff has a significant impact on the timeliness of a public construction project. This means that in the absence of a consultant on site, it is impossible to monitor and question decisions to work in accordance with the document or work planning. According to this finding, which agrees with Algabari et al, 2007, the main causes of project delays in Malaysia building construction projects were identified as the absence of consultant's site staff, a lack of experience on the consultant's part, and a lack of experience on the consultant's site staff (managerial and supervisory personnel).

Table 4.7. The time factor of project with public construction project

Time Factors	Mean	Sum	RII	Rank
Owners	Mean	Sum	RII	Rank
Delay to furnish and deliver the site (Right of way problem)	3.62	362	0.676636	5
Finance and payments of completed work	3.707547	393	0.734579	1
Slow decision-making by owners.	3.641509	386	0.721495	3
Unrealistic imposed contract duration	3.616822	387	0.723364	2
Design change by owners	3.588785	384	0.717757	4
Contractor	Mean	Sum	RII	Rank
Financial problems	3.637255	371	0.693458	10
Subcontractor	3.682243	394	0.736449	1
Site management	3.672897	393	0.734579	2
Construction methods	3.560748	381	0.71215	8
Improper planning	3.626168	388	0.725234	5
Mistakes during construction	3.616822	387	0.723364	7
Inadequate contractor experience	3.635514	389	0.727103	4
Shortage of material	3.523364	377	0.704673	9
Labor supply problem	3.635514	389	0.728103	3
Labor productivity	3.616822	387	0.723464	6
Consultant	Mean	Sum	RII	Rank

Absence of consultant' s site staff	3.64486	390	0.728972	1
Lack of experience on the part of the consultant	3.626168	388	0.725334	3
Contract management problem	3.635514	389	0.727203	2
Quality assurance/control	3.598131	385	0.719626	5
Waiting time for approval of tests and inspections	3.626168	388	0.725234	4

Source, own survey 2021

4.5. The quality factor performance of public construction project

In the table below 4.8 the availability of educated personnel and experienced personnel was ranked second and third by respondents, with RII values of 0.740187 and 0.723364, respectively. This is the most important factor for respondents because the availability of educated and experienced personnel assists parts in implementing their projects successfully and appropriately. In Ethiopia, the majority of site managers are civil engineers with extensive work experience but little management training or education. Samson and Lema (2002), Cheung et al (2004), and Iyer and Jha (2005) all agree with our conclusion that this factor is critical to quality performance because it has a strong influence on construction quality performance.

The respondents ranked the quality of equipment and raw materials in the project fifth, with RII equal to 0.693458. The parts usually want materials that are of high quality and meet their specifications when they are used in their project. The majorities of available materials has little variation in quality and are produced by a small number of manufacturers. Because owners and consultants typically want materials used in supervised projects to meet specifications and agreements, their project must be implemented in accordance with the required and agreed-upon quality. This finding is consistent with Abu Shaban's (2008) and Iyer and Jha's (2005) findings, which indicated that the quality of equipment and raw materials, as

well as the presence of competent and experienced personnel, are important factors that can affect quality.

Conformance to specification was ranked fourth by all responses, with RII equal to 0.70467. This factor focuses on the quality of public construction projects. The construction industry typically strives to complete projects in accordance with specifications. Iyer and Jha (2005) agree with our conclusion that this factor is important for owners because it is strongly related to client satisfaction.

Quality assurance training and follow-up was ranked first by respondents, with a RII of 0.742056. Quality assurance training and follow-up are rarely achieved or implemented in Ethiopian construction projects. However, this result does not agree with Samson and Lema (2002) because this factor has a significant impact on construction quality performance.

Table 4.8. The quality factor of project with public construction project

Quality Factor	Mean	Sum	RII	Rank
Educated personnel	3.650943	387	0.723364	3
Experienced personnel	3.700935	396	0.740187	2
Quality of materials and equipment used in the project construction	3.46729	371	0.693458	5
Conformance to specifications	3.523364	377	0.704673	4
Quality assurance training and follow up	3.71028	397	0.742056	1

Source, own survey 2021

4.6. The performance of public construction project

As result below table 4.9. As shown in table 4.9, the cost factor is regarded as the most important performance measure of public construction projects, with RII equal to 0.726569. Because of the time and quality of public construction projects, this factor is more important for cost than others. Cheung et al. (2004) agree with our findings because cost groups have a significant impact on the performance of construction projects and can be one of the most important indicators for measuring performance. Iyer and Jha (2005) agree with our conclusion because cost is regarded as an important measure of a construction project's performance. Almost all studies on the performance of construction projects have identified construction cost as an important measure of 84 performance (Chan and Chan, 2004; Zou, 2004). In their study, Khosravi and Afshari (2011) ranked cost as the second most important measure of project performance.

The table below shows that time is considered the third factor, with RII equal to 0.717812 having a relatively less effect on public construction projects. This means that while time performance has an effect on public construction project performance, its third rank performance group public construction project performance is the most important. According to Samson and Lema (2002), the schedule stability of construction projects affects time performance. Due to Cheung et al. (2004), time group has a strong influence on the performance of construction projects and can be one of the most important indicators to measure performance. According to Lim and Mohamed (2000), the first criterion for project success is project completion time. Time, according to other researchers (Kamrul and Indra, 2010; Khosravi and Afshari, 2011), is the most important factor in measuring the performance of construction projects.

The quality factor is regarded as the second most important, with RII equal to 0.718071, and it has an impact on public construction projects. Nonetheless, this factor was ranked second among three performance measures; it is critical in the performance evaluation of public construction projects. Several researchers, including Jha and Iyer (2006), Palaneeswaran et al. (2007), Love et al. (2010), and

Yung and Yip (2011), have reported on the importance of quality in the performance measurement of public construction projects (2010). In their study of success measurement among power plant, utility, and cogeneration construction projects, Khosravi and Afshari (2011) ranked this measure of project performance third. According to Chan and Chan (2004), quality is an important measure of project performance because it organizes the assurance that the project will serve its purpose. Poor quality in projects results in numerous reworks which unnecessarily undermine other project performance indicators.

Table 4.9. The overall factor of project with public construction project

Factors of performance	Combine Mean	Sum	Combine RII	Rank
Cost factor	3.632844	389	0.726569	1
Time Factors	3.627279	385	0.717812	3
Quality Factor	3.610563	386	0.718071	2

Source, own survey 2021

4.7. Main challenges and gaps the performance of public construction projects

In addition to the above factors the public construction projects were affected by different factors. Based on the information from open end questionnaire, the following factors were pointed out:

- ❖ **Turnover of Experienced and skilled human power from project office**
- ❖ **Lack of skill in project staff and client**
- ❖ **Lack of integration of stakeholders**
- ❖ **Unclear procurement**
- ❖ **Lack of project management training for three parties**
- ❖ **Lack of government official willingness to monitor**
- ❖ **Lack of political commitment**
- ❖ **Miscommunication in between the parties**

During the construction phase, public construction projects are subject to numerous issues that result in unnecessary delays, insufficient budget allocation, unconditional timing of the starting period, cost overruns, and poor project performance. It is common for people to blame one party (the contractor, the consultant, or the client), most often the contractor, without taking into account all of the stakeholders involved in the project. As a result, in order to ensure that public construction projects run smoothly and without delay, each stakeholder should be thoroughly informed about the problems encountered during the construction process.

According to the open-ended questionnaire of respondents, one of the reasons for the public construction project's weakness and inability to move at the appropriate pace is a lack of stakeholder integration. Because the construction sectors are (stakeholders) in the project, their inefficiency and ineffectiveness are reflected in the activities of public construction projects. Because when we take supply of electric power, water road are very important variables in the project sites, which means they are independent variables that determine the time, cost, and quality of public construction projects, and border enforcement and compensation are major problems. As a result, a lack of infrastructure and a lack of stakeholder integration will have a significant impact on the project's completion. Therefore, the concerned body should give attention to provide adequate infrastructural service and enhance stakeholder integration to minimize the problem of public construction projects.

Absence of stakeholder involvement in the M & E program and it can contribute to project delay because one of the reasons for project delay, as mentioned in the open ended question, was right of way, compensation related, problem, which is an effect of stakeholder involvement in the project execution and even in the planning and activity of the project.

Because there are many contractors who participate in the project with their major problems such as ineffective planning and scheduling, poor site management and supervision, poor qualification of technical staff, and difficulties in financing projects, the lack of careful identification of capable contractors at the early stage of bidding has a negative impact on the practice and performance of the project in terms

of time, cost, and quality. The most common causes of cost overruns were inflation or an increase in the cost of construction materials, a change in the foreign exchange rate (for imported materials), a lack of cost control, and a failure to identify problems and take necessary and timely action.

Corruption is one of the challenges in financing public construction projects. Since the program's inception, this has remained a hidden, but difficult, component of the public construction project system. Employees of the Addis Ababa construction office who responded to the questionnaire stated that corruption is widespread in the program as a result of limitations or the absence of a proper control or organized financial management system and monitoring mechanism. According to information released in various media by the Regional and Federal Ethics and Anticorruption Commissions, a significant number of employees, businessmen, contractors, and suppliers have been accused of profound corruption in connection with public construction projects. According to a study conducted by Ethiopia's Federal Ethics and Anti-Corruption Commission in April 2018, the reason for the low performance of public projects is corruption.

CHAPTER FIVE

5. SUMMERY, CONCLUSION AND RECOMMENDATION

5.1. Summery

Based on the results of the analysis of the study and respondents' responses from interview the following conclusions are drawn. The entire public construction project in Kolfe Keraniyo Sub-city investigated in the research, suffered in cost performance in their performance. The results were analyzed, discussed to obtain the most performance indicators. The relative importance index method (RII) was used here to determine cost, time and quality factor of the relative importance of the key performance indicators.

The research has covered various issues relating to the factor performance of public construction project. It has and discussed issues relating to the Ethiopian construction Performance of Construction project in Kolfe Keraniyo sub-city Addis Ababa and also the public construction owner, contractor and consultant as a discipline were studied from the perspective of various local conditions of performance. The literature review also discussed the distinction between project management and construction performance factor. In addition, Summary and gap identification were also presented.

The research methodology was thoroughly discussed in the third section, and the findings and discussion were discussed in the fourth section. Finally, conclusions and recommendations are given. The major contributions of this study include the attempt to empirically state the level of performance of public construction projects and study the quality, time, and cost aspects of construction project outcomes, as well as the usual focus on three parties. It contributes to closing the research gap that exists.

For these projects, the table and figure show that respondents were asked about their type of organization and analysis was done using frequencies and percentages. Majorities, 68 percent of the respondents were contractor, 22 percent of respondent were consultant while 10 percent of respondent were owner, and this indicates that most respondents were contractor.

The most common factor affecting the cost performance of the public construction project while fluctuations in the cost of materials, project materials monopoly by some suppliers, design changes As any modification in the design will affect the budget allocated for the project, the volume of required materials, type of required materials and needed labor, delays in issuing information to the contractor during construction stage, lack of cost planning/monitoring during pre and post contract stages public construction project needed pre and post planning to monitoring and evaluation of contract stage on cost performance, Woinshet (2017) has conducted a survey and case study on Causes of Cost Overrun lack of cost planning during pre- and post- contract stage have the highest impacts on the performance of project costs from the client' s, consultants and contractors perspective, unpredictable weather conditions and contractual claims, such as, extension of time with cost claims the first up to seventh factor respectively.

Time is a major factor for public construction projects, while the contractor is a factor of the project, and all of these factors affect time performance because RII is above financial problems, subcontractor, site management, construction methods, improper planning, mistakes during construction, insufficient contractor experience, material shortage, labor supply problem, and labor productivity, consultant absence of consultant's site staff, and lack of experience on the part of the consultant. The first through fifth factors, as well as the owner's perspectives, are very important in terms of completing the public construction on time, because all of these factors RII are above three delays in furnishing and delivering the site (right of way problem), finance, and so on.

Time management is an important factor that should be carefully planned for in public construction. Orders should not be delivered late to the site. To determine how quickly the project will be completed, the financial problems of public construction should be minimized. When financial capabilities are approved on time, some activity that must be approved lags behind. Owners should make certain that their contractors are paid on time in order to motivate them to complete their work as soon as possible. This means that while time performance has an effect on public construction project performance, its third rank performance group public construction project performance is the most important.

Quality is an essential component and a major factor for public construction projects and a lack of quality assurance training and follow-up has contributed to public construction project quality problems. Low experienced personnel and educated personnel are the major common bottlenecks of project quality performance, and were also identified as one factor that affected project quality performance, conformance to specifications, and material quality.

The three most important factors influencing the performance of public construction projects are cost, time, and quality. The most common causes of cost overruns were inflation or an increase in the cost of construction materials, a change in the foreign exchange rate (for imported materials), a lack of cost control, and a failure to identify problems and take necessary and timely action.

5.2. Conclusion

According to the study, the performance factors of public construction projects are cost, time, and quality. The most common causes of cost overruns were inflation or an increase in the cost of construction materials, a change in the foreign exchange rate (for imported materials), a lack of cost control, and a failure to identify problems and take necessary and timely action. During the construction phase, public construction projects are subject to numerous issues that result in unnecessary delays, insufficient budget allocation, unconditional timing of the starting period, cost overruns, and poor project performance.

The study's first objective was to identify factors influencing the cost performance of public construction projects in Kolfe Keraniyo, Addis Ababa. The public construction projects in the Kolfe Keraniyo sub-city have not been completed on time and on budget. The project's performance of cost overrun due to many reasons from the study's findings while fluctuations in the cost of materials, project materials monopoly by some suppliers, design changes, the volume of required materials, the type of required materials, and required labor, delays in issuing information to the contractor during the construction stage, lack of cost planning/monitoring during pre and post contract stages public construction project required pre and post planning to monitoring and evaluation of contract stage on cost performance.

The second objective of the study was to examine factors the performance of public construction projects in terms of time in Kolfe keraniyo. One of the most important factors in public construction projects is time. Financial problems, subcontractor, site management, construction methods, improper planning, mistakes during construction, insufficient contractor experience, shortage of material, labor supply problem and labor productivity, consultant absence of consultant's site staff, lack of experience on the part of the consultant, quality assurance/control, waiting time for approval of tests and inspections are the factors of time performance of public construction projects.

The third objective of the study was to identify factors the quality of public construction projects in Kolfe keraniyo, Addis Abba. Quality is an essential component and a major factor in public construction projects. Lack of quality assurance training and follow up have contributed to the public construction project quality problems, low experienced personnel educated personnel are the major common bottlenecks of the project quality performance and was also identified as one factor that affected the performance of projects quality, conformance to specifications, and quality of materials and equipment used in the project construction.

The fourth objective of the study was to identify the major challenges and gaps in the performance of public construction projects at the Kolfe Keraniyo sub-city construction office. Lack of skill in project staff and client, lack of integration of stakeholders, unclear procurement, lack of project management training for three parties, lack of government official willingness to monitor, lack of political commitment, and miscommunication between the parties are the major challenges of the Kolfe keraniyo sub-city public construction project. Corruption is one of the challenges in financing public construction projects. One of the reasons for the public construction project's weakness is a lack of stakeholder integration, which precludes the project from moving at the appropriate pace. Since the construction sectors are a part of the project, their inefficiency and ineffectiveness are reflected in the activities of the public construction projects. These are the challenges and gaps that the Kolfe keraniyo sub-city construction office faces in its public construction projects.

5.3. Recommendations

Based on the findings of the study and the responses of respondents during personal interviews, a number of recommendations were made to improve the poor performance of public construction projects in Addis Abba's Kolfe Keraniyo sub-city. The researchers classified those recommendations into three types based on the stakeholders, such as client, contractor, and consultant.

5.3.1. Recommendation for Owner

As the studied in the analysis part, fluctuation of material price was one of the key factor affecting cost and time performance of public construction projects. As a result of this clients are recommended to consider appropriate inflation factor during cost estimation process.

Because during the construction period the cost of construction materials, tools, labors, equipment etc. may vary from time to time. Clients are advised to setup stores for required construction materials, and especially that are scarce or that are in limited quantity in the markets to avoid time and cost performance problem. Cost impacts can be mitigated through aggressive value engineering for substitute

materials, by developing on time order culture and stockpiling of regular materials, early purchases of those materials subject to vary risk, and identify critical materials, whose production and procurement takes long time and act early supply commitments. To effectively utilize those methods, Clients/Owners, Supervisors and Contractors should seek the early involvement of specialty contractors and their collaboration with the design team.

Proper project management techniques, such as proper planning, scheduling, and monitoring, proper cash flow and resource scheduling, and strict monitoring, should be used by both the project manager and top-level management. Clients are advised to supply good quality materials and equipment and to ensure that the project conforms to the specification because they provide materials for the project. To improve their performance, leaders and personnel should be trained in new skills.

To carry out the project activities of a public construction project, the government should prioritize the selection of capable consultants and dependable contractors. It should also ensure that continuous coordination and relationships among project participants are required for problem solving and project success throughout the project life cycle.

The study recommended that clients strictly supervise the construction of public construction projects in order to minimize time delays, cost overruns, and poor construction quality. Furthermore, owners are encouraged to facilitate contractor payments in order to avoid delays, disputes, and claims.

5.3.2. Recommendation for Contractors

Contractors are advised to have proper planning and a good site management system in place for the various activities of the project in order to avoid mistakes that may result in rework of activities, resulting in cost, time, and quality performance issues.

Contractors should be very strong in bidding for the project so that they estimate the exact cost rather than low cost in order to win the bid, collect the advance payment, and then disappear.

Proper planning and scheduling are ongoing processes that must be coordinated with the resources and time available to develop the work in order to avoid cost overruns, performance issues, and disputes.

To ensure good site management and supervision, administrative and technical personnel should be assigned as soon as the project is awarded, to make plans for completion within the specified time frame, with the required quality, and at the estimated cost.

To avoid financial problems, contractors should make proper use of advance payments and develop a financial management philosophy for each project. Also, do not transfer project funds from one project to another. Set up some incentives and provide training to motivate workers and improve productivity.

5.3.3. Recommendation for Consultant

Consultants are recommended to provide orientation to the owner, and the impacts on project construction such as immediate approval of payments, variations, and additional works, as well as price fluctuation, are improving project performance. Approve the requested payments, additional works, variation orders, and so on, in accordance with contract rules and regulations, in order to successfully complete the public construction of the proposed projects on time.

Consultants are recommended to hire qualified technical personnel to manage and improve the projects achievement timely with its cost and quality. It is also advised for consultant to have high qualification to give suitable instruction in a suitable time

and to be able to answer any question stated by contractor to avoid cost, time and quality performance problem. Consultants are advised to agree efficient information distribution systems to guard against communication gaps respond as quickly as possible to contractor and owner questions and requests for clarification to avoid associated delays, cost overrun and misperceptions which consequentially will affect time, cost and quality performance.

Finally, the three parties should take action:-

- ❖ **Apply modern project management.**
- ❖ **Stakeholders' collaboration.**
- ❖ **Experience sharing and information capitalization.**
- ❖ **Enhance project finances.**
- ❖ **Application of construction management practices.**
- ❖ **Modify regulations set by the government.**
- ❖ **Allocate sufficient time for design and planning.**
- ❖ **Build capacities of all stakeholders.**

Reference

- Abdel-Razek Refaat H., Abd Elshakour M Hany and Abdel-Hamid Mohamed, (2007), Labor productivity: Benchmarking and variability in Egyptian projects, *International Journal of Project Management*, Vol. 25, PP. 189-197
- Abebe, D. (2003). *Construction Management and Finance*. Addis Ababa: Addis Ababa University Printing Press. Pp 20
- Abubeker Z.k (2015), Time and Cost Performance in Construction Projects in Southern and Central Regions of India
- Ajayi, O. M., Ogunsami, O. E., Ajayi, A. K and Ofili, C.M. (2010). *Factors Affecting Performance of Contractors on Construction Projects in Lagos State. Proceedings of the Construction, Building and Real estate Research Conference of the Royal Institute of Chartered Surveyors, Paris 2-3 September 2010.*
- Aje, O.I. Odusami, K.T., &Ogunsemi, D.R. (2009). *The impact of contractors' management capability on cost and time performance of construction projects in Nigeria.* *Journal of Financial Management of Property and Construction*, Vol. 14 Iss: 2, pp.171– 187.
- Akintoye, A. &Takim, R. (2002). *Performance indicators for successful construction project performance.* In: Greenwood, D (Ed.), 18th Annual ARCOM Conference, 2-4 September 2002, and University of North Umbria. Association of Researchers in Construction Management, Vol. 2, 545-55.
- Al-Momani Ayman H., (2000), Examining service quality within construction processes, *Technovation*, Vol. 20, PP. 643-651
- Alvarado, C. M., Silverman, R. P., & Wilson, D. S. (2005). *Assessing the performance of construction projects: Implementing earned value management at the General Services Administration .Journal of Facilities Management*, Vol. 3 Iss: 1, pp.92 – 105.
- Amusan, L. M. (2011) *Study of factors affecting construction cost performance in Nigerian construction sites.* Covenant University, Nigeria.
- Ankrah, N.A. & Proverbs, D. (2005). *A framework for measuring construction project performance: overcoming key challenges of performance measurement.* In

- Khosrowshahi, (ed.), Proceedings 21st Annual ARCOM Conference, 7-9 September 2005, London, UK. Association of Researchers in Construction Management, Vol. 2, 959– 69.
- Arditi D., Akan G., and Gurdamar S., 1985, Incentive/disincentive contract: Perception of owners and contractors, *Journal of Construction Engineering and Management*, 124 (5): 361 373.
- Bui, Ling, Florence & Thuy Dung, Thi. (2010). *Factors Affecting Construction Project Outcomes: A Case Study of Vietnam*. *Journal of Professional Issues in Engineering Education and Practice - J PROF ISSUE ENG EDUC PRACT*. 136. 10.1061/(ASCE)EI.1943-5541.0000013.
- Chan Daniel w. m. and Kumaraswamy Mohan M., (2002), *Compressing construction durations: lessons learned from Hong Kong building projects*, *International Journal of Project Management*, Vol.20, PP. 23.35
- Chen, et al (2009). *Local Operations of Chinese Construction Firms in Africa: An Empirical Survey*. *The International Journal of Construction Management*, PP. 569- 578
- Cheung SO, Suen HCH, Cheung KKW, 2004. PPMS: a Webbased construction Project Performance Monitoring System. *Automation in Construction*, 13: 361-376.
- Chitkara, K.K. (2004), *Construction project management, planning, scheduling, and controlling*, Tata McGraw Hill Publishing Company Ltd.
- Construction Industry Task Force (1998). *Rethinking Construction*. Department of the Environment, Transport and the Regions, London
- Construction Proxy (2015). *Catalog of Ethiopian Construction Consultants*. Retrieved November 17, 2016, from <http://constructionproxy.com/catalog/ethiopian-construction-consultants>
- Curt. (2005). *Construction Measures: Key Performance Indicators*.
- Dissanayaka Sunnil M. and Kumaraswamy Mohan M., (1999), *Comparing contributors to time and cost performance in building projects*, *Building and Environment*, Vol. 34, PP. 31- 42
- Don Elger, 2010, *Theory of Performance*, University of Idaho (also available at www.webpages.uidaho.edu)

- Faridi, A. and El-Sayegh, S. (2006). Significant factors causing delay in the UAE construction industry, *Construction Management and Economics*, 24(11): PP. 1167-1176.
- Fetene, N. (2008). *Causes and Effects of Cost Overrun on Public Building Construction Projects in Ethiopia*. MSc Thesis.
- Global construction 2020, (2011). *A report of Global construction perspectives and Oxford Economics*. www.globalconstruction2020.com (Accessed 27/03/2012).
- Grace, F.M., (2010). *Types of Construction Projects* Article Source: [http://EzineArticles.com/?Expert Grace_F._M](http://EzineArticles.com/?Expert+Grace_F._M). Accessed 07/06/2013.
- Higgins, G.E.(2009).Quantitative versus Qualitative Methods: Understanding Why Quantitative Methods are Predominant in Criminology and Criminal Justice. *Journal of Theoretical and Philosophical Criminology*
- Iyer, K. C. &Jha, K. N. (2005) *Factors affecting cost performance: evidence from Indian construction projects*, *International Journal of Project Management*, 23: 283– 295.
- Jin XH, Ling FYY, 2006. *Key relationship-based determinants of project performance in China*. *Building and Environment*, 41: 915-925
- Kerlinger, F.N. (1986) *Foundations of Behavioral Research*. 3rd Edition, Holt, Rinehart and 37 Winston, New York.
- Kerzner H., (2006). *Project Management; A Systems Approach to Planning, Scheduling, and Controlling*, Ninth ed. John Wiley & Sons, Inc., Hoboken, New Jersey.
- Khan R.A., (2008). *Role of Construction Sector in Economic Growth: Empirical Evidence from Pakistan Economy*. Proceedings of the first International Conference on Construction in Developing Countries (ICCIDC– I) titled 'Advancing and Integrating Construction Education, Research & Practice' , August 4-5, Karachi
- Kim et al, (2008), *Structuring the prediction model of project performance for international construction projects Research methods: A comparative analysis*, *Expert Systems with Applications*

- Leedy, P.D. and Ormrod, J.E. (2005), *Practical Research: planning and design*. 8th Ed. New Jersey: Pearson Prentice Hall.
- Lehtonen Tutu Wegelius, (2001), *Performance measurement in construction logistics*, International Journal of Production Economics, Vol. 69, PP.107-116
- Lepartobiko, W. (2012). Factors that influence success in large construction projects: the case of Kenya Urban Roads Authority projects. Msc thesis, Retrieved October 6, 2013
- Ling et al, 2007. Key project management practices affecting Singaporean firms. Project performance in China, International Journal of Project Management,
- Ling, F. & Bui, T., (2010) *Factors Affecting Construction Project Outcomes: Case Study of Vietnam*. J. Prof. Issues Eng. Educ. Pract., 136(3), 148– 155.
- Love et al., (2005), *Time-Cost Relationships in Australian Building Construction Projects*, Journal of Construction Engineering and Management, Vol. 131, No. 2, PP. 187-194
- Love PED, Holt GD, Shen LY, Irani Z, 2000. *Using systems dynamics to better understand change and rework in construction project management systems*. International Journal of Project Management, 20: 425-36.
- Mbugua, L., Harris, P., Holt, G., & Olomolaiye, P. (1999). A framework for determining critical success factors influencing construction business performance. Paper presented at the Proceedings of the Association of Researchers in Construction Management 15th Annual Conference. Cordero, 1990, The measurement of innovation performance in the firm: An overview Research Policy, 1990, vol. 19, issue 2, 185-192
- Meng, X. 2011, *The effect of relationship management on project performance in construction*, School of Planning *Empirical Assessment of Nigerian Construction Industry Consultancy Services Innovation Practices*, Architecture and Civil Engineering, Queen's University Belfast, David Keir Building, Stranmillis Road, Belfast, BT9 5AG, UK
- Mohammad, A. Y., Yusof, N., & Kamal, E. M. (2014). Empirical Assessment of Nigerian Construction Industry Consultancy Services Innovation Practices.

International Journal of Managerial Studies and Research (IJMSR), 2 (9), 175-186.

Nuhamin getachew(2018), *Performance of Construction Consultants in Addis Ababa: A Study of Current Practices*, A.A

Pheng Low Sui and Chuan Quek Tai, (2006), *Environmental factors and work performance of project managers in the construction industry*, *International Journal of Project Management*, Vol. 24, PP. 24-37

PMI, (2008). *Guide to Project Management Body of Knowledge*. Project Management Institute, New Square, PA, USA.

Puspassari, T.R., (2006). *Factors causing the poor performance of construction project*. Master' s thesis, University Technology Malaysia, Faculty of Civil Engineering.

Puspassari, T.R. (2005). *Factors causing poor Performance of Construction Projects*. An Unpublished Master project Report, submitted to the Faculty of Civil Engineering, University of Technology, Malaysia.

Reichelt Kimberly and Lyneis James, (1999), *The dynamic of project performance: Benchmarking the drivers of cost and schedule overrun*, *European management journal*, Vol. 17, No.2, PP. 135-150

Samson M and Lema NM, (2002), *Development of construction contractors performance measurement framework*, 1st International Conference of Creating a Sustainable

Scott, S. & Wiguna, I. P. A. (2005). *Nature of the critical risk factors affecting project performance in Indonesian building contracts*. In Khosrowshahi, F (Ed.), 21st Annual ARCOM Conference, 7-9 September 2005, SOAS, University of London. *Association of Researchers in Construction Management*, Vol. 1, 225-35.

Shenhar, A.J., (2001). *One size does not fit all projects: Exploring classical contingency domains*. *Management Science*, 47 (3), 394-414.

Sinclair D., Zairi M. (1995), *Effective process management through performance measurement Part III*, *Business Process Reengineering and Management Journal*, Vol 1. No. 3, PP. 50-56

- Singh, Y. K. (2006). *Fundamentals of Research Methodology and Statistics*. Solomon, M. (2016, March 17). The Ethiopian Herald Newspaper. Addis Ababa.
- Tangen Stefan, (2004), *Professional practice performance measurement: from philosophy to practice*, International Journal of Productivity and Performance Management, Vol. 53, No. 8, PP. 726-737
- Thomas S. Ng, Palaneeswaran Ekambaram and Kumaraswamy Mohan M., (2002), *A dynamic e-Reporting system for contractor's performance appraisal*, Advances in Engineering Software, Vol. 33, PP. 339.349
- Ugwu O.O. and Haupt T.C., (2007), *Key performance indicators and assessment methods for infrastructure sustainability a South African construction industry perspective*, Building and Environment, Vol. 42, PP. 665-680
- Wa'el A., Mohd. Razali A. Kadir, Azizah Salim and Ernawati, (2007). The significant factors causing delay of building construction projects in Malaysia, Engineering, Construction and Architectural Management Vol. 14 No. 2, 2007 pp. 192-206
- Wondie, B. (2016). The Challenges of Management Consultancy Profession in Ethiopia (The Case of Addis Ababa). Imperial Journal of Interdisciplinary Research (IJIR) , 2 (10), 1885-1914.
- Yamane, Taro. (1967). *Statistics, An Introductory Analysis*, 2nd Ed., New York: Harper and Row.

APPENDIX I

Instructions: This research is conducted for academic purposes, so please try to fill it carefully and truthfully. For each of the questions, please tick [] in the provided box the most suitable answer using the given scale. Please also answer all the questions to enhance the objectivity of the research.

SECTION 1: GENERAL PROJECT AND RESPONDENT INFORMATION

1. Contract at:Public.....
2. Sex of Respondent Male Female

3. Your position on the project: Client Consultant Contractor
4. Organization role of Respondent Manager/Project manager Site supervisor Engineers
5. Please indicate how long you have been involved in the public construction of Projects?
 1-2 years 2 – 3 years over 3 years
6. Which of these indicate the average quantity of building construction projects you Handle/year in the public? Up to 3 projects 4– 6 projects 7 – 9 projects 10 projects and above
7. Please indicate the procurement approach employed for this project (please tick)
 Design/Bid/Build Design/Build Competitive bid Negotiated
 General contract Build– Own– Operate– Transfer Turnkey contract
8. Project dates and cost estimate.
 Contract start on site: _____ Approved variations: _____
 Original contract sum _____ Actual completion date: _____
 Original completion date: _____ Final project cost _____

SECTION 2: ASSESSMENT THE PERFORMANCE OF PUBLIC CONSTRUCTION PROJECTS IN ADDIS ABEBA. KOLFE KERANIO SUB-CITY

Please indicate the significance of each factor by ticking (√) the appropriate boxes. Add any remarks relating to each factor on the last column e.g. as to the reasons, the critical factors or the solutions.

Strongly Disagree	1
Disagree	2
I don' t know	3
Agree	4
Strongly agree	5

1.	Cost performance	1	2	3	4	5	Remarks
1.1.	Lack of cost planning/monitoring during pre and post contract stages						
1.2.	Design changes						
1.3.	Unpredictable weather conditions						
1.4.	Delays in issuing information to the contractor during construction stage						
1.5.	Contractual claims, such as, extension of time with cost claims.						
1.6.	Fluctuations in the cost of materials						
1.7.	Project materials monopoly by some suppliers						
2.	Time Factors						
	Owners						
2.1.	Delay to furnish and deliver the site (Right of way problem)						
2.2.	Finance and payments of completed work						
2.3.	Slow decision-making by owners.						

2.4.	Unrealistic imposed contract duration						
2.5.	Design change by owners						
	Contractor						
2.6.	Financial problems						
2.7.	Subcontractor						
2.8.	Site management						
2.9.	Construction methods						
2.10.	Improper planning						
2.11.	Mistakes during construction						
2.12.	Inadequate contractor experience						
2.13.	Shortage of material						
2.14.	Labor supply problem						
2.15.	Labor productivity						

	Consultant						
2.16.	Absence of consultant' s site staff						
2.17.	Lack of experience on the part of the consultant						
2.18.	Contract management problem						
2.19.	Quality assurance/control						
2.20.	Waiting time for approval of tests and inspections						
	External factors						
2.21.	Equipment availability and failure						
2.22.	Major disputes and negotiations.						
2.23.	Lack of communication between the parties						
2.24.	Regulatory changes						
2.25.	Unforeseen ground condition						
3.	Quality Factor						

3.1.	Educated personnel						
3.2.	Experienced personnel						
3.3.	Quality of materials and equipment used in the project construction						
3.4.	Conformance to specifications						
3.5.	Quality assurance training and follow up						

4. If you have any additional comments and ideas regarding the gap and challenges of the performance of public construction projects please write here
