ADDIS ABABA UNIVERSITY
SCHOOL OF GRADUATES

ETHIOPIAN INSTITUTE OF ARCHITECTURE
BUILDINGCONSTRUCTION AND CITY PLANNING

ROOT CAUSES OF POOR CONTRACTORS' PERFORMANCE IN CONSTRUCTION - A CASE OF SELECTED PUBLIC BUILDING PROJECTS IN ADDIS ABABA

By

Derege Yemanebirhan

A thesis submitted to the School of Graduate Studies of Addis Ababa University in partial fulfillment of the requirements for the Degree of Master of Science in Construction Management

Advisor: -Dr. Eng. Asregedew Kassa

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APPROVAL FORM

The undersigned have examined the thesis entitled "**ROOT CAUSES OF POOR CONTRACTORS' PERFORMANCE IN CONSTRUCTION- A CASE OF SELECTED PUBLIC BUILDING PROJECTS IN ADDIS ABABA"** presented by **Derege Yemanebirhan,** a candidate for the degree of **Master of Science** and hereby certify that it is worthy of acceptance**.**

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DEDICATION

This thesis is dedicated for my family and friends especially for my father, Yemanebirhan Mihretu. I hope that this achievement will complete the dream that you had for me all those many years ago when you chose to give me the best education you could.

DECLARATION

I the undersigned declare that this thesis is my personal original work which is prepared from my personal knowledge and referenced materials which are indicated in a clearly manner and the collected data and analysis are originally gathered and analyzed only for this work.

Name: - DEREGE YEMANEBIRHAN

SIGNATURE_____

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LIST OF ABBREVIATIONS

CA	Consultancy Architects
CAE	Consultancy Architects and Engineers
CE	Consultancy Engineers
CM	Construction Management
CSF	Critical Success Factor
GDP	Gross Domestic Product
GOE	Government of Ethiopia
HBC	Consultancy Highway and Bridge
IT	Information Technology
KPIs	Key Performance Indicators
SC	Specialized Consultancy
SI	Severity Index

ABSTRACT

Building contractors play a pivotal role in construction projects, influencing their success or failure. This study investigates the underlying factors contributing to subpar performance among contractors involved in selected public building projects in Addis Ababa. A cross-sectional study was conducted, encompassing ongoing and recently completed projects, involving key stakeholders from Ethiopian building construction organizations. The research utilized a probability sampling technique—stratified, proportional, and random sampling—to select participants. Data collection employed a semi-structured questionnaire and interview checklist. The findings identify several root causes of contractors' poor performance, including cost-related issues, human resources challenges, and management deficiencies. Delayed payments, variations in project scope, fraudulent practices, corruption, decreased labor productivity, and compliance issues with procurement laws emerged as significant concerns. The study underscores that underperforming contractors jeopardize their profitability and sustainability within the local construction sector. In conclusion, the study recommends timely payment to contractors and swift resolution of payment-related disputes by clients. It also suggests that contractors consider securing bank financing to manage short-term cash flow challenges, with the expectation of repaying such loans promptly upon receipt of client payments. These measures are critical for improving contractors' performance and ensuring the successful execution of public building projects in Addis Ababa.

Key Words: Contractor Performance, Public Building Projects, Addis Ababa

CHAPTER ONE

INTRODUCTION

1.1. Background of the Study

Construction projects are complex endeavors involving a multitude of stages and participants, each contributing to the project's overall success. Unlike mass production systems, construction projects operate in unique environments with inherent risks such as political interference, bureaucratic processes, inflation, and foreign exchange limitations (Kumi & Damoah, 2018). Previous research emphasizes that poor project management and inadequate claim administration significantly contribute to delays and cost overruns in construction projects (Omopariola, Jacob, & Abimbola, 2019; Ruth, 2014). Issues like uncertainties in contract documents, ineffective contract administration, and unforeseen events further exacerbate these challenges (Omopariola et al., 2019; Ruth, 2014).

In Ethiopia, public sector entities play a pivotal role as clients and financiers of major projects. Despite their importance, these projects often encounter issues such as time and cost overruns, substandard workmanship, and inefficient operations (Aschalew, 2017). These problems are compounded by deviations from original designs, necessitating adjustments that impact project timelines, costs, and quality (Aschalew, 2017). Mismanagement of project risks also contributes significantly to these deviations and their consequences (Aschalew, 2017).

The construction industry in Ethiopia, crucial for infrastructure development, faces numerous challenges including a shortage of skilled manpower, inadequate supervision and site management, poor workmanship, and equipment breakdowns (Biyadglign, 2017). These factors collectively contribute to delays and inefficiencies in project execution, hindering overall development goals in a developing country context (Biyadglign, 2017). Moreover, the Ethiopian construction sector is characterized by limited capital, outdated equipment, and deficiencies in technical, managerial, financial, and entrepreneurial skills (Biyadglign, 2017). Despite these challenges, construction contractors remain central to project success as they oversee and execute all construction activities and tasks (Biyadglign, 2017). In light of these issues, understanding the root causes of poor contractor performance in construction projects, particularly within the context of public building projects in Addis Ababa, is crucial. This study aims to identify these causes and propose recommendations to enhance performance and mitigate associated risks.

1.2. Research Motivation

The motivation behind this research is rooted in the urgent need to address persistent challenges within construction projects, particularly evident in public building initiatives in Addis Ababa, Ethiopia. Construction plays a crucial role in economic development globally, yet numerous studies highlight recurring issues hindering project success. For example, in Ghana, Kumi and Damoah (2018) identify ineffective project delivery in highway projects due to poor project management, resource constraints, and stakeholder coordination. These challenges resonate with similar issues observed in Ethiopia, where construction projects frequently experience delays, cost overruns, and quality deficiencies (Aschalew, 2017; Biyadglign, 2017).

Further research by Omopariola, Jacob, and Abimbola (2019) emphasizes the detrimental impact of poor project management and inadequate contract administration on building projects, stressing the need for robust management practices and effective contract oversight to mitigate delays and cost escalations. Ruth (2014) discusses how uncertainties in contract documents and decision-making processes contribute to disruptions, underscoring the importance of systemic improvements in project governance frameworks. In Ethiopia, the dominance of the public sector in project financing necessitates effective management of construction contracts and strict adherence to procurement laws (Aschalew, 2017). The ability of the construction industry to meet infrastructure development goals hinges on overcoming these challenges to deliver projects on time, within budget, and meeting quality standards (Biyadglign, 2017).

The researcher's interest in this topic is also driven by the significant economic contribution of the construction sector to Ethiopia, as highlighted by its GDP share (Mekedes, 2016). Additionally, there is a compelling need to leverage local professional expertise in construction projects, potentially reducing unemployment among skilled professionals. The researcher, drawing from over 15 years of experience in the construction industry, believes in the capability of local contractors to deliver projects effectively. They advocate for implementing robust motivation and safety systems to enhance productivity and performance in construction.

This study aims to identify the root causes of poor performance in public building projects in Addis Ababa comprehensively. By doing so, it seeks to propose actionable recommendations that can drive improvements in project delivery, efficiency, and overall quality within the local construction sector. Ultimately, the goal is to support sustainable development goals in Ethiopia by fostering a more effective and resilient construction industry.

1.3. Statement of the Problem

In Ethiopia, the construction industry plays a pivotal role in the country's socio-economic development. A construction project involves numerous processes from initiation to completion, encompassing various activities at each critical stage to achieve project objectives. However, there have been significant instances of unsuccessful construction projects, primarily attributed to inadequate closeout procedures (Biyadglign, 2017). Preliminary interviews with clients and consultants revealed widespread dissatisfaction: contract works were often incomplete, outstanding claims unresolved, change orders inadequately negotiated and processed, and extension of time requests frequently delayed. These issues contribute to project delays, posing challenges in meeting project deadlines, budgetary constraints, and quality expectations (Endale, 2016).

Moreover, the definition of contractors' success remains ambiguous among construction professionals. Investigating the factors contributing to poor contractor performance in construction projects is crucial for optimizing the allocation of limited resources. This study employs the severity index method to analyze the impact of each causal factor.

While significant research has focused on identifying critical success factors influencing construction project outcomes (El-sokhn, 2014; Peter and Evelyn, 2015; Shambel and Dixit, 2018; Mesfin, 2019), these studies often do not specifically address contractors' performance issues in the Ethiopian public construction sector. Hence, there is a gap in understanding the root causes of poor contractor performance. This research aims to fill this gap by identifying these root causes in the context of selected public building projects in Addis Ababa.

1.4. Objective of the Study

1.4.1 General Objective

The general objective of the study was to

- Identify the identify the root causes of poor contractors‘ performance by taking ongoing and recently completed projects of selected public building projects in Addis Ababa

1.4.2 Specific Objectives

- To highlight the perception of each project party (Contractors, Clients and Consultant) regarding the root causes of poor contractors‘ performance in construction in selected public building projects.
- To identify the factors that contribute to the root causes of poor contractors‘ performance
- To determine the severities of causes of poor contractors‘ performance in construction in selected public building projects
- To explore the consequences causes of poor contractors‘ performance in construction in selected public building projects
- To identify improvement on minimizing poor contractors‘ performance of selected public building projects in Addis Ababa

1.5. Research Questions

1.5.1 Main Research Question

- What are the root causes that affect contractors‘ poor performance by taking ongoing and recently completed projects of selected public building projects in Addis Ababa?

1.5.2 Specific Questions

- What is the perception of each project party (Contractors, Clients and Consultant) regarding the root causes of poor contractors‘ performance in construction in selected public building projects?
- What are the factors that contribute to the root causes of poor contractors‘ performance?
- What are the severities of the causes of poor contractors‘ performance in construction in selected public building projects?
- What are the consequences causes of poor contractors‘ performance in

construction in selected public building projects?

- What are the improvements on minimizing poor contractors‘ performance of selected public building projects in Addis Ababa?

1.6. Significance of the Study

The construction industry operates within a dynamic environment characterized by evolving project management techniques, technological advancements, substantial resources, and multifaceted processes involving numerous stakeholders. Effective construction project management entails anticipating risks and challenges, meticulously planning, organizing, and controlling activities to navigate through complexities and changes seamlessly. Identifying the root causes of poor contractors' performance in public building construction is crucial for enhancing industry understanding and improving stakeholder capabilities.

This study holds significant importance in pinpointing factors contributing to subpar contractor performance in construction projects, thereby facilitating improvements in project effectiveness. It serves as a catalyst for raising awareness among stakeholders within the construction industry and bolstering sectoral capacity. Insights derived from this research can inform strategies for enhancing performance management throughout the lifecycle of public construction projects, starting from the contractual stage. By doing so, it aims to enable projects to achieve their objectives more effectively and efficiently.

Furthermore, this research is instrumental in fostering the growth and competitiveness of local contractors in the Ethiopian construction industry. By benchmarking and inspiring improvements in their operational capacity, it aims to mitigate issues such as claims and disputes that often arise during and after construction. Ultimately, this study serves as a guide for future researchers, developers, clients, consultants, and contractors, offering insights to prevent underperformance in public construction projects. It also provides a foundational resource for subsequent studies focused on construction project performance. In summary, this research is poised to make a meaningful contribution to the Ethiopian construction industry by illuminating pathways to enhance contractor performance and optimize project outcomes through effective performance management practices.

1.7. Scope and Limitation of the Study

1.7.1 Scope of the Study

This research focuses specifically on the performance of public building construction projects within the context of Ethiopian building projects. The study involves contractors and consultants engaged in these building construction projects. While there exists a body of research on public building construction in Ethiopia, this study primarily draws on documents that specifically address factors contributing to poor performance in recent public projects.

Given the current landscape in Addis Ababa, the research considers a number of ongoing and recently completed public building projects. It aims to examine both construction projects that are currently under implementation and those that have recently concluded. The methodology established in this research primarily assesses the time and cost performance during the execution of public buildings and similar substructure works. The findings and insights derived from this study may serve as a benchmark for future large-scale public building projects undertaken by local contractors in Ethiopia.

1.7.2 Limitations of the Study

The scope of this research is constrained by both time and budget limitations. As a result, the study focuses narrowly on evaluating the time and cost performance aspects of public building projects. Other dimensions of project performance, such as quality assessment and comprehensive stakeholder perspectives, are beyond the immediate scope of this research.

Additionally, the study relies on a limited number of documents and literature sources that specifically address factors contributing to poor performance in public building projects. The availability and completeness of these documents may influence the depth and breadth of the analysis conducted.

Despite these limitations, the research methodology developed for this study holds potential applicability to similar projects within the construction industry in Ethiopia. It offers a structured approach that can be adapted and applied as a benchmark for evaluating and improving future public building projects led by local contractors.

1.8. Structure of the Thesis

This research is organized into five chapters and includes appendices.

- **Chapter 1: Introduction**

Provides background information and an overview of the public building construction industry in Addis Ababa. It discusses the research motivation, statement of the problem, objectives, research questions, practical implications, research ideas, theoretical framework, research approach, scope, limitations, and significance of the study.

- **Chapter 2: Literature Review**

Provides detailed information on the public building construction industry, covering related issues. It discusses causes and impacts of poor contractor performance, comparing and contrasting with technical terms such as contract models, performance analysis, factors and challenges in public building construction, expected reasons for poor performance, technical issues in high-rise public building construction, and broader socio-economic issues.

- **Chapter 3: Research Design and Methodology**

Outlines the techniques and procedures used to address the research objectives. It includes the research plan, approach, type of research, data sources, sampling methods, data collection techniques (questionnaires, interviews, observation, desk study survey), steps in conducting the research, and data analysis techniques.

- **Chapter 4: Analysis of Findings and Discussion**

Presents the results from case studies and analysis, comparing them with the literature review. It validates or refutes hypotheses and critically evaluates the findings, acknowledging limitations. This chapter details findings related to the six major causes of contractors' poor performance and compares factors based on their relative importance index.

- **Chapter 5: Conclusion and Recommendations**

Summarizes the entire study, presents logical conclusions based on Chapter 4's findings and limitations, and provides recommendations beneficial to the industry.

The dissertation also includes a section for references and appendices at the end.

CHAPTER TWO

RELATED LITERATURE REVIEW

2.1 Introduction

This chapter synthesizes findings from various literature reviews concerning the root causes of poor performance in construction projects. The performance of construction projects is influenced by factors such as construction type, methods employed, project stage, contract type, delivery system, project complexity, and others. Effective performance management techniques must be tailored to address these specific factors. Therefore, this literature review aims to elucidate these issues, particularly focusing on construction management practices starting from the contractual stage.

2.2 Theoretical Literature Review

2.2.1 Concepts and Definitions

Performance management in the construction industry operates under an agreement-based interactive control model. At its core, this model seeks to achieve a balance between available resources and the desired outcomes. The fundamental aim of performance management is to efficiently and effectively achieve project objectives while optimizing the use of resources (Sullivan, 2013). Performance encompasses a broad spectrum of economic and operational aspects within an industry. It includes factors such as profitability, productivity, quality, speed, and delivery. Understanding how well an organization is performing is essential for assessing its overall success and operational efficiency (Mekedes, 2016). In construction, performance is crucially tied to meeting project criteria such as cost, time, safety, resource allocation, and quality, as stipulated by project stakeholders (Ruth, 2014).

Effective performance management ensures that organizational subsystems, including processes, departments, and teams, work synergistically to achieve desired outcomes. This involves continuous goal-setting, progress monitoring, standards establishment, feedback exchange, and intervention where necessary (Ruth, 2014; Ruth, 2017). Key Performance Indicators (KPIs) play a pivotal role in performance management by providing measurable evidence of goal attainment. KPIs enable comparisons across projects and organizations, helping to identify trends and areas for improvement (Damoah et al., 2018). They assist in

determining which processes and capabilities are competitive and where enhancements are needed.

In the construction context, project performance is often evaluated based on meeting stakeholders' expectations in terms of time, cost, and quality. However, broader parameters such as customer satisfaction, adherence to specifications, health and safety standards, and environmental sustainability also influence project success (Shaban, 2013). Measurement is integral to performance management, serving as a tool to evaluate efficiency, utility, and overall contribution to organizational and employee performance. It involves the systematic collection and analysis of data to assess the effectiveness and efficiency of business processes and project outcomes (Sullivan, 2013; Damoah et al., 2018).

Efficiency in performance management refers to achieving desired outputs using minimal resources, thereby maximizing cost-effectiveness and minimizing waste. Effectiveness, on the other hand, focuses on achieving goals and making informed decisions that contribute positively to organizational objectives (El-sokhn, 2014). According to the OECD (2014), performance measurement involves ongoing data collection to assess the extent to which pre-established program objectives are being met. It provides a basis for comparing desired outcomes with actual achievements, facilitating continuous improvement in project and organizational performance. In summary, performance management in construction involves a multifaceted approach aimed at optimizing resources, achieving project objectives, and continuously improving operational effectiveness. Effective performance measurement and the use of KPIs are critical in this process, enabling organizations to monitor progress, identify areas for enhancement, and ultimately deliver value to stakeholders.

2.2.2 Overall about Construction Industry and Building Construction in General

The construction industry encompasses all economic activities related to civil and building works, from conception and planning to execution and maintenance. This sector involves significant capital investments in infrastructure such as roads, railways, airports, dams, power stations, and various public facilities essential for socio-economic development (Gaber, Hakami, & Yousif, 2014). In developing countries like Ethiopia, the construction sector plays a pivotal role in fostering economic growth by facilitating the development of physical infrastructures necessary for progress. It is a major contributor to the overall economic

welfare of a nation, impacting social, political, and economic dimensions (Musa, Amirudin, & Sofield, 2015).

Construction projects are known for their complexity, costliness, and inherent risks. Despite these challenges, they attract substantial investments, advanced technologies, and skilled professionals. Building projects constitute a significant portion of the construction industry in most developing economies, driving economic growth and serving diverse sectors (Mekedes, 2016). At its core, construction involves the mobilization of capital, specialized personnel, materials, and equipment to realize specific projects as per agreed-upon specifications and contractual obligations. This industry fulfills critical developmental objectives such as generating output, creating employment opportunities, and supporting infrastructure and consumer goods production (El-sokhn, 2014).

Projects within the construction industry are characterized as temporary endeavors aimed at delivering unique products, services, or results. They face inherent uncertainties and risks due to their unique nature, involvement of multiple stakeholders, and dynamic external environments (Project Management Institute, 2017). Building construction projects, like all projects, encounter various risks throughout their lifecycle. These risks arise from project uniqueness, stakeholder dynamics, regulatory requirements, and other internal and external constraints. Failure to achieve project objectives, known as poor performance, can have significant repercussions for stakeholders such as increased costs, diminished returns on investments, and reputational damage (Shambel & Dixit, 2018).

The construction industry has undergone profound transformations over recent decades, becoming increasingly complex, diverse, and dynamic. Modern construction projects involve numerous stakeholders across multiple disciplines, each contributing to project planning, design, and execution (Ibrahim, 2016). Infrastructure and buildings produced by the construction industry play a crucial role in enhancing quality of life. They provide essential services such as shelter, water, power, and facilitate commerce, education, recreation, and transportation, thereby contributing significantly to societal development (Omopariola et al., 2019). Due to their uniqueness, construction projects require tailored approaches to resource management and operational planning. Each project operates within its specific environment, facing distinct technical and environmental challenges. Consequently, project execution is influenced by numerous constraints that directly impact project performance (Damoah et al., 2018).

Performance in construction is evaluated based on how well project objectives are met relative to stated requirements and expectations. It encompasses achieving goals such as business profitability, service excellence, and overall organizational success. Given the collaborative nature of construction projects involving multiple stakeholders, performance can be viewed as the collective contribution of clients, consultants, and contractors towards achieving project goals (Musa, Amirudin, & Sofield, 2015). In brief, the construction industry is instrumental in advancing national development goals through infrastructure projects that support economic growth and societal welfare. Effective performance management in construction involves navigating project complexities, managing risks, and optimizing resources to deliver successful project outcomes aligned with stakeholder expectations.

2.2.3 Overall about Ethiopian Construction Industry

The construction industry in Ethiopia encompasses a wide array of activities, including residential buildings in both urban and rural areas, industrial structures such as factories, warehouses, and offices, as well as infrastructure projects like roads, dams, and electricity transmission lines. These projects represent significant investments and are crucial for the overall economic development of the country (Mekedes, 2016). Ethiopia, located in the Horn of Africa, covers an expansive area of 1.13 million square kilometers and supports a large population estimated at around 101 million. The majority of Ethiopians reside in rural areas, with only a minority living in urban centers. Despite this demographic distribution, urban areas have been focal points for construction activities, contributing significantly to the country's GDP, with the construction sector averaging an 8.3% share from 2009 to 2019 (Mesfin, 2019).

The construction industry plays a pivotal role in Ethiopia's economy by stimulating economic growth, creating employment opportunities, and supporting the development of essential infrastructure such as roads and housing units. This sector is crucial for addressing both physical and social needs, thus promoting overall national development (Mesfin, 2019). Construction projects inherently involve risks, which can have profound impacts, particularly in developing countries like Ethiopia. Effective risk management is essential to mitigate these uncertainties and ensure project success. Given the limited capital and technological resources in Ethiopia, managing risks becomes even more critical to avoid losses and enhance

project outcomes (Shambel & Dixit, 2018).

In Ethiopia, the construction industry comprises various types and sizes of firms operating in distinct sub-markets. These firms are required to be registered and licensed by the Ministry of Works and Urban Development. Licensing entails meeting specific qualifications and requirements related to expertise, financial capability, and project size. The ministry categorizes construction firms into general contractors, building contractors, road contractors, and specialized contractors, each with different resource and qualification criteria (Biyadglign, 2017).

Professional services within the construction sector include architects, civil engineers, construction managers, electrical engineers, quantity surveyors, and surveyors, among others, who play crucial roles in design and project management. Consultancy firms, categorized as CA (consultancy architects), CAE (consultancy architects and engineers), CM (construction management), HBC (consultancy highway and bridge), CE (consultancy engineers), and SC (specialized consultancy), are also licensed based on their capabilities and expertise (Biyadglign, 2017). Currently, Ethiopia boasts over 7,000 registered contractors, with only a small fraction classified as grade one contractors, indicating high competition and specialization within the industry. Similarly, there are 187 consulting firms, of which only a few hold grade one licenses, highlighting the rigorous standards set by the ministry to ensure competence and professionalism in the construction sector (Mesfin, 2019). In summary, the construction industry in Ethiopia is indispensable for the country's development aspirations, contributing significantly to economic growth, infrastructure expansion, and job creation. Effective regulation and licensing ensure that construction firms operate at defined standards, promoting specialization and enhancing overall industry performance. Continued investment and capacity-building efforts are crucial to further bolstering Ethiopia's construction sector and achieving sustainable development goals.

2.2.4 Contractors' Performance

2.2.4.1 International Trend of Contractors Performance

The construction industry encompasses a broad spectrum of activities, involving companies primarily engaged in various construction tasks such as general contracting, heavy construction (including airports, highways, and utility systems), and specialized trades. It also

includes firms involved in site preparation for new construction and land subdivision for building sites. Construction activities encompass new construction, additions, alterations, as well as maintenance and repairs. Projects within this sector are typically categorized as residential (such as home building) or non-residential (including commercial and government buildings, and infrastructure projects). They can also be classified based on funding sources, either public or private (Donghoon, 2013).

For many countries, the construction sector represents a cornerstone of their economy. Beyond providing infrastructure critical to other industries, construction itself ranks among the largest sectors economically. Governments often view the construction sector as strategically important due to its role in generating employment and sustaining economic growth, particularly through public works initiatives. The sector's significance extends to enhancing local skills, transferring technologies, and improving access to vital information channels (Damoah et al., 2018).

Effective construction projects and programs hinge on well-defined goals and objectives. Performance indicators play a crucial role in evaluating the extent to which these goals and objectives are achieved (Shambel & Dixit, 2018). However, their utility extends beyond mere evaluation; performance indicators are essential tools in construction management for identifying areas needing development or enhancement in performance. Their application within construction administration is tailored to specific needs, aiming to optimize project outcomes and operational efficiency (Damoah et al., 2018).

2.2.4.2 Ethiopian Building Contractors and Their Performance

Ethiopia boasts a rich historical legacy of impressive construction achievements, evidenced by landmarks such as the obelisks of Axum, the rock-hewn churches of Lalibela, and the castles of Gondar. With the onset of modernization, particularly during Emperor Menelik's reign, significant advancements occurred. One notable project from this period is the Addis-Djibouti railway line, a testament to Ethiopia's capabilities in executing large-scale infrastructure projects. The Italian occupation in the 1930s also spurred construction activities, particularly in the development of extensive trunk roads. Subsequently, until the 1960s, expatriate contractors largely dominated medium and small civil and building projects (Biyadglign, 2017).

Presently, Ethiopia's construction industry encompasses a wide spectrum of projects, ranging from residential buildings and high-rise structures to schools, hospitals, factories, and shopping centers. The sector also undertakes extensive engineering projects such as highways, hydroelectric dams, and irrigation canals. Beyond infrastructure development, construction in Ethiopia plays a crucial role in providing employment opportunities. Workers in the industry often engage in full-time work, sometimes exceeding 40 hours per week, and may work evenings, weekends, and holidays to meet project deadlines or address unexpected challenges like inclement weather (Mesfin, 2019).

The construction industry in Ethiopia is structured into various sectors, including building and residential development, civil engineering, professional services, and self-building. To undertake construction work legally in Ethiopia, firms must be registered and licensed by the relevant authorities. Domestic construction capacity refers to the potential volume or value of construction that local companies can undertake within a specified period. This capacity hinges on factors such as the availability and quality of machinery and equipment, as well as skilled manpower capable of handling tasks from design to supervision (Azeb, 2016).

2.2.5 Root Causes of Poor Contractors' Performance In Construction

The construction industry is recognized globally as a crucial driver of economic development, particularly in developing countries like Ethiopia. However, this sector often faces significant challenges that hinder its overall performance and effectiveness in delivering projects on time, within budget, and to the desired quality standards (Mesfin, 2019). Peter and Evelyn (2015) underscored the need to identify and address the factors influencing construction project performance. Their research focused on understanding the intricate relationships between various factors and how these impact the outcomes of construction projects, particularly in the context of public building projects. These factors include local conditions specific to Ethiopia, project-related dynamics, external environmental influences, procedural aspects of project implementation, and the effectiveness of project management actions.

In developing countries, including Ethiopia, the construction industry's performance is crucial not only for economic growth but also for societal development. Projects ranging from infrastructure development (roads, bridges, dams) to residential and commercial buildings play a vital role in improving living standards, creating employment opportunities, and

enhancing overall infrastructure (Azeb, 2016).

Contractors, as key stakeholders in the construction process, are pivotal in translating project plans into tangible outcomes. Enhancing their capacity and capability is essential for improving project execution and overall industry performance (Biyadglign, 2017). Therefore, any initiatives aimed at addressing the root causes of poor performance must consider the role and capabilities of contractors comprehensively. By examining these factors and their interrelationships, the study by Peter and Evelyn (2015) sought to provide insights into why contractors may face challenges in delivering successful projects. This understanding is crucial for developing targeted strategies and interventions that can help mitigate risks, improve project management practices, and ultimately enhance the overall performance of the construction industry in Ethiopia. Thus, their research contributes to the broader goal of fostering sustainable development through more effective and efficient construction practices.

2.2.5.1 Management Factors

Management is an active process that efficiently utilizes an organization's resources in a controlled and structured manner to achieve clearly defined strategic objectives. It operates within specific constraints and is continuously conducted to meet the organization's needs (Shambel & Dixit, 2018). The necessity for project management arose as companies recognized the advantages of structuring work around projects and the critical need for effective communication and coordination across departments and disciplines. Despite advancements, project failures persist, often due to recurring issues (Damoah et al., 2018).

Construction project management commences with the contractor's involvement in the project. Initial tasks include establishing a comprehensive construction budget and a detailed operational schedule. These cost and time-based models define the project's financial and temporal goals, serving as a blueprint for actual construction activities (Peter and Evelyn, 2015). Once the project begins, monitoring systems are implemented to track actual costs and progress at regular intervals. Progress reports compare actual performance against planned targets. Any deviations identified prompt immediate management attention. Furthermore, the data collected guides corrective actions and enables adjustments to forecasts regarding project costs and completion timelines (Keoki et al., 2015).

2.2.5.2 People Factors

Nesru and Tadele (2020) emphasized the crucial role of human factors in project performance. Effective scope management practices include controlling the quality of contract documents, responding effectively to perceived variations, and managing changes to the contract. They suggested that foreign firms adopt these project management practices to enhance project performance. According to El-sokhn (2014), health and safety management in construction has a significant human dimension, as accidents can lead to personal injuries and fatalities. Stringent health and safety regulations can mitigate accidents and their impacts on project costs. Moreover, accidents incur indirect costs such as insurance, inspection, and regulatory compliance (Kumi & Damoah, 2018). Key measures identified to address health and safety issues on construction sites include providing safety booklets and equipment, ensuring a safe working environment, appointing trained safety representatives, implementing site-specific health and safety plans, and conducting education and training for workers and supervisors. Adoption of new technologies, adherence to federal regulations, compliance with workers' compensation laws, and medical monitoring also contribute to enhancing safety on construction sites (Shambel & Dixit, 2018).

2.2.5.3 Cost Factors

The success of construction project development activities significantly hinges on the managerial, financial, technical, and organizational performance of involved parties, alongside considerations of risk management, the business environment, and economic and political stability (Kumi & Damoah, 2018). The long-term success of a construction project is evaluated based on timely completion, adherence to budget constraints, meeting required quality standards, and ensuring customer satisfaction (Werku, 2016).

Delays in construction projects encompass multifaceted issues that are critically important to all parties involved in construction contracts (Nesru and Tadele, 2020). These issues include disputes over entitlement to recover delay costs or the need to extend project timelines, often leading to disputes and litigation regarding the causes of delays and assignment of fault (Bolton, 1990).

2.2.5.4 Design and Documentation factors

Success factors in construction projects are defined as personal characteristics necessary for

job performance, such as knowledge, skills, and attitude. In contrast, success criteria are the essential conditions used to judge project success, while success factors contribute to achieving that success (Nesru and Tadele, 2020). The relationship between success factors, success criteria, and project success varies across different phases of the project life cycle. Success factors are particularly crucial during the conceptual and operational phases, where projects are conceptualized and tested. During the construction phase, success factors focus on contractual parties' goals related to time, cost, quality, and safety (Peter and Evelyn, 2015).

Shambel and Dixit (2018) define procurement scope as the framework within which construction projects are acquired or obtained. Key aspects used to measure procurement scope include the procurement method (selection of the organization for project design and construction) and tendering method (procedures for selecting the project team and main contract). Eriksson and Vennstrom (2012), as cited by Peter and Evelyn (2015), suggest that cooperative procurement practices such as joint specifications, limited bid invitations, soft evaluation parameters, joint subcontractor selection, incentives, collaborative tools, contractor self-control, and project collaboration can significantly impact project performance. Various procurement-related factors, including selection criteria, tendering methods, and variation orders, are crucial considerations affecting project performance (Werku, 2016).

Procurement-related factors influencing project performance encompass areas like reconstruction time, control of project design and cost, and client control over construction projects. Important procurement-related factors at the design stage include bid invitations, bid evaluation, subcontractor selection, compensation factors, and performance evaluation, collectively known as collaborative procurement practices, which have been shown to affect project performance positively (Nesru and Tadele, 2020).

2.2.5.5 Material and Equipment Factors

Peter and Evelyn (2015) refer to Mustapha and Noaum (1997) who categorized factors influencing project manager performance into five main categories. These include individual and personal characteristics, work conditions, project characteristics, environmental factors, and organizational factors (Shambel and Dixit, 2018). This study particularly focuses on work conditions, project characteristics, and organizational factors. Organizational factors encompass variables such as company size, hierarchical power and authority within the

organization, and the type of client involved. These factors significantly impact how projects are managed within an organizational context, influencing decision-making processes and resource allocation (Shambel and Dixit, 2018).

The nature of the project category includes variables related to the project environment, size of the project, duration of the project timeline, complexity of the project tasks, relationships within the project team, and the availability of materials and resources (Kumi & Damoah, 2018). These variables collectively shape the operational environment of the project and can influence project outcomes significantly. Understanding and effectively managing these factors are critical for project managers aiming to optimize project performance (Keoki et al., 2015). By addressing variables within these categories, managers can mitigate risks, enhance team dynamics, and align project objectives with organizational goals, ultimately contributing to successful project delivery (Shambel and Dixit, 2018).

2.2.5.6 Environment Factors

International construction projects often confront significant external uncertainties, including political, economic, social, and cultural risks, in addition to internal project-specific risks, which Ibrahim (2016) characterized as more intricate and dynamic compared to domestic projects. On the other hand, Omopariola et al. (2019) identified multiple factors contributing to suboptimal performance in construction contracts, categorizing them into eight groups: clients, contractors, consultants, subcontractors, suppliers of materials and labor, contractual relationships, project procedures, and external environmental factors (Keoki et al., 2015).

According to Musa et al. (2015), the term "environment" encompasses all external influences affecting the construction process, such as social, political, and technological systems. The economic environment, social environment, political environment, physical environment, industrial relations environment, and level of technological advancement are parameters used to assess this aspect. These external factors significantly influence the course of construction projects. Understanding these environments is crucial for predicting project performance levels from the outset, particularly in terms of meeting development needs for project team members (Kumi & Damoah, 2018).

2.3 Empirical Literature Review

Project performance is a crucial aspect within the construction industry. Deliverables such as

timely completion and client satisfaction serve as critical measures of success. The effectiveness of a construction project manager in fulfilling their responsibilities significantly influences project success (Omopariola et al., 2019). Given the industry's complexity, involving numerous parties such as clients, contractors, consultants, stakeholders, shareholders, and regulators, global studies provide valuable insights into identifying root causes of poor contractor performance. Ibrahim (2016) emphasized that cost, time, and quality are paramount factors for successful project management.

2.3.1 From Global Perspectives

Omopariola et al. (2019) examined challenges faced by contractors in implementing public building projects in Nigeria and their impact on project performance. The study aimed to propose strategies for enhancing performance, using a cross-sectional survey involving 128 construction professionals directly engaged in these projects. Quantitative analysis included mean item scores and regression analysis of 79 valid responses, revealing that major hurdles for contractors included delayed financial support, client payment delays, and inadequate project management leadership. These challenges significantly hindered project performance, suggesting solutions such as prompt client payments, effective project planning and scheduling, and controlling interest rates on loans. Recommendations included honoring interim certifications promptly and minimizing variation orders, while advising contractors to seek bank financing to manage cash flow.

In South Africa, Mthimkhulu and Aigbavboa (2017) conducted a study on risk management practices in construction projects, emphasizing the importance of proactive risk identification and mitigation strategies in enhancing project performance. They highlighted factors such as political stability, economic fluctuations, and technological advancements as critical to project success.

Studies from other countries such as Brazil, China, and Canada have also contributed to understanding construction project performance. For example, in Brazil, Santos and Almeida (2018) conducted a study on factors affecting the performance of infrastructure projects, emphasizing regulatory compliance and environmental factors. In China, Liu and Tao (2017) explored the impact of technological advancements on project efficiency and quality, highlighting the role of innovation and technology adoption. In Canada, Smith and Johnson (2019) investigated the effects of climate variability on construction project timelines and

costs, underscoring the importance of environmental considerations in project planning and execution.

Ibrahim (2016) highlighted that subpar performance in construction projects is a global concern, including within Saudi Arabia's construction industry. To assess the causes and their severity, this study conducted a questionnaire survey among public owners, contractors, and consultants involved in building projects in Saudi Arabia. Owners identified poor communication among project participants as the most critical issue affecting project performance, followed by poor labor productivity and inadequate planning and scheduling. Contractors prioritized "payments delay" as the most severe factor, followed by "escalation of material prices" and "poor labor productivity." Consultants, on the other hand, emphasized poor planning and scheduling, poor site management, and payments delay as the top three influencing factors.

Peter and Evelyn (2015) investigated construction projects in Kenya's coastal region, identifying complex performance issues such as cost, schedule, and safety. Their research aimed to assist stakeholders in overcoming these challenges and improving project performance by assessing factors influencing performance, evaluating the impact of the external environment, and identifying critical project procedures. Using Kendall's Coefficient of Concordance, they found substantial agreement among owners, consultants, and contractors regarding variables like Cost, Time, Quality, Productivity, Client Satisfaction, People, Innovation, and Learning. Disagreement persisted on aspects such as regulatory compliance and community satisfaction, alongside environmental factors. Political instability in Kenya's coastal region and delayed payments leading to material shortages were identified as causes of project delays and cost overruns, with minimal adoption of project safety measures by construction firms.

Amusan and Adebile (2011) investigated factors influencing construction cost performance at Nigerian sites. Their analysis revealed that project complexity, shortened durations, and fraudulent practices contributed significantly to cost overruns. Other factors included contractor inexperience, inadequate planning, inflation, frequent variation orders, and changes in project design.

2.3.2 Ethiopian Studies' Review

Nesru and Tadel (2020) investigated the causes and consequences of construction delays in the Gurage zone, Southern Ethiopia. They distributed 35 questionnaires to clients, contractors, and consultants, complemented by two focus group discussions. The severity, frequency, and importance of factors contributing to delays were assessed through indices. The analysis pinpointed the top ten factors contributing to delays, including economic factors like inflation and currency fluctuations, changes in material prices, project time overruns, slow decision-making processes, poor planning, inadequate project funding, and incomplete bill of materials. The consequences of these delays, ranked by relevance index, included increased project costs, time overruns, compromised project quality, project abandonment, and inefficient utilization of materials and human resources.

Mesfin (2019) conducted a comprehensive evaluation of the primary variables influencing the execution of construction projects within companies. The study involved 117 contractors who responded to a questionnaire survey comprising 35 identified factors categorized into 7 groups. Utilizing Relative Importance Index (RII) analysis, the study assessed the perceptions of both owners and contractors regarding factors impacting construction project performance. Key factors identified by both parties included the contractual completion period, availability of skilled workers, adequacy of material supply, fluctuation in material prices, influence of political and physical environments, delays in progress payments to contractors, effectiveness of planning efforts, technical expertise of project staff, and early involvement of consultants in the project. The study revealed a substantial relationship between independent variables and the dependent variable, with these factors collectively explaining 83.8% of the variation in construction project outcomes. Beyond labor, materials, and contractual factors, regression analysis highlighted additional variables that positively influence construction performance.

Azeb (2016) explored essential elements affecting the performance of local and international contractors to develop effective strategies for meeting performance parameters. Through a literature review, Azeb identified 15 specific elements impacting foreign contractors out of the 37 factors considered for both local and international contractors. These elements were categorized and subjected to statistical analysis based on a questionnaire survey involving senior professionals from both groups of contractors. The study underscored unanimous agreement among respondents on the significant impact of all identified factors on contractors' performance.

In a related study, Bekele and Asfaw (2018) explored the impact of risk management practices on construction project performance in Ethiopia. They surveyed 150 project managers and used regression analysis to examine the relationship between risk management practices and project performance. The study identified effective risk identification, assessment, mitigation strategies, and continuous monitoring as critical factors in enhancing project performance and minimizing delays and cost overruns.

Another significant study by Taye and Zewde (2017) focused on the role of leadership in managing construction projects in Ethiopia. Through interviews and surveys with project managers and stakeholders, they evaluated the influence of leadership styles, communication, and decision-making on project outcomes. The study highlighted the importance of transformational leadership, effective communication channels, and proactive decision-making in achieving project success and stakeholder satisfaction.

2.4 Research Gap

Numerous studies have investigated various factors influencing contractors' subpar performance, each focusing on specific aspects relevant to their research objectives. For example, Mesfin (2019) examined variables affecting construction project performance, Ibrahim (2016a) explored challenges faced by contractors and their impact on performance, and Azeb (2016b) compared factors influencing the performance of local and international contractors on road projects. However, none of these studies comprehensively addressed the fundamental causes of contractors' subpar performance in the building construction industry.

The research gap lies in the need to specifically identify and analyze the core underlying reasons for contractors' poor performance. It is hypothesized that project performance is intricately linked to factors such as project-related characteristics, project procedures, project management practices, human-related factors, and the external environment. Understanding how these factors individually and collectively influence project performance remains underexplored. Specifically, it is posited that projects perform better when they exhibit lower complexity, shorter duration, effective managerial actions, funding from knowledgeable private clients, clear project briefs and decision-making processes by clients, competent project leadership, and implementation in stable environments with advanced technological support.

Addressing this research gap would not only enhance theoretical understanding but also provide practical insights for improving contractors' performance in the building construction sector, particularly in Ethiopia and globally. Future research could employ comprehensive methodologies integrating qualitative and quantitative approaches to delve deeper into these factors and their interrelationships, thereby offering nuanced strategies for optimizing construction project outcomes.

2.5 Conceptual Framework

The conceptual framework underpinning this study draws upon insights from existing literature to explore the multifaceted factors influencing underwhelming contractor performance in construction projects. Central to this framework are Critical Success Factors (CSFs) identified in studies such as Peter and Evelyn (2015) and Shambel and Dixit (2018). These CSFs encompass a wide range of elements critical to project success, including managerial effectiveness, financial management, technical expertise, and organizational capabilities. These factors have been repeatedly highlighted as pivotal in determining the overall success of construction endeavors.

In parallel, Ibrahim (2016) conducted a thorough literature review that identified 42 distinct variables influencing construction project performance. These variables span various dimensions, ranging from project management practices to external environmental factors. By synthesizing findings from extensive reports and published research, Ibrahim's study provides a comprehensive view of the diverse factors that can impact the execution and outcomes of construction projects.

Building upon these foundations, this study aims to delve deeper into the specific variables that contribute to subpar performance among contractors. While CSFs provide a broader framework for understanding project success, the focus here extends to understanding why certain contractors fail to meet expected performance standards. This entails examining how these variables interact within the unique context of construction projects, particularly in the Ethiopian context, and how they collectively influence contractor performance.

The integration of both CSFs and the comprehensive variables identified by Ibrahim (2016) serves as a robust approach to exploring the underlying causes of poor contractor performance. By elucidating these relationships, the study seeks not only to enhance

theoretical understanding but also to provide practical insights for improving project outcomes in the construction industry. Ultimately, the conceptual framework guides the investigation towards identifying targeted strategies and interventions that can mitigate performance issues and optimize project success.

People Factors

- Poor labour productivity
- Lack of subcontractors skill
- Lack of contractor experience
- Lack of labour experience
- Belonging to work
- Lack of trade skill
- Poor distribution of labour
- Supervision too late
- Too few supervisors/foremen
- Employees motivation
- Organizational Culture
- Labour Scarcity
- Inexperienced inspector

Cost Factors

- Payments delay
- Availability of finance management and plans
- Cost of rework
- Escalation of material prices
- Market conditions
- Differentiation of currency prices
- Profit rate of project
- High interest rate charged by bankers on loans
- Variation
- Capital Investment

Professional Management Factors

- Poor planning and scheduling
- Poor site management
- Poor resource management
- Poor communication among project participants
- Slow in making decisions
- Managerial Maturity

POOR CONTRACTORS' PERFORMANCE

Design and Documentation factors

- Design changes
- Poor quality site documentation
- Slow drawing revisions and distribution
- Unclear specifications
- Poor design
- Unclear site drawings supplied

Material and Equipment factors Inappropriate/misuse of material

- Poorly scheduled delivery of material to site
- Poor quality of materials
- Equipment shortage
- Poor storage of materials
- Poor equipment choice/ineffective
- Poor material management

Environmental factors

- Project complexity
- Wastes around the place
- Public exposure of the project
- Project location
- Site conditions
- Weather
- Social and cultural impacts
- Business Infrastructure
- Procurement laws
- Fraud and Negligence

Figure 1 ***Conceptual Framework***

Adapted from Ibrahim (2016)

In addition to the factors previously mentioned, this study incorporates additional pertinent variables. These include organizational culture and labor shortages in the human resources category, variations, capital investment, and credit facilities in the financial category, and managerial maturity, ineffective material management, procurement laws, fraud, and negligence in the professional management, material, and environmental categories respectively. Drawing from Ibrahim's (2016) criteria, which identified 53 factors contributing to poor contractor performance, this study integrates an additional 11 criteria. Consequently, the study employs the following elements: cost, people, professional management, design and documentation, materials and equipment, and environmental factors (Figure 1). These factors are categorized based on their respective sources.

The aim is to uncover the underlying reasons behind contractors' subpar performance in the construction of public buildings. The assessment of poor project performance by contractors is based on industry-standard metrics including cost, quality, time, and constructability.

CHAPTER THREE RESEARCH METHODOLOGY

3.1 Introduction

This chapter provides a comprehensive overview of the methodology and design employed in the study. It encompasses various essential components including research standards, ethical considerations, sample design, data sources, data collection tools, data analysis techniques, validity and reliability testing, and data analysis procedures.

3.2Descriptive of Research Area

This study was conducted within a public building in Addis Ababa. It specifically focused on both federal projects located in Addis Ababa and the eleven sub-city administrations that constitute the city's administrative structure.

Figure 2 Map showing the study area
(Source: Google Map 2022)

As a result, the study encompasses several public building projects managed by the Addis Ababa City Government's Design and Construction Works Bureau and Housing Development and Administration Bureau. Additionally, the federal Ministry of Health has selected projects such as St. Paul's Hospital and Millennium Medical College buildings for inclusion. The research focuses on Addis Ababa, Ethiopia's capital city. Located just west of the East African Rift, Addis Ababa spans an estimated area of 527 km2 (203 sq mi) and is situated at coordinates 9°01'48" N and 38°44'24" E, with a population of approximately 10 million residents comprising diverse ethnic backgrounds from across Ethiopia.

3.3 Study Period

This research study was expected to take four months to complete, and it did so between December 5, 2021, and March 30, 2022, as per the attached work schedule and plan.

3.4 Research Approach

Scientific research methodologies are broadly categorized into three types by Creswell (2014): mixed methods, qualitative, and quantitative. Qualitative research aims to understand the meanings individuals or groups attribute to social or human situations. On the other hand, quantitative research examines relationships between measurable variables using statistical techniques to test objective theories, as noted by Zikmund (2000) and cited by Shambel and Dixit (2018).

Peter and Evelyn (2015) employed a mixed-methods approach in their study on construction project performance in Kenya's Coastal Region. This approach combines both qualitative and quantitative methodologies to leverage their respective strengths and produce complementary insights. Similarly, this current study adopts a mixed-methods approach to effectively address its research questions and achieve its objectives of identifying the underlying factors contributing to poor contractor performance in the construction industry. Therefore, by utilizing both qualitative and quantitative methodologies, this study aims to provide a comprehensive understanding of the issues at hand and explore causal relationships between various factors affecting contractor performance.

3.5Research Design

3.5.1 For Quantitative Approach

As said by Creswell (2012), the research design provides the conceptual framework within which research is conducted; it serves as the blueprint for the collection, measurement, and analysis of data. In this study, self-completion questionnaires were utilized to ensure objectivity. The chosen research design is cross-sectional, also known as a social survey design, which involves gathering data from multiple cases at a single point in time. This approach allows for the collection of both quantitative and qualitative data related to multiple variables, which are then analyzed to describe characteristics and explore patterns of association among variables (Nesru and Tadele, 2020).

For a thesis project like this one, which needs to be completed within a limited timeframe, a cross-sectional study design is particularly suitable. This design enables a snapshot of the current factors contributing to poor contractor performance in public construction projects. Therefore, this study employed a descriptive research design to succinctly outline the existing issues affecting contractors' performance in this sector.

3.5.2 For Qualitative Approach

The research method employed in this study is a phenomenological case study focusing on two 40/60 condominium house projects in Addis Ababa. The Saving Houses Development Enterprise entered into contract agreements with contractors for the construction of 2B+G+15 buildings at Bole Bulbula in 2015, which were divided into two lots: Bole Bulbula Lot 1 and Lot 2. A case study approach was chosen for this research because it allows for a detailed exploration of complex cases, thereby facilitating a deeper understanding of the root causes of poor contractor performance in selected public building projects in Addis Ababa.

This methodological choice is driven by the need to conduct an up-close, in-depth examination that comprehensively analyzes the factors contributing to contractors' poor performance. A case study enables a holistic study of these public building projects, emphasizing that reality is individually constructed through the experiences of those involved. It acknowledges that each contractor perceives the causes of poor performance uniquely, shaped by their past experiences and interpretations of those experiences (Shambel and Dixit, 2018).

In essence, this organizational-centered approach aims to generate insights from the perspective of the individuals involved. The researcher engages in a meaningful dialogue with research participants to interpret and make sense of the data collected, aiming to uncover nuanced understandings of why contractors experience poor performance in public building projects.

3.6 Unit of Analysis

The unit of analysis in this study was individuals participating in selected public building projects in Addis Ababa. These individuals include contractors, project managers, site supervisors, engineers, and other stakeholders directly involved in the planning, execution,

and management of the construction projects under investigation. The study focused on understanding their perspectives, experiences, and insights regarding the factors contributing to poor contractor performance in these public building projects. Through interviews, surveys, and observations, the researcher sought to gather data that would provide a comprehensive view of the issues at hand from the viewpoint of these key individuals. This approach aimed to uncover detailed and context-specific information essential for addressing the research questions and objectives of the study effectively.

3.7Target Population and Sampling

3.7.1 Population and Sampling for Survey

3.7.1.1 Target Population for Survey

Participants in this study were chosen from a subset of public construction projects. 1014 engineers, contract administrators, and professional executives from the three primary construction stakeholders—clients, contractors consulting firms, and other clients and client representatives—were the study's targeted population. All of these can be located in the St. Paul's Millennium Medical College, the City Government of Addis Ababa Housing Development and Administration Bureau, and the City Government of Design and Construction Works Bureau in Addis Ababa, Ethiopia.

3.7.1.2 Sample Size Determination

Sampling is the process of choosing a number of participants for a research project so that each participant serves as a representative sample of the larger population from which the participants were chosen (Kothari, 2004). Kothari (2014) states that for the target population, which is not very huge, 5–10% of the total may be sufficient. The construction professionals who were sampled were employed in Addis Ababa, Ethiopia, on the corresponding government projects. The sample size determination formula employed in this work, which was simply lifted from Yamane (1973), was fooling well Know. 286 sampled respondents were selected for the survey from the entire population in this study using a sampling approach based on the following formula, namely the well-known Yamane formula (1973). This study enhanced the number of attempts to cover the potential nonresponse percentage by estimating it. Because of this, the study suggested a 10% non-response rate, and 314 was the final sample size (286 * 1.1).

3.7.1.3 Response Rate

The survey questionnaire was administered face-to-face, with interested participants given a two-hour window to complete the initial response. After a few days, a total of 314 responses were received. Self-administered questionnaires were distributed to 314 respondents with close follow-up and guidance provided during completion. Ultimately, 304 respondents returned completed questionnaires in suitable form, representing a participation rate of 97% of the total targeted respondents. Additionally, eleven interviews were conducted over the phone using a prepared interview checklist, and the results of these responses were integrated into the study.

Masihuddin et al. (2017) suggest that a response rate of 50% is adequate, 60% is good, and 70% or above is excellent for a study. With a response rate of 79%, as indicated in the table above, this study achieved a commendable level of data collection, particularly noteworthy given the challenges posed by the COVID-19 pandemic and its consequences.

3.7.1.4 Sampling Procedures

This study employed purposive sampling to select projects in Addis Ababa, specifically targeting individuals with in-depth knowledge, experience, and rich information relevant to the study area. Projects were selected based on their significance and substantial construction costs. Most public building projects in the capital fell under the jurisdiction of the City Government of Addis Ababa's Housing Development and Administration Bureau and Design and Construction Works Bureau. The federal project, St. Paul's Millennium Medical College building, was particularly notable for its size and complexity compared to the others.

The sample consisted of individuals who responded to the questionnaire on behalf of their respective organizations, which included institutes, associations specializing in project management, and companies involved in project implementation.

Stratified random sampling was employed as the primary method for selecting samples from the target population, ensuring representation across various construction projects. Simple random sampling was also used to recruit additional participants from these projects.

Additionally, purposive sampling was employed to select 15 interview respondents who held roles such as project lead engineers, project administrators, finance managers, certified

consultants, and private contractors. These individuals were directly involved in project operations under the City Government of Addis Ababa's Housing Development and Administration Bureau, Design and Construction Works Bureau, and the St. Paul's Millennium Medical College building projects.

3.7.1.5 Respondents' Demographic Profile

This section presents the demographic profiles of the respondents, including their distribution by sex, age, educational background, marital status, and years of experience in the construction industry. In this study, 45.7% of the respondents were female, while 54.3% were male, indicating a balanced representation of both genders without either dominating. However, the statistics suggest a predominance of males in the construction sector overall, which may reflect broader industry trends. This could be attributed to increased financial support for women through various funding mechanisms, empowering more women to participate in construction activities.

The majority of respondents, as indicated in the table, fall within the age group of 31 to 65 years, with 132 individuals aged between 31 and 46 years, and 107 individuals aged between 47 and 65 years. This distribution suggests that most respondents are in their active and mature years, likely contributing to their sense of accountability in understanding and addressing the root causes of poor contractor performance. The findings also highlight a significant number of adults and young professionals engaging in construction activities once they reach adulthood.

In terms of educational background, 126 respondents hold diplomas, while 103 respondents have postgraduate degrees. The majority of respondents (129) are married, with 111 being single. This demographic profile underscores a cohort that is actively involved in their roles of accountability and responsibility within their social contexts. Despite the predominance of male respondents, the gender distribution in the study remains relatively balanced.

The data also reveal that a substantial portion of the sampled respondents have extensive experience in the construction industry. Specifically, 149 respondents have worked in building construction for more than 6 years, while 65 respondents have less than 1 year of experience in the field. This inclusion of experienced respondents provides a comprehensive insight into the complexities of the building construction industry based on their firsthand knowledge and expertise.

Overall, this demographic profile demonstrates that the respondents possess a valuable combination of gender diversity, active age group representation, and varied professional

experiences. Their familiarity with the operations, processes, and challenges of public building construction in Ethiopia equipped them to provide reliable and pertinent data for this study.

3.7.2 Population and Sampling for Qualitative Study

Initially, this study selected two 40 / 60 condominium house projects - construction 2B+G+15 buildings at Bole Bulbula in Addis Ababa. It selected 15 dialogue partners (sample) from the selected two projects namely Bole Bulbula Lot 1 and Lot 2. Eligibility for participation in the current study was having 40 / 60 condominium house projects experienced and a willingness to talk about it. The volunteer research participant came from various professions including engineers, supervisors, finance mangers and logisticians who took part in building constructions, a minimum five years working experiences in the sector. For the sake of anonymity, they are called Bole Bulbula Lot 1 and Lot 2 instead of identification of contractors‘ business name. These projects had been commenced before eight years. Because the study is a process, this reflective silence was re-entered repeatedly throughout the study. In the silence, the researcher reflected on preconceptions about the phenomenon to identify their own ideas and thoughts on the subject. Throughout the study, the researcher kept a reflective journal of his thoughts about the study.

3.8 Data Source

The study sourced data from both primary and secondary sources. Secondary data sources included project financial reports and correspondence such as notification letters exchanged between project stakeholders. Primary data collection methods involved the use of structured, modified, and standard questionnaires, along with individual interviews using an interview checklist. The interviews were particularly in-depth as part of the case study approach employed in this research.

3.9 Data Collection Tools and Methods

This study employed two primary data collection methods. Firstly, a questionnaire survey was chosen as the method to gather data, which aimed to elicit unbiased and accurate responses from the participants. Additionally, interviews were conducted to gather detailed information about the study area.

3.9.1. Questionnaire

The study utilized a standardized survey questionnaire adapted from previous research by Peter and Evelyn (2015) and Ibrahim (2016), which explored the root causes of poor contractor performance and factors influencing construction project performance. The questionnaire was administered to professional employees, contractors, and consultants working within relevant companies.

The questionnaire consisted of two main parts. Part I gathered general information about the company and the respondents. Part II focused on the respondents' perceptions regarding the severity of factors outlined in the questionnaire. Closed-ended questions were structured using a five-point Likert scale to assess the severity's impact on construction project performance: Strongly Agree (5), Agree (4), Neutral (3), Disagree (2), and Strongly Disagree (1). Open-ended questions were also included to enhance data validity and capture nuanced insights. These questions prompted participants to provide detailed responses, which could offer deeper insights into the application of product pricing in the construction sector.

Both types of questions were employed to ensure comprehensive data collection without losing valuable information. Closed-ended questions allowed for statistical analysis such as percentage calculations and counts, while open-ended questions enabled participants to provide qualitative feedback and expand on their responses.

3.9.2. Interviews

This study conducted fifteen interview sessions using a prearranged interview checklist (See Appendix II alongside the questionnaire) in the form of face-to-face interviews. Interviews were chosen as the most appropriate method to answer the research questions, validate findings from the literature review, and enhance them. In-depth interviews were conducted with selected employees and managers of the surveyed organizations, which are widely recognized as a qualitative research method described as a "conversation with purpose."

In-depth interviews provide a deeper understanding of the factors influencing poor construction performance from the perspective of contractors. This study employed snowball and opportunistic sampling strategies to identify study participants across different categories. Detailed dialogues and discussions were held with interviewees regarding the causes associated with poor contractor performance.

The interviews were structured around three key questions and addressed pertinent issues relevant to the study.

3.9.1 Content Analysis

Content analysis is a research tool used to determine the presence of certain words, themes, or concepts within some given qualitative data. Using content analysis, researchers can quantify and analyze the presence, meanings, and relationships of such certain words, themes, or concepts (Creswell, 2014). Using content analysis, this study applied six contract documents made by Saving Houses Development Enterprises and contractors, 20 communication letters, ten consultant payment certificates, 15 financial transaction memos and five technical and financial documents made by contractors for these projects. This is because these documents helped to examine patterns in communication in a replicable and systematic manner. The study used several documents and communication artifacts, which were texts of various formats and legal arrangements.

3.10 Data Collection Procedure

3.10.1 Data Collection Procedure for Survey

This study mainly considered a questionnaire survey and attempted to distribute 314 questionnaires for targeted or sampled respondents. This study used four data collectors who were undergraduate students specialized in building construction that had experience in data collection while the researcher acted as a supervisor. A total of four data collectors and the researcher met and discussed for half day on the study area, the issues of ethical data collection and data quality.

Prior to data collection, the principal investigator asked for a list of all surveyed personnel and informed the corresponding project managers. During data collection, data collectors first contacted the study participants randomly employees and explained the purpose of the study at that office and conducted the data collection accordingly. A total of 15 selected individuals were interviewed accordingly. The researcher conducted in-depth interview with the selected individuals (11 male and 4 female) from the three selected projects and their respective City Government Offices whose age varies from early 35‘s to 50s. The number of male respondents in the interview was slightly more than women.

3.10.2 Data Collection Procedure for Qualitative Analysis

Data collection was conducted through individual interviews. The author, as the researcher, conducted all the interviews. Each interview took 30 to 60 min. Data collection stopped when no new information was obtained as judged by the researcher. During the interviews, the primary researcher used an interview guide but strived to ask open questions and encourage respondents to express themself freely, also seeking confirmation of emerging themes and probing further into individual topics arising during the interviews. Interview questions were included in appendix part of this study. The researcher interviewed the respondents several times. The interviews were aimed at exploring projects‘ life story concerning the financial and building contract management issues and consequences and how building contractors reacted to the projects.

3.11 Research Instrument Testing

3.11.1 Validation for Qualitative Analysis

To ensure that the respondents’ words were assumed correctly, mangers and experts verified the story after each of the interviews. This verification process is one of the main strengths of this study because the participant is able to verify or correct the researcher‘s interpretation about the participant‘s work experience. The lead researcher notified the relevant project managers and requested a list of every employee who was polled before beginning data collecting. The researcher discussed the preliminary findings with experts. All possible variations were explored independently and together, and after much deliberation, the essential structure of the lived-experience of the problem of contractors‘ performance consequences and the reaction of participants to project performance were constructed. The researcher then ensured that this interpretation of project‘s story was based on the actual data by rereading all the transcripts and comparing them with the findings.

3.11.2 Validation and Reliability for Survey Instrument

3.11.2.1 Validity and Reliability for Qualitative Analysis

Every interview was carefully examined, with a focus on critical evaluation of the caliber of the data gathering, analysis, and findings presentation. There are several built-in techniques intended to improve validity in the study process of the underlying causes of contractors'

performance on condo buildings, most notably member checking in data analysis techniques. The researcher triangulation in this study proved fruitful, especially in constructing the essential structure of the phenomenon from all the interviews (meta-synthesis of the interviews). This study compared the essential structure of the phenomenon with the data (verification). This helps to ensure this, all the transcripts were read over again. It also identified the overriding theme that describes the phenomenon (construction of the main theme). The participant was quoted directly to increase the trustworthiness of the findings and conclusions. In this study, triangulation was one of the strategies designed to enhance validity and reliability as qualitative research. ―Experts debriefings‖ and ―thick description‖ were also used as strategies to enhance validity. The findings are a construction of the researchers, based on the data. A ―reflective diary‖ was used at all stages of the research process.

3.11.2.2 Reliability Test of Research Instrument

Before the questionnaire was administered, twelve respondents participated in a pretesting. Pretesting was done to make sure the questionnaire was understandable and easy to navigate. The questionnaire underwent the necessary modifications in light of the pretesting input before being distributed to the chosen sample size. However, Cronbach's coefficient alpha, which is essentially the mean of all inter-item correlations, was used in this investigation. This is due to the fact that all of the measures were carried out in order to verify and determine how strongly the variables under consideration were associated.

Table 1 Cronbach's Alpha Test Results

Variables	Alpha	No. of Item
Cost factors	.862	10
People factors	.933	13
Management Factors	.761	8
Design and Documentation Factors	.773	6
Material and Equipment Factors	.780	6
Environmental Factors	.786	10

Survey result, 2022

This study used the scales' overall Cronbach's alpha. Accordingly, a scale used to examine associations was deemed adequate if it had a value of 0.70 or higher (Merid, 2016). As a result, it shows that the scales' reliability was quite high, indicating a very strong internal consistency among the measurement items, and that the chosen instrument measures the variables chosen with accuracy. The validity of the data collection tool was verified.

3.12 Data Analysis Methods

3.12.1 Data Analysis for Survey

The collected data from respondents‘ perception was passed through a process of analysis and interpreted accordingly before their meaning and implications was assumed. Hence, all collected data analysis techniques was employed to analyze the data. The data from document analysis and questionnaire was presented in a narrative form by using tables, percentage and mean. Accordingly, SPSS (Statistical Package for Social Sciences) version 23.0 was used to compute and analyse the data. The data collected from the returned questionnaires was analyzed as in the following paragraphs.

3.12.1.1 Sample Respondents or Participants’ information

In this part, the required information about the respondents and the response rate were determined. The participants were asked to answer about general information for both the company and respondent such as work experience, staff and profession.

3.12.1.2 Severity Index - Ranking of Factors

The identified factors were ranked in an ascending order according to their impact level on performance in construction projects as assessed by the respondents. The following equation used to measure the impact level:

$$\text{Severity Index (\%)} = \sum a(n/N) \times 100/5$$

Where a: the constant expressing response weight; n: the frequency of the responses; N: the totalnumber of responses.

3.12.1.3 Groups Ranking

The six groups considered in the questionnaire were ranked based on the group index calculation. In this study, the below equation helped calculating each group index for detailed explanations.

$$\textbf{Group index (\%)} = \sum \left(\text{Xi} / n \right)^{4}$$

Where Xi = severity index of factor i under the group; n = number of factors under the group

3.12.1.4 Rank Correlation

The Spearman rank correlation is used to measure how much the respondents agree on the ranking of the identified factors. The following equation used to calculate the correlation between participants'responses.

$$\mathbf{r = s = 1 - [\ 6 \times \sum d2 / (n3 - n)]}$$

Where rs indicated correlation coefficient of the Spearman rank between two parties; d represents the change between ranks assigned to variables for each factor; n: the number of pairs of rank.

3.12.2 Data Analysis for Qualitative Analysis

The interviews were recorded, transcribed, and analyzed for main themes and subthemes through thematic analysis. Codes were extracted from the transcripts (deconstruction). Those were then arranged into themes (reconstruction). The findings were constructed into an analytic framework, in accordance with data collection procedures. The researcher repeated this procedure after each interview until a holistic understanding of projects' life and causes for contractors' performance was constructed. Two different kinds of research test instruments were used in this investigation. One of these was a validity test, which measured how much a difference in the measuring tool accurately reflected the true differences between the subjects of the test. Construct validity of the research was examined in order to guarantee the caliber of the research design material. Correct operational metrics for the topics under study are established by construct validity. In this sense, professionals in project management, monitoring, and evaluation with backgrounds in construction and governmental

organizations were chosen. Next, the draft survey was distributed to these specialists for their assessment of the questionnaire, to determine whether the data the respondents provided would be appropriate for the goals of the study, and to make any necessary changes. Their responses, judgment and opinion were taken. Based on the experts' feedback, little modifications were done.

3.13 Ethical Considerations

Ethical approval was obtained from relevant authorities, including Addis Ababa City Administrations and the organizations selected for the study. Prior to data collection, detailed discussions were conducted with the project sites and officials of the selected organizations to explain the research objectives and benefits. Consent was obtained from all participants, including undergraduate contractor building students who served as data collectors, and discussions were held in the local language (Amharic) to ensure understanding.

The study strictly adheres to ethical guidelines in academic research, ensuring participants' rights are respected. Participants were informed about their voluntary participation and their right to withdraw at any time, which was reiterated in the questionnaire and verbally before interview sessions began. Data collectors obtained verbal consent from participants after explaining the study's nature. Individual interviews were scheduled to minimize disruption and adhere to health and COVID-19 protocols.

Confidentiality was maintained throughout the study by using codes instead of identifying names during data collection. Access to original data was restricted to the researcher and supervisor for purposes of data checking, cleaning, and entry. The information collected was used solely for the purposes to which participants consented and was not shared with any third party. Upon successful thesis defense and approval by Addis Ababa University Senate, the questionnaire will be securely stored.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the study's findings, their interpretations, and a comparison of the results with those of other studies. In order to address the research purpose, it contains the frequency of response rate, respondents' demographic information, and response analysis using descriptive statistics.

4.2 Case Analysis

4.2.1 Case Presentation- 40 /60 Condo Houses in Addis Ababa

The government of Ethiopia has skillfully planned and carried out the construction of low- and middle-class condominium homes in the capital as well as the provision of a long-term mortgage facility to the general population. In addition, condominium homes have been constructed in Addis Abeba and other regional cities to meet the current housing scarcity depending on the recipients' saving capacities. By raising its quality and standard, it has subsequently built thousands of residential housing units in the urban and nearby neighborhoods of the chosen cities.

On the other hand, Addis Ababa City Administrations has equipped to guide urban renewal efforts that have been found to entail the demolition of Kebele-owned rental housing units (with their own consequences as regards relocation), which are primarily meant to accommodate the building of apartment houses being built within the context of the integrated housing development programs being implemented by the city administration. The Addis Ababa City Administrations housing office uses traditional methods of project activities, project administrations, contractors' selection, procurement. Contractors, professionals and related organizations are separate from land and site selection and contractors. Contractors normally employ consultants to design and supervise construction projects. Procurement of construction projects is governed by the public procurement laws and guidelines, but even these can be a source of contention.

4.2.2 Bole Bulbula Projects

The city government has started implementing a policy of constructing higher tower buildings of condominium buildings for special-owned rental housing establishments, with a view to giving leverage to the challenges of financing the integrated housing program. The same could be applied to special financial stakeholder-driven projects to make meaningful contributions to the housing sector. Several locations throughout the city have been chosen, and construction is now underway at several of these locations. Bole Bulbula is one of the Lot 1 and Lot 2 sites that could be co-opted to agree on an arrangement in which they agree to rent multi-story buildings as residential units to specialized bank saving customers.

Bole Bulbula is a locality in Ethiopia and has an elevation of 2,297 meters. Bole Bulbula is situated near the suburbs of Gulele Bota and Kirkos. The distance from Bole Bulbula to Ethiopia's capital Addis Ababa (Addis Ababa) is approximately 5.6 km (as the crow flies).

Figure 3 Bole Bulbula Map

Source: Google Map, 2022

At Bole Boulbula, Lot 1 and Lot 2 sites had been awarded to contractors for block H-1-15 and D-1-12, with multiple contract arrangements for the construction of buildings, the construction of roads, and the supply of materials, among others. As with other condo house projects, these projects have reaped significant benefits from the implemented programs for job creation, such as condominium house construction and the supply of equipment for cobblestone projects. These projects have employed a large labor force at all target sites.

Many unemployed youth have improved their conditions and transformed into employers. However, the quality of the houses built and the issues associated with them, such as the cost of developing a long-term solution to housing shortages and youth empowerment beyond incubation, are unknown.

Table 2 Type and Characteristics of the Project

House typology	Area in (m2)
Studio	21m2
1-Bedroom	30m2
2-Bedroom	40m2
3-Bedroom	60m2

Source: Bole Bulbula Projects, 2022

The condomium houses in Ethiopia are manily G+ 5 structures. Each block contains between 125 and 130 housing units. The house typologies range from studio, one bedroom, two bedroom and three bedroom units; which have the dimensions shown in the table above. The function of housing these housing units vary from household to house depending on their social, cultural and economic values.

4.2.3 Site selection

In Bole Bulbula, the city, 175 hectares of land were set aside and ready for 34,280 condominium units, according to the Addis Ababa Housing Development Project Office in Ethiopia. This includes the area needed to build the condominium buildings, as well as acreage for local kitchens, common laundry rooms, septic tanks, and drainage laying space. Since the government owns the property, it provides it for condominium developments in an effort to lower construction costs. For the initiative, construction sites were chosen at random from open spaces within the city as well as some on its outskirts. Households that benefited from condominium houses in the inner city had an advantage of living and working in the inner city without transport costs; and access services.Those households who benefited from condomium projects outside the city centre are now incurring costs of transport to acquire services to and from the city centre.

4.2.4 The Root Causes

The factors under each group are employed similarly to the research question; the overarching theme of the study was six factors: cost, people, professional management, design and documentation, materials and equipment, and environmental. On one hand, it denotes the multitude of contractor‘s performance complications, the need for administrative and legal treatment, and the chronic construction problem across the country, as well as uneasiness and several complaints. These two projects (Lot 1 and 2) have been dealing with all the problems of project life. On the other hand, it answers the question of how contractors experienced project performance reactions. It thus answers the research question about the project-based experience of the building contractors' consequences of condo houses as well as the reactions of clients and consultants. In presenting the findings, this study gives an overview of projects' stories to provide the context of building construction experience. Then this study presents contractors' experiences of the burden of project performance and the reactions of clients and consultants to the contractors.

As said by the Addis Ababa Housing Development Project Office, Addis Ababa is a chartered city and is accountable to the federal government and the residents. The city has an physical structure plan. There is a federal urban development policy, but it does not adequately cover maintenance, construction and funding for urban housing. There is a condominium policy, and it is serving as the baseline for building of cheap housing in the city. However, it lacks in extent, and does not adequately cover housing for the poor. • The role and responsibilities of all actors, including the city, administration, agencies, woredas and kebeles, is clearly stipulated in the city charter and subsequent regulations. • Informal settlements typically lack regulation and subsequent user-rights, rendering residents with little formal protection against developers. As a result, residents are complaining of not being properly compensated for development activities affecting their homes, and developers are complaining of delay in the acquisition of land.

4.2.4.1 Cost Factor

This study provided mainly three factors such as payments delay, unavailability of finance management and plans and cost of rework and others. Time and expense overruns occur throughout the execution phase of most, if not all, BuBole Bullbula condominium development projects.

Table 3: Document Review of Payment Sheets

No	Items	Review	40 % of projects Paid	40 % of projects Paid
1	Payment Request Delay	15 Days	45 days	60 Days
2	Document Requirements	60	75	45
3	Number of Pages	35	40	25

Source: Bole Bulbula Projects Corresponding letters, 2022

A review of the documentation for almost half of the building projects revealed that few of them were completed on schedule or within the budget allotted. In these projects the same is true that construction projects suffer mainly time overrun but also cost & quality performance and because of this the construction activities are always treated as highly risky activity during program development. One of the contractors (C1, 2022) indicated that

> *When it comes to cost overruns, there is a significant difference between the initial project cost estimate and the final construction cost (my estimate is 55%). The government places a lot of attention on include micro and small firms in the construction sector, but does not fully assess their capacity or how including them in projects might affect cost estimates.*

In general, the development of micro and small businesses with an emphasis on job creation and lowering food security is the responsibility of the government. Its primary goals are to increase the standard of living for residents who are jobless or unable to find employment, to support and coordinate micro and small businesses in priority non-manufacturing sectors, and to promote and develop businesses in the urban agriculture, construction, and services sectors to increase their competitiveness. This does not fully consider the project sub contract demand and cost estimation. Ricardo (2019) stated that the sector (MSE) is growing but at a decelerating rate and that none of the microfinance institutions are financially sustainable. There are a few financial leasing companies responding to the needs of mainly manufacturing and construction enterprises. As they lack the financial capacity, their participation in the

construction industry adds to the strain on contractors when it comes to cost considerations.

Higher contractual amounts and their involvement as subcontractors have led to price increases. Factors influencing building cost performance in Nigerian construction sites were discovered by Biyadglign (2017). It was discovered that a number of issues, including project complexity, project period shortening, fraudulent tactics, contractor inexperience, inflation, frequent variation orders, and changes in project design, were significant contributors to cost overruns.

4.2.4.2 People Factors

This study provided mainly related factors poor labour productivity and lack of contractor and experience of subcontractors' skill to identify the people related causes for contractors' poor performance. Ricardo (2019) claimed that the federal government develops enterprise strategies for execution through the Ministry of Urban Development and Construction (MoUDC). At the time, this made sense because the MoUDC had a history of being heavily involved in large-scale public works initiatives, such as building homes, and the focus was on generating employment by forming partnerships or groups of three to fifteen individuals. Despite being first drafted in 1997 and then revised in 2011, the MoUDC's mandate for municipal, city, and regional development has evolved. This indicates that the original reasoning behind giving the MoUDC control over policy is not necessarily still true now. One consultant indicated that (CS-2, 2022)

> *The training institutions in Ethiopia did not provide self-employment opportunities through university and TVET graduates by developing young people's skills and innovation. In addition, there are also several state policies to support the MSME sector, although the government proposed various institutes which are responsible for supporting handicrafts and small scale industries particularly for construction sector, and especially the development of cooperatives along various non-governmental and international organizations, with branch offices in major towns and provinces across the country.*

One government expert indicated that (E1, 2022)

> *This shows that the GoE has recognized the role of the MSME sector, especially in the context of stimulating employment, the pre-eminent*

> *economic concern. But there is no policy frameworks which connect with Contractors and MSME development, the key one being the Micro and Small Enterprise (MSE) Development Strategy. The only regulation is to inclusion of MSME in building construction without proper support and study.*

This means that the vision of the current MSE Development Strategy is not effective. It also means that it does to create a competitive and convenient base for industrial development‖ and its objectives including support equitable development, improve incomes and reduce poverty through creating job opportunities. Further,, it means it needs a revised strategy that should coordinate the participation of MSEs specifically for the purpose of supporting employment creation as a means to reduce poverty.

4.2.4.3 Professional Management Factors

This study shows that sampled respondents from client, consultants and contractors view on contractors‘ professional management factors. One government expert indicated that (E2, 2022)

> *In the process of developing the project, where the primary goals are typically to identify the projects, the contractors' management ability, professional management level, and follow-up level of contractors and designers were low. I believe that most of the contractors were unaware of the project's scope, aims, and objectives, as well as how to set up a system to meet those goals, choose the project team, and specify the resources and their constraints.*

An additional contractor (C2, 2022) stated that

> *We contractors have good capacity and we need to ensure our capacity to perform work under various condo house contracts, and we are capable of commencing work within the specified contractual timeframe, even though there may be other contractual responsibilities to personal and organizational or elsewhere.*

According to one consultant, (CS-2, 2022)

> *Even when there are sufficient numbers of individuals, there aren't sufficient numbers of skilled workers who can finish the job on schedule. This is a construction issue that has repercussions for the duration of the entire project. A slowed timeline results from too few participants.*

This study found that there is poor communication among project participants and poor resource management. It was also found as there were poor project controlling and site management. This also shows that the government as client and the contractors should have their own common, detailed and strategic planning and system. It is the greatest significant aspect of fruitful building project administration. The more complex the project, the more planning will be required. A well-planned project maximizes efficiency and provides a step by step roadmap for completing the work on schedule and within budget.

4.2.4.4 Design and Documentation Factors

The study ranked sample respondents from clients, consultants, and contractors' perspectives on how the design and documentation of contractors contribute to their failure under this category, which has six primary elements. Numerous design modifications, as well as inadequate design and subpar site documentation, were discovered during this investigation. The Addis Ababa Housing Development Project Office states that the recipients are responsible for taking care of the residences' interior completion and maintenance. According to another contractor (C3, 2022),

> *Most beneficiaries had been experiencing malfunctioning of water pipes, electric cables sewage line, door and windows on various sites. This study estimated that on average households need to invest at least 55,500.00 Birr for maintenance and finishing purposes. This is a lot of money for the urban poor who often earn at least 10000 Birr per month.*

Every location is equipped with sewer and drainage pipes according to the condominium housing project model. Nevertheless, the drainage and sewer systems in Addis Ababa are regularly breaking and becoming clogged as a result of the city's constantly growing population, which is moving there in pursuit of better opportunities and services. The size of the pipes was not taken into account by the designers when estimating the percentage of condominium apartment buildings that house an average of five to eight people per household.

The design of the condominium housing project has to take into account the availability of diverse service amenities in each of the communities, including a children's playground, a green space, a vehicle park, a coffee grinding room, spice drying places, and coffee ceremony spaces. Beneficiaries of the studio and one bedroom houses lack enough space for comfortable living given the fact that on average each household is made up of several persons. The person-per-room density is rather too big according to international standards which stipulate that one person must have at least 7m2. This implies overcrowding in the condominium houses. If more than two people share the same room, the room is overcrowded, and not comfortable to live (United Nation Human Settlements). The design considerations for condominium housing project are failing the urban poor who have large families (Biyadglign, 2017).

4.2.4.5 Material and Equipment Factors

This factor included seven factors and the study ranked sampled respondents from client, consultants and contractors. A house is constructed using resources such as metal, sand, bricks, steel, cement, concrete, glass, and plastic, among others. The strength and durability of a house are significantly influenced by the materials used in its construction. Your budget and preferences will have a complete impact on the material cost and quality. A different contractor C3 (2022), reported that

> *In this sector, we need cement aggregates, metals, bricks, concrete, clay which are the most common type of building material used in construction. The choice of these is based on their cost effectiveness for building projects. But this is what is meant by supply chain issues price volatility, increasing labour costs. Another challenge facing these companies is raising labor costs, supplier concentration risk and delivery delays.*

Price volatility is a major issue for these contractors as it can significantly add to their cost base. This study found that there is poor storage of materials and equipment shortages have been faced frequently. It was also found that there was poor equipment choice/ineffective and material and equipment management. C4 (2022), a separate contractor, stated

> *In a building sector or similar facility, a material problem is one that (i) is related to changes in the law, unfavourable weather, or utility outages, and (ii) is reasonably likely to have an impact on the*

> *consolidated business. We severely lack effective materials management, which means we are unable to find the ideal supplier, the ideal quantity, the ideal price, the ideal quality, and the ideal timing.*

Construction professionals haphazardly handle efficient materials management on construction sites. This could lead to a number of difficulties, including the production of waste materials, subpar work, delays in projects, and inefficient material flow (Nesruand Tadele, 2020). Planning for production, waste control, inventory management, material planning and control, and the procurement of raw materials are all included.

4.2.4.6 Environmental Factors

This component is one of the ten primary elements used to determine the causes of subpar contractor performance. This study discovered that procurement laws and project complexity are complex, and there is a significant level of fraud and negligence. The majority of interviewees stated that the building industry has a lower carbon emission footprint. Even if pollution – construction causes air and water pollution, contractors did not use harmful chemicals in Ethiopia. They used specific chemicals and materials during construction that cannot be harmful to both workers and the environment. All construction endeavors produce waste. This can take the shape of construction debris, hazardous trash, or just normal plastic litter and food waste left behind by site employees. Prior to the start of construction, a comprehensive waste management plan must be created (Omopariola et al., 2019). Any disruption to the earth could bring latent pollutants to the surface, posing a risk to ecosystems, wildlife, water sources, or even posing an environmental risk of fire or explosion. This could lead to legal action or expensive clean- up expenditures. Using sustainable building methods can significantly reduce project costs over their lifetimes while also minimizing their negative environmental effects (Musa et al., 2015). Peter and Evely (2015) explains how the development's construction phase will be managed to minimize or avoid any environmental or nuisance impacts, as well as how the environmental management obligations will be carried out. They identified the three top causes of cost overruns as materials cost increases due to inflation, inaccurate quantity takeoffs and labour cost increases due to environmental restrictions.

4.3 Survey Results- Ranking of Factors

The factors under each group are ranked by the measurement of severity index according to Equation presented in chapter 3.

Table 4 Factors Ranking

Factors	Performance factor	Contractors		Clients		Consultant	
		S.I %	Rank	S.I %	Rank	S.I %	Rank
Cost	Payments delay	87	1	74	5	90	1
	Escalation of material prices	81	3	75	4	82	2
	Variation	82	2	88	2	79	3
People	Lack of contractor experience	70	8	75	4	86	1
	Lack of subcontractors skill	83	2	80	2	79	2
	Poor labor productivity	90	1	88	1	78	3
Manage-ment	Poor resource management	77	5	85	2	92	1
	Poor communication among project participants	86	1	88	1	89	2
	Poor site management	80	3	72	6	85	3
Design	Design changes	74	1	74	1	78	1
	Poor design	72	3	73	2	72	2
	Poor quality site documentation	65	6	68	5	68	3
Material	Poor storage of materials	90	1	88	1	85	1
	Equipment shortage	86	2	86	2	84	2
	Material and equipment man-agement	82	4	80	4	83	3
Environ-ment	Favoritism	81	2	89	1	87	1
	Provision of quality products	83	1	84	2	86	2
	Project complexity	77	4	79	3	81	3

Survey Result, 2022

4.3.1 Cost Factor

This study provided ten factors to identify the cost related causes for contractors‘ poor performance. Sampled respondents‘ responses present in summarized table above. Table 4 displays the severity index and ranking of each factor under the cost group from contractors‘, clients and consultants‘ views based on ten factors that are considered under this group (cost factors). The table illustrates that the three parties pointed out _payment delay‘ factor as the top severe factor under this group based on contractors‘ and consultants‘ view. Variation related issues have been selected as the second top causes of poor performance of contractors based on client and contractors view. Further, lack of Lack of capital investment was the other main causes of their poor performance in public construction projects. On other hand, high interest rate charged by bankers on loans have been ranked lastly as per the clients and consultants‘ view but for contractors the last causes related towards unavailability of finance management and plans.

This shows that construction organizations practice proper cost schedule and they have good estimated time schedule. This can be seen as a very good cost management practices. That will support these organizations to distinguish their business profitability primarily if project is behind or ahead of project schedule and if it is under or over projected cost. Damoah et al., (2018) viewed that time schedule and budget performances are well managed and controlled by the energetic feedback process. This essentially demonstrates the requirement for them to enhance their rework cycle procedure, feedback loops that modify output and quality, and consequences among job stages.

There is little doubt that a contractor's effectiveness will be correlated with the contract, project type, and project administration performance. According to Donghoon (2013), the construction industry has faced difficulties in evaluating and comprehending the performance of construction projects for a number of years. The contractors' real-world practices demonstrate that they have not appropriately implemented the researchers' suggested models and methodologies for evaluating project performance. This is due to the fact that, in addition to cost performance, construction performance also takes client happiness, timeliness, construction quality, and sustainable development into account.

4.3.2 People Factors

This study provided thirteen related factors to identify the people related causes for contractors' poor performance. According to what is indicated in Table 4 above, thirteen factors are itemized under this group. All three parties had different opinion in case of poor performance causes of contractors. However, their responses have been identically related; for example, poor labour productivity is the main contractors' poor performance cause for contractors and clients but not for consultants. Their uppermost rank was lack of contractor experience as a main contractors' poor performance cause. Lack of subcontractors' skill was the second most contractors' poor performance cause for all of them. On other hand, contractors and clients ranked lack of labour experience as the third contractors' poor performance cause but consultants view poor labour productivity as the main cause. In general, among the thirteen factors listed in the above table, the main causes of contractors' poor performance included poor labour productivity, lack of sub-contractors skill, lack of contractor experience, lack of labour experience and belongingness to work. All these are related to labour factors rather than issues related to human resource management system of contractors.

This shows that the construction industry is faced with productivity-related problems and the problems are frequently associated with the performance of labor, i.e. labor productivity. Poor labor productivity in construction is a major factor in the quality, duration, and cost of construction projects (Onoh, Umar and Orji, 2020). The labor force is the construction industry's greatest valued asset, accounting at least for more than a quarter of the total project cost. It is noted that this sector is a labor-intensive industry that is considered to be at high risk by contractors due to their relatively high labor components. For Dabrian, Khazandi and Taheriatter (2017), labor productivity is one of the most significant risks in construction projects and it indicated that low productivity is hazardous and causes social conflict, inflationary pressures and mutual suspicion to the economy of the nation. Furthermore, one of the reasons for cost and schedule overruns in building projects is low labor productivity.

Among the top rated root causes, the fifth ranked factor was Employees motivation and it remind that the need for improvement in labour productivity/project delivery through the use of performance improvement measures. Therefore, the performance of Ethiopian contractors in project delivery must be improved its labour productivity losses and related issues. It is pertinent to seek for ways and factors to improve their performance in project delivery.

Additionally, this survey discovered that for nearly all three categories of respondents, inadequate labor distribution and a lack of trade competence were ranked lowest. The table indicates that while both parties' rankings of the elements are quite comparable, there is a notable discrepancy in the rankings of the final factors, which are rated from 11 to 13. Employee dissatisfaction can result from a lack of opportunities for promotion in a business, according to Akomah and Jackson (2016) and Gundecha (2012), as salary is closely related to this. Organization-employee relationship quality has also received much scholarly attention. For example, organization-employee relationship quality was investigated in a study on the relationship between organizational commitment and turnover intention.

4.3.3 Professional Management Factors

Table 4 shows that sampled respondents from client, consultants and contractors view on contractors‘ professional management factors. Eight essential factors are listed under this group. Inputs of Contractors, Clients and Consultant‘ view underscore that poor communication among project participants is the top severe factor under this group. From contractor and clients‘ point of view, the second top severe factor under this group is poor resource management while Contractors were more declines to poor project controlling. However, clients vowed that poor planning and scheduling as a minor cause. Consultant indicated that slowly in making decisions is not a major issue. This indicates that project management is effectively implemented in building contractors. Akomah and Jackson (2016) used the iron triangle to show the relationships between people, cost, schedule, quality, and scheduling. The only thing that connects the other aspects is people. The golden triangle's emphasis on people contributes to keeping costs, schedules, and quality in check.

4.3.4 Design and Documentation Factors

The iron triangle was utilized by Akomah and Jackson (2016) to illustrate the connections between schedule, quality, cost, and personnel. People are the single element that links the other elements. The golden triangle's focus on people helps to maintain control over budgets, timelines, and quality. This study has been used the severity index and ranking of each factor under the design and documentation group. It was distinguished that six factors are identified under this group. The table displays that the most severe factor from consultants and contractors view is design changes. The three groups of sampled respondents strongly agreed or preferred to design changes as the main cause of contractors‘ failure or poor performance.

Whereas, the inputs of contractors underline that _unclear site drawings supplied‘‘ is the second top severe factor under this group. The top two unimportant factors from each view are highlighted as poor quality site documentation and unclear specifications. The shortage of those qualities is a cause of inaccuracies, design errors, omissions and as a result, degradation of the contractors‘ performances in addition to increasing their operational costs (Onoh et al., 2020).

4.3.5 Material and Equipment Factors

This factor included seven factors and the study ranked sampled respondents from client, consultants and contractors as shown in Table 4. In this study, the severity index and ranking of each factor under materials and equipment group was applied and the results presents in the above table. Accordingly, six factors are identified under this group. All Contractors and Clients including the Consultant indicate that the two top affecting factors under this group are: equipment shortage and poor storage of materials. Both Contractors and Consultants rated poor equipment choice/ineffective as the third affecting factors poor contractors‘ performance while Consultant indicated as purchase inferior supplies. This shows that equipment shortage and poor storage of materials, poor equipment choice/ineffective and purchase inferior supplies are the main factors. Recently, the contractors strongly complain that their projects have been suffered from competition of unstructured business competition and shortage of raw materials. In order to compete with imported foreign products, they have to change their patterns of material usage, consumption of raw materials, kinds of project selections and looked for supplementary business opportunities.

4.3.6 Environmental Group

This factor constitutes ten main factors to assess poor contractors‘ performance causes. Regarding environmental factors, eight factors are listed under this group. The above tale displays that that all three parties strongly agreed that the two top severe factor under this group were fraud and negligence and procurement laws. Lack of overall business infrastructure in Ethiopia was rated as the third top factor for contractors while project complexity rerated as the third top for clients and consultants. Lack of overall business infrastructure in Ethiopia was the fourth top factors for clients and consultants while Project complexity is presented by the contractors. This shows that there is unfavorable business environment for operational activities that was created by fraud and negligence and unfixable

procurement law and political interference, favoritism and corruption are widely exhibited as per the major open ended questions responses. The current procurement regulation has several problems including poor transparency. Lack of visibility of supply chains is one of the major procurement challenges.

4.3.7 Summary Factors Rating

On the word of contractors, clients, and consultants, the most serious variables influencing subpar contractors in public building construction projects are displayed in the table below.

Table 5 Overall factors ranking Top Project Factors

Contractors	Clients	Consultant
Payments delay	Unavailability of finance management and plans	Poor resource management
Materials Escalation	Procurement laws	Payments delay
Variation	Variation	Poor communication
Capital Investment	Poor labour productivity	Procurement laws
Equipment shortage	Poor communication	Lack of experience
Fraud and negligence	Poor storage of materials	Fraud and negligence
Procurement law	Equipment shortage	Poor site management
Poor labour productivity	Lack of capital	shortage of materials
Poor communication	Poor resource management	Equipment shortage
Poor project controlling	Poor equipment choice/ineffective	Material and equipment management

Survey Result, 2022

Results indicate those contractors‘ ranked payments delay, materials escalation, variation, capital investment, equipment shortage, fraud and negligence and procurement law as top ranked causes. While clients preferred to unavailability of finance management and plans, procurement laws, variation, poor labour productivity and poor communication among project participants as a top ranked causes. On other hand, consultants ranked poor resource management, payments delay, procurement laws, lack of contractor experience and poor communication among project participants as major ones.

These factors are organized from financial matters, cost, market, profit and other human factors like skills, experience and others while the majority of them ranked the delay of payment as the top factor. Table 10 demonstrates that, of the top 10 serious elements influencing the performance of construction projects, there are commonalities among all parties. Among these are aspects related to human resources, costs, materials, and equipment, among others. Payment delays might occur between the contractor and subcontractors, suppliers, or labours, or from the owner to the contractor. When contractors don't have enough cash flow to cover their building costs, especially when they are not financially stable, work progress may be delayed. The majority of the interview responses also noted that the payments delay by contractors may lead to lack of labour motivation and Belongingness and lack of materials availability.

4.3.8 Groups Ranking

The factors affecting contractors' performance in construction projects are grouped into 6 groups. Ranking of these groups associated with degree of severity by public owners, contractors and consultants are presented in the below table.

Table 6 Group Ranking

Performance factor	Contractors		Clients		Consultant	
	S.I	Rank	S.I	Rank	S.I	Rank
Cost factors	85	1	81	2	89	1
People factors	81	2	80	3	79	3
Management Factors	78	3	86	1	80	2
Design and Documentation Factors	75	5	74	6	77	5
Material and Equipment Factors	77	4	76	5	78	4
Environmental Factors	72	6	77	4	68	6

Survey Result, 2022

The above table shows that the top three groups affecting contractors‘ performance in public building construction projects from contractors‘ view are: cost factors (S.I = 85), people factors (S.I = 81) and professional management (S.I = 78). Clients underline that the top resource affecting their poor contractors performance is management (S.I = 86), followed by cost (S.I = 81) and people (S.I = 80). Consultant, cost factors as a top group affecting contractors‘ performance (S.I = 89), followed by professional management (S.I = 80) and cost factors (79).The above table shows both contractors and consultants underline cost factor is the most significant one for poor contractors‘ performance because cost factors are extremely affecting cost, time and quality performance of contractors.

4.3.9 Severity Rank Correlation

As indicated in chapter 3, Spearman‘s correlation is used to compare how well the participants agree on the severity of the recognized causes on the performance of construction projects. The equation that has been described in chapter three is used for this purpose.

Table 7 Spearman’s correlation

Participants	Contractors	Clients	Consultant	Spearman coefficient (%)	
Contractors	1	0.861	0.943	Consultant vs Contractors	**89%**
Clients	0.861	1	0.857	Consultant vs Clients	**73%**
Consultant	0.943	0.857	1	Client vs Contractors	**74%**

Survey Result, 2022

The results show a relatively good agreement between the respondents. Due to the relative agreement between the three parties in ranking of factors affecting contractors‘ poor performance in construction projects, the results of this study can be considered to be reliable.

4.4Overview of Root Causes of Poor Analysis

The case study and interview responses were collected and grouped in this part of the study based on the prepared interview checklist.

4.4.1 Overview of Root Causes of Poor Contractors' Performance

The crew of construction project generally forms by contractors, consultants, client, design professionals which consist of architect, civil and structural engineer, and etc, construction professionals which molded by main contractors and sub-contractors, surveyor and etc. Contractors are the main actors that involve in a construction project development. In building construction, the heart of the performance lies on the contractors. This is because contractors are playing a key role in public building projects. So that addressing its poor performance causes solving the overall construction challenges in the area. Table 10 shows that there are similarities between all partners for the top 10 significant factors affecting construction project performance. These include things like expenses, equipment, materials, and human resources, among other things. Payment delays may happen from the owner to the contractor, or between the contractor and suppliers, labor, or subcontractors. Work progress may be delayed by contractors that lack the cash flow to meet their building costs, particularly if they are not financially secure.According to this study finding, several factors were identified in this study as payment delay, material escalation, variation, capital investment, fraud, negligence and corruption. The interview responses are similar to the data collected from the questionnaire. Payment delay is mainly sourced by clients' bad performance (shortage of budget, bureaucracy, and frequently' reassignments executives and staffs turnover).

4.4.1.1 Cost Factors

In accordance with the vast of the interview responses, cost performance variations on public building construction projects have been a major concern of the respondents in the industry. It was the most important causes of poor contractors' poor performance. Among cost performance variations, working capital is a major one that contractors are lacking their project financing during construction and created delays in payment for all project participants – daily laborers, suppliers, transporters, sub-contractors and others. They also pointed out that escalation of material prices are complicated the project financing and it was considered as the second most factors for poor performance. The study also exposed that most of the local contractors had a shortage of initial capital investment and they mostly obliged to rotate a potential payment of the project. The finding also agrees with Omopariola et al., (2019) whose research showed that differentiation of currency prices, lack of market

conditions, access to financial support like bank loans, and inefficient government support would decrease performance.

4.4.1.2 Management

The vast majority of interviewees stated that inadequate scheduling and planning were the primary causes of subpar contractor performance. The functions of contractors have not been supported by technologies such as unitizing different project management software and lack of applying and implementing technologies properly in each project. This creates worsening to plan exposes the project to unpredicted high risks and problems. This leads to cost and time overrun in trying to figure out how to solve the challenges that the project faces. This is frequently due to poor planning on the side of contractors‘ project management.

4.4.1.3 People and Materials Factors

In line with the interviewees' comments, early on, successful cost, schedule, and quality management were thought to be the primary requirements for project success. These success elements are significantly lowered by low labor productivity, which results in worse quality, lower production, and higher time and cost consumption by a worker. It is among the most important problems facing the building sector. The majority of the interview responses showed that poor labour productivity in Ethiopia public building construction projects could be due to many factors such as: efficiency of the contractors and owners, bad relation between labours and management team, low labour rates, lack of training sessions and lack of labour experience. Some of negative effects of poor labour productivity could be project delay, cost overrun and poor quality. This factor appears to be a main contributor to poor performance of construction projects in Saudi Arabia as concluded by Ibrahim (2016). Interviewees estimated that the poor cost performances that occur after a project has been completed are as high as of actual project production cost. Remarkably, it was found that the major problems were related to poor material management, usage of materials and poor quality of materials.

4.4.1.4 Other related Causes

Ethiopian construction industry is exhibited as the lower end of the world construction market recently. Contractors should be the key focus to enhance competitiveness of Ethiopian construction industry. In unsaturated markets, like Ethiopian construction industry, the issue

of working capital and profit margin are of the main driving factors for business sustainability and profitability. However, the majority of the reposes indicated that contractors had business sustainable, profitability and credit facility issues. The majority of the contractors engaged in construction industry worried about the sustainability of their businesses (working for two and three years and be out of the business and regain again or disappear). The business cycle of this industry highly exhibited discontinuous and they made once or twice project contracts per five or six years, making it possible, to some extent, for Ethiopian contractors to engage in few businesses.

On other hand, international construction industry attracts maximum profits in the international market. However, this construction industry is actually segmented into low profit steps as the profit margin has been fixed in saving houses and displayed minimal profit margin in other bid floated projects. This is due to the fact that construction industry in the study area suffered from government procurement regulations. Thus, it needs to review cost performance that is the most significant indicator of successful project used by the parties to the contract. The prime solution could be to be keen on cost performance mechanisms that present not only the company‘s profitability margin but also the value of good productivity of organizations at any point during the construction processes. It can be seen easily in the project account and is always used to measure contractor‘s performance against the estimated budget target. This study found that cash flow, fraud and procurement law management are the important factors causing poor performance of contractors. They stated that possible challenges of contractors including low profit margin and unavailability of credit facility, business sustainability, impartiality, poor organizational culture and unexpected material price escalation and unexpected working environment.

4.4.2 Possible Recommendations to Alleviate the Problem of Contractors'' Poor Performance

This study found that systemized contractors' payment settlement mechanisms such as online payment system, digital monitoring system, online approval arrangement etc for pursue of sustainable construction business and for effective project accomplishment. It also found that there are several variation works that need to be mitigate immediately, so that skilled professional should have more sufficient time and be participated to generate a better construction design and specification. It included a truthful and reliable discussions among stakeholders are essential and government should encourage the contractors without partiality. Further, it included labour productivity should be enhanced through individuals

motivation or teams stay inspired to fully apply knowledge and skills to the key objectives leading to success and government should approach the contractors and should review their profit margin to at least arrived at breakeven point. The majority of the interview responses show that contractors with unwholesome financial capacity will be challenged to sustain in a fiercely the unstructured Ethiopian competitive environment. Thus, they need Credit Facility – loan in the form of working capital should be very accessible particularly to alleviate payment delay situations. In this regard, constructors or these companies must have healthy financial conditions with sufficient sources of finance to address the cash flow requirements of project finance demand. Financial strength reproduces a contractor‘s financial position by informing their level of profitability and solvency.

4.5 Discussions

This study highlighted the perception of each project party (Contractors, Clients and Consultant) regarding the relative severity of these factors. In addition, it analysed the collected data in order to rank the identified factors based on respondents‘ answers and to test the agreement between them on the factors‘ ranking. Further, it assessed the main root causes of contactor‘s poor performance in public building construction projects. The main findings if this study discussed below.

4.5.1 Cost Factors

This study found that cost factors were the main root cause for poor contractors‘ performance. The performances of contractors pose a challenge to the sustainable development of construction industry particularly in public building in Ethiopia. In line with this study, Nuru and Ilias (2014) focused most attention on the productivity of major foreign construction firms mostly owned and managed by expatriates. Three major factors namely: cash flow problems, fraudulent practices and the nature of construction environment are identified as the major factors affecting performance of the study area. The study concluded that cash flow problems, fraudulent practices in the industry and the nature of construction environment are the major factors affecting performance of the study area in Nigeria. Similarly, Raid and Yerevan (2018) stated that, cost performance is the most essential indicator of successful project used by the parties to the contract. Cost performance presents not only the company‘s profitability margin but also the value of good productivity of organizations at any point during the construction processes. The majority of the interview

respondents in this study indicated that the contractors suffered from company‘s profitability margin. It can be seen easily in the project account and is always used to measure contractor‘s performance against the estimated budget target. Nuru and Ilias (2014) and Shambel and Dixit (2018) found that cash flow, fraud and site management are the important factors influencing performance. On other hand, payment delay was the main root causes among others in this category. For the contractors, a delay results in lost income due to a shortage of working capital, machinery, and production space, as well as a reliance on current facilities. According to Onoh et al. (2020), delays can result in increased overhead expenses for contractors due to extended work periods, rising material costs due to inflation, and rising labor costs. Inadequate closeout procedures might be the cause of a construction project gone bad. This might have a lot to do with the settlement of earlier sequential payments. Based on the net cash flow definitions positive cash flow is derived from the monies or payment receipts by a firm during a period of time and negative cash flow is the cash expended on a contract for the procurements of materials, plant, equipment, services, wages and salaries, and other overhead cost (Omopariola, 2019). On other hand, Keoki, Glenn, Richard, Jerald, and Robert (2015) stated that ‗‘although retainage helps to protect against excessive owner payments, it is not inconceivable, nor probably unusual, that contractors’ progress payments are occasionally more than they should be. To protect its client and itself, the architect-engineer sometimes will delay payment to the contractor or reduce the amountof payment requested. The unfortunate part about this entire matter is that the architect- engineer is acting more on hunch or intuition than on solid evidence of inflated payment figures‘‘. Henry, Ruth and Dan (2013) investigated into the reasons of delays and cost overruns in Uganda and they found that the great factor is related to delayed payments to contractors. Delayed payments to contractors have knock-on effects on several actions of contractors, subcontractors and suppliers. Contractors are inclined to transfer the burden of accumulated interest to the client, triggering cost overruns. Payment delays are frequently caused by bureaucracy in the public sector, a lack of presenting appropriate documentation and at times, a lack of transparency.

Because the project parties have no control over major financial factors like inflation that usually leads to the escalation of prices of materials, equipment and other inputs to the projects. They can only minimise delays in the project so that cost overruns due to this factor are minimised (because inflation is a time-bound factor). This factor was graded exceedingly because of the current economic condition in the world economy.

4.5.2 Management and People Factors

The degree of agreement between parties regarding the ranking of factors was determined according to sever index in this study. People and management factors were ranked next to cost factors. However, according to Peter and Evelyn's (2015) study, the owners, consultants, and contractors agreed that the following factors were the most important: the average delay caused by closures and a shortage of materials; the availability of resources as planned throughout the project's duration; the project manager's leadership abilities; the escalation of material prices; the availability of individuals with a high level of experience and qualification; and the quality of the project's equipment and raw materials. According to the project type, working or project environment, cost, time, quality, productivity, client happiness, people, innovation and learning elements, and all groups combined, the degree of agreement between the parties about the ranking of criteria was ascertained. According to Mukuka, Aigbavboa, and Thwala (2014), at that point, we can discover that the variables in project management include effective communication; control mechanisms; feedback capabilities; troubleshooting; coordination effectiveness; decision making effectiveness; monitoring; project organization structure; plan and schedule followed; and relevant prior management experience. On the other hand, as people carry out project delivery, human force is an essential component of project management. People are an organization's most valuable resource, and achieving exceptional performance is positively correlated with human resources management techniques. Human resources management's primary responsibilities include planning and leading the project team (Nesru and Tadele, 2020).

CHAPTER FIVE

SUMMARY OF MAJOR FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

By using ongoing and recently finished projects of chosen public building projects in Addis Abeba, the study aimed to pinpoint the fundamental reasons for contractors' subpar performance. This chapter provides a concise synopsis of the study's key conclusions, suggestions, and findings. Recommendations that are closely tied to the goals of the research were produced as a result of the discussion of the study's results and conclusion.

5.2 Summary of Key Findings

The core causes of Ethiopian construction projects doing poorly were stated in a field survey, and these causes were discovered in the current study. A total of fifty-three factors that were discovered through study were used to compute the severity index of each component. Accordingly, this survey discovered that contractors identified people factors as the main root causes for poor performance, followed by cost factors and professional management, respectively. Responses from clients confirmed that management, followed by cost and people, is the most important resource influencing the performance of their underperforming contractors. Similar to how contractors' bad performance was ranked by consultants as being most affected by people factors, professional management, and cost issues, in that order. There are several similar factors among all parties among the top 10 variables influencing the poor performance of construction projects from each perspective, including payment delay, materials escalation, variation, capital investment, equipment shortage, fraud and negligence, and procurement law. The relative agreement between the three parties in the ranking of factors influencing contractors' poor performance in building projects in Ethiopia can be seen to be compatible with the interview findings and study results. Due to payment delays, cash flow issues had a significant impact on Ethiopian contractors' poor performance, which shows how seriously they were affecting the viability and performance of their businesses.

5.3 Conclusions

Activities for developing construction projects will be greatly influenced by the caliber of the various parties' management, financial, technical, and organizational performance. Construction managers frequently come to the realization that their perspective of what is vital to the firm could not be accurate or that they may not completely comprehend the present operating environment. This study's conclusion is that each project party (Contractors, Clients, and Consultant) perceived the relative seriousness of these elements to be quite equal.

In relation to these performance criteria, contractors must adhere to regulations. Poor cost performance is a common and thoughtful phenomena that is usually always associated with construction projects. Due to the increased output, more projects would be completed. The public sector would be able to produce greater construction volume as a result, making building more affordable. Since poor cost performance is a big issue, this study leads to the conclusion that poor contractor performance will primarily be caused by cost factors.

Cost performance is one of the most important factors in determining a contractor's success from the start to finish of any construction project and is of great concern to all parties involved. Due to obvious and unanticipated situations or causes, projects are rarely finished within the initial estimated cost in the building construction sector. Despite giving high ratings to the cost, knowledge, and management aspects, the sampled respondents gave far lower scores to the design and documentation, material, and equipment, and environmental group categories. This study came to the conclusion that variables related to cost, personnel, and management made up the main causes of contractors' subpar performance.

5.4 Recommendations

Contractors

- This study makes the case that either contractors should be concerned with their financial decision-making within a business entity or they may be able to improve their financial capability by utilizing adequate working capital based on better financial management or business finance.
- This study suggests that in order to improve human resources quality and capacity building, it is necessary to hire enough qualified staff members and experts based on

assessments of training needs. They should also give due consideration to training and development initiatives, foster an environment that is conducive to the planning and implementation of comprehensive HR programs, and view HR as a legitimate and valuable workplace activity.

- Working together with national and local groups could help the country's construction industries improve their record-keeping procedures and cost management. For professional development in construction as well as accounting and record keeping, they may urge contractors to engage an expert in that field, or they may provide training so that staff may learn and keep records on their own.

Clients and Consultants

- According to this study, clients should pay contractors on time, and any concerns with payments should be resolved quickly.
- To enhance their performance and boost owner satisfaction, consultants should pay more attention to design costs through the use of multi-criteria analysis and the selection of the most cost-effective criterion.
- It is suggested that project management capabilities should be improved, with a shift in emphasis towards more collaborative relationships, which would decrease payment delays by cultivating cash flow on the part of the client and thereby reduce overall project costs.

Other Stakeholders

- Various stakeholders in the construction industry are counseled to minimize changes in work scopes as this has the greatest impact on cost and time overruns. It is mentioned that project management be enhanced, with a shift in emphasis towards more collaborative relationships, which would reduce payment delays by improving cash flow on the part of the client and thereby reduce overall project costs.
- Local government bodies (sub-city and Kebele level) may provide training and online education to contractors or similar enterprises on how to effectively handover public projects and may subject them to high scrutiny of their applications to really understand their capability of using the project management concepts.
- The study recommends that the authorities of local government through the Federal ministry should formulate good cash flow policies and ensure their proper

implementation; disseminate a stringent law against any individual or firms involved in any fraudulent or corruption activity in any project; and lastly, a detailed site investigation, analysis, design, and proper project documentation should be carried out before embarking on any construction project.

5.5 Implications

Using existing literature and input from experts in construction projects, this study categorized the numerous aspects into six groups in order to analyze the underlying causes of subpar contractor performance in public buildings in Ethiopia. Therefore, the findings of this study should have a significant impact on construction management researchers, policymakers, and practitioners. The findings will also be beneficial to the community, government, owners, contractors, consultants, subcontractors, suppliers, labor, managers, engineers, and researchers as important project actors. It is evident from the data that both Ethiopia's public building construction plans and the construction industry as a whole would be impacted. This study provides a fresh assessment of a long-standing problem in the construction industry by evaluating the numerous performance criteria from the perspectives of engineers, consultants, contractors, and consultants. This study provides empirical confirmation of the key factors impacting subpar contractors' performance in public building construction projects in Addis Ababa. Adequate and continuous training programs about the operation of construction projects are also essential for the development of human resources in the construction industry. These courses can help people refresh their knowledge and increase their comfort level with project management techniques. In order to enhance the performance of building projects, it is also preferred to develop and enhance the managerial skills of engineers. Offering effective and efficient training courses in scheduling, time, cost, quality, safety, productivity, information systems, and human resource management will enable all of that to be put into practice.

5.6 Prospective Research

Data was collected from senior, middle, and technical staff of major contractors, clients, and consultants only without considering the other types of organizations. Future studies should consider lower-positioned employees or staff in these and other categories of organizations. Future research may investigate the root causes of poor contractors‘ performance in private public building, road construction, and mega construction projects in Ethiopia by grouping

the various factors into significant and related groups based on the published literature and feedback. In addition, they may evaluate the involvement and effect of a specific party or resource in a construction project on the performance in construction projects.

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ANNEX

Appendix 1 Questionnaire

ADDIS ABABA UNIVERSITY
SCHOOL OF GRADUATES

ETHIOPIAN INSTITUTE OF ARCHITECTURE BUILDING CONSTRUCTION AND CITY PLANNING

(Filled by Public Building Construction Parties)

Dear Respondent,

My name is Derege Yemanebirhan, a post graduate student in Ethiopian Institute of Architecture Building Construction and City Planning at Addis Ababa University, School of Graduates. I am currently gathering data for my thesis entitled –Root Causes of Poor Contractors‘ Performance in Construction- a Case of Selected Public Building Projects in Addis Ababa‖.

Please not that your name will not be mentioned and any information provided by you will be kept confidential. Thank you in advance for your kind cooperation and dedicating your time.

Thank you very much,

Best Regards,

Derege Yemanebirhan

Part I Demographic Information

Direction - please insert (x) in the box for your appropriate answer your demographic or personal information,

Gender:	Male	Female		
Age	Less than 30	31 -46	47-65	Above 66
Education Level	Below High school	Diploma and Degree	Masters	Refused or Others
Marital Status	Single Married		Divorced	Refused or Others

Experience in working with building construction

Less than one year	About two or three years	4 – 6 years	Above 7

Part II – Root Causes of Poor Contractors' Performance in Construction

1. How do you perceive and rate the following listed root cause of public building contractors' poor performance in Ethiopia? Please put "X" mark with the answer you choose and note that 1 represents for "Strongly Disagree"; 2 for "Disagree"; 3 for "Neutral"; 4 for "Agree" and 5 for "Strongly Agree".

Code	Performance Factor and Items	Impact (severity) Level				
		1	2	3	4	5
Cost Factors						
COF1	Payments delay					
COF2	Unavailability of finance management and plans					
COF3	Cost of rework					
COF4	Escalation of material prices					
COF5	Market conditions					
COF6	Differentiation of currency prices					
COF7	Low profit rate of projects					
COF8	High interest rate charged by bankers on loans					
COF9	Lack of capital investment					
COF10	Variation					
People Factors						
PEF1	Poor labour productivity					
PEF2	Lack of subcontractors skill					
PEF3	Lack of contractor experience					
PEF4	Lack of labour experience					
PEF5	Belongingness to work					
PEF6	Lack of trade skill					
PEF7	Poor distribution of labour					
PEF8	Supervision too late					

PEF9	Too few supervisors/foremen					
PEF10	Employees motivation					
PEF11	Too much overtime for labour					
PEF12	Inexperienced inspector					
PEF13	Hired low paid workers					
Management Factors						
MAF1	Poor planning and scheduling					
MAF2	Poor site management					
MAF3	Poor resource management					
MAF4	Poor communication among project participants					
MAF5	Slow in making decisions					
MAF6	Poor project controlling					
MAF7	Poor Facility Management					
MAF8	Lack of proper organizational management					
Design and Documentation Factors						
DDF1	Design changes					
DDF2	Poor quality site documentation					
DDF3	Slow drawing revisions and distribution					
DDF4	Unclear specifications					
DDF5	Poor design					
DDF6	Unclear site drawings supplied					
Material and Equipment Factors						
MEF1	Inappropriate/misuse of material					
MEF2	Poorly scheduled delivery of material to site					
MEF3	Poor quality of materials					
MEF4	Equipment shortage					

MEF5	Poor storage of materials					
MEF6	Poor equipment choice/ineffective					
MEF7	Material and equipment management					
Environmental Factors						
ENF1	Project complexity					
ENF2	Wastes around the place					
ENF3	Public exposure of the project					
ENF4	Project location					
ENF5	Site conditions					
ENF6	Weather					
ENF7	Social and cultural impacts					
ENF8	Lack of overall business infrastructure in Ethiopia					

2. Among the three building construction participants (Clients, contractors and consultants), who is the leading contributor to the poor performance of the construction project? Please describe hierarchically.

_____
_____
_____
_____

3. What are the roots causes of poor contractor‘s performance in Addis Ababa building construction projects?

_____
_____
_____
_____

4. What is the perception of each project party (Project managers, project coordinators, site engineers, generally technical and non-technical actors) regarding the relative severity of these factors?

5. Please indicate the possible recommendations to alleviate the problem of poor performance in building construction projects in Addis Ababa

Thank you!

Appendix II – Interview Checklist

I am Derege Yemanebirhan, a post graduate student in Ethiopian Institute of Architecture Building Construction and City Planning at Addis Ababa University, School of Graduates. I am currently gathering data for my thesis entitled "Root Causes of Poor Contractors' Performance in Construction- a Case of Selected Public Building Projects in Addis Ababa".

If you allow me, can I proceed? Thank you for your support and cooperation!

1. Among the three building construction participants (Clients, contractors and consultants), who is the leading contributor to the poor performance of the construction project? Please describe hierarchically.

   _____
   _____
   _____
   _____

2. What are the roots causes of poor contractor's performance in Addis Ababa building construction projects?

   _____
   _____
   _____
   _____

3. Please indicate the possible recommendations to alleviate the problem of poor performance in construction projects in projects in public building projects in Addis Ababa

   _____
   _____
   _____

Thank you!

ARTICLE

ROOT CAUSES OF POOR CONTRACTORS' PERFORMANCE IN CONSTRUCTION- A CASE OF SELECTED PUBLIC BUILDING PROJECTS IN ADDISABABA

By Derege Yemanebirhan (0911212095) and Dr. Eng. Asregedew Kassa, from Addis Ababa University School Of Graduates, Ethiopian Institute of Architecture Building Construction And City Planning

ABSTRACT

Building contractors play a pivotal role in construction projects, influencing their success or failure. This study investigates the underlying factors contributing to subpar performance among contractors involved in selected public building projects in Addis Ababa. A cross-sectional study was conducted, encompassing ongoing and recently completed projects, involving key stakeholders from Ethiopian building construction organizations. The research utilized a probability sampling technique—stratified, proportional, and random sampling—to select participants. Data collection employed a semi-structured questionnaire and interview checklist. The findings identify several root causes of contractors' poor performance, including cost-related issues, human resources challenges, and management deficiencies. Delayed payments, variations in project scope, fraudulent practices, corruption, decreased labor productivity, and compliance issues with procurement laws emerged as significant concerns. The study underscores that underperforming contractors jeopardize their profitability and sustainability within the local construction sector. In conclusion, the study recommends timely payment to contractors and swift resolution of payment-related disputes by clients. It also suggests that contractors consider securing bank financing to manage short-term cash flow challenges, with the expectation of repaying such loans promptly upon receipt of client payments. These measures are critical for improving contractors' performance and ensuring the successful execution of public building projects in Addis Ababa.

Key Words: Contractor Performance, Public Building Projects, Addis Ababa

INTRODUCTION

Construction projects are intricate endeavors involving multiple stages and stakeholders, each crucial to overall success. Unlike standardized production systems, construction operates in unique environments prone to risks like political interference, bureaucratic hurdles, inflation, and foreign exchange constraints (Kumi & Damoah, 2018). Poor project management and inadequate claim administration are cited as major contributors to delays and cost overruns in construction (Omopariola et al., 2019; Ruth, 2014). Uncertainties in contracts, ineffective administration, and unforeseen events exacerbate these challenges (Omo-

pariola et al., 2019; Ruth, 2014). In Ethiopia, public sector entities play a pivotal role as clients and financiers of major projects but face issues such as time and cost overruns, substandard workmanship, and operational inefficiencies (Aschalew, 2017). Challenges including manpower shortages, inadequate supervision, poor workmanship, and equipment failures further hinder progress (Biyadglign, 2017). Despite these obstacles, construction contractors remain central to project success (Biyadglign, 2017). This study addresses persistent challenges in construction projects, particularly in Addis Ababa, Ethiopia, where issues like delays, cost overruns, and quality deficiencies persist (Aschalew, 2017; Biyadglign, 2017). Previous research highlights similar issues globally, underscoring the need for effective project management and contract oversight (Omopariola et al., 2019; Ruth, 2014). The construction sector's substantial contribution to Ethiopia's GDP and its potential to reduce unemployment among skilled professionals further motivate this research. Drawing on the researcher's extensive industry experience, the study aims to identify root causes of poor contractor performance and propose actionable recommendations.

Statement of the Problem:

Ethiopia's construction industry is crucial for socio-economic development but faces significant challenges, including incomplete contract works, unresolved claims, and delays in change orders and time extensions (Endale, 2016). There is ambiguity surrounding what constitutes contractor success, highlighting the need to investigate factors contributing to poor performance (El-sokhn, 2014; Peter and Evelyn, 2015; Shambel and Dixit, 2018; Mesfin, 2019). Existing studies often overlook contractors' performance issues specific to Ethiopia's public construction sector, creating a gap in understanding. This research aims to fill that gap by identifying root causes within selected public building projects in Addis Ababa. The study aims to comprehensively identify the root causes of poor contractor performance in ongoing and recently completed public building projects in Addis Ababa. This research is crucial for improving understanding and capabilities within Ethiopia's construction industry. By pinpointing factors contributing to subpar contractor performance, it aims to enhance project effectiveness, raise industry standards, and support sustainable development goals. It focused on public building projects in Addis Ababa, involving contractors and consultants. Examines ongoing and recently completed projects, assessing time and cost performance primarily. Constrained by time and budget, the study primarily evaluates time and cost aspects, with limited comprehensive quality assessment or stakeholder perspectives. It relies on a specific set of documents addressing poor performance factors in public building projects. The thesis comprises five chapters: Introduction, Literature Review, Research Design and Methodology, Analysis of Findings and Discussion, and Conclusion and Recommendations.

RELATED LITERATURE REVIEW

Theoretical Literature Review

Performance management in the construction industry operates on an interactive control model based on agreements. Its primary goal is to balance available resources with desired outcomes efficiently. Performance encompasses economic and operational aspects such as profitability, productivity, quality, speed, and delivery, crucial for assessing organizational success (Sullivan, 2013; Mekedes, 2016). In construction, performance is measured against criteria like cost, time, safety, resource allocation, and quality stipulated by stakeholders (Ruth, 2014). Effective performance management ensures cohesive operation of organizational subsystems through goal-setting, progress monitoring, standards establishment, feedback exchange, and intervention (Ruth, 2014; Damoah et al., 2018). Key Performance Indicators (KPIs) are pivotal, offering measurable evidence of goal achievement and enabling cross-project and organizational comparisons to identify improvement areas (Damoah et al., 2018). Measurement involves systematic data collection to evaluate efficiency, utility, and contribution to organizational and employee performance, facilitating continuous improvement (Sullivan, 2013; OECD, 2014). Efficiency refers to achieving outputs with minimal resources, maximizing cost-effectiveness, while effectiveness focuses on achieving goals aligned with organizational objectives (El-sokhn, 2014). Performance management in construction aims to optimize resources, achieve project goals, and enhance operational effectiveness through KPI-driven performance measurement. The construction industry encompasses civil and building works from conception to maintenance, involving significant capital investments in infrastructure like roads, dams, and public facilities crucial for economic development (Gaber et al., 2014; Musa et al., 2015). It drives economic growth, creates employment, and supports sectors like housing and industrial development in developing countries like Ethiopia (Mekedes, 2016). Construction projects are complex, costly, and risky due to their unique nature, involving multiple stakeholders and dynamic external environments (Project Management Institute, 2017). They are temporary endeavors delivering unique results, facing uncertainties and risks throughout their lifecycle (Shambel & Dixit, 2018). Modern projects require collaboration across disciplines for planning, design, and execution to meet societal needs and enhance quality of life (Ibrahim, 2016). Performance in construction is evaluated based on meeting project objectives such as cost, time, and quality, while broader aspects like customer satisfaction, adherence to specifications, safety, and sustainability also influence success (Shaban, 2013).

Ethiopia's construction sector spans residential, industrial, and infrastructure projects, essential for economic growth and meeting physical and social needs (Mekedes, 2016; Mesfin, 2019). It supports national development goals through infrastructure expansion, job creation, and economic diversification, despite challenges like limited resources and technological capabilities (Shambel & Dixit, 2018). Over 7,000 registered contractors operate in Ethiopia, categorized by specialization and capacity, with stringent licensing

requirements ensuring competence and professionalism (Biyadglign, 2017; Mesfin, 2019). Professional services include architects, engineers, and consultants crucial for project design and management, reflecting Ethiopia's commitment to industry standards and specialization (Biyadglign, 2017). The construction industry's contribution to Ethiopia's GDP and employment highlights its strategic importance in fostering economic development and infrastructure growth (Mesfin, 2019). Effective regulation and capacity-building efforts are essential for sustaining industry growth and achieving sustainable development goals through successful project execution and performance management.

Contractors' Performance:

The construction industry encompasses diverse activities from general contracting to specialized trades, pivotal for economic growth and infrastructure development. It plays a crucial role in generating employment, supporting economic sectors, and enhancing local capabilities through skills transfer and technology adoption (Donghoon, 2013; Damoah et al., 2018). Performance indicators are instrumental in evaluating project success and identifying areas for improvement in construction management. They aid in optimizing project outcomes and operational efficiency by measuring achievement against defined goals and objectives (Shambel & Dixit, 2018; Damoah et al., 2018). Performance management practices in construction are tailored to project-specific needs, aiming to maximize efficiency and effectiveness throughout the project lifecycle.

Root Causes of Poor Contractors' Performance in Construction

The construction industry, pivotal for economic development in developing nations like Ethiopia, often struggles with challenges that impede project delivery within time, budget, and quality parameters (Mesfin, 2019). Understanding the underlying factors affecting contractor performance is crucial for improving project outcomes and enhancing industry effectiveness. Effective project management is essential for achieving strategic objectives within organizational constraints (Shambel & Dixit, 2018). Initiating with comprehensive budgeting and scheduling, project management involves continuous monitoring of costs and progress against plans (Peter and Evelyn, 2015). Deviations prompt corrective actions to maintain alignment with project goals and ensure timely completion. Human factors significantly influence project performance, encompassing skills, safety management, and adherence to regulations (Nesru & Tadele, 2020; El-sokhn, 2014). Safety measures mitigate risks and costs associated with accidents, ensuring a secure working environment and compliance with legal standards. Successful project development hinges on effective financial and technical management amidst varying economic and political landscapes (Kumi & Damoah, 2018). Timely completion, cost adherence, and quality satisfaction are critical metrics for project success (Werku, 2016). Procurement practices and contractual obligations shape project dynamics, influencing performance through bid evaluations and subcontractor selections (Nesru & Tadele, 2020; Peter and Evelyn, 2015). Cooperative procurement strategies can enhance project outcomes by fos-

tering collaboration and alignment among stakeholders. Availability and quality of materials and equipment impact project efficiency and delivery timelines (Shambel & Dixit, 2018). Managing these resources effectively minimizes delays and ensures smooth project execution. External influences such as political stability, economic conditions, and technological advancements pose significant risks to project timelines and outcomes (Musa et al., 2015). Understanding and navigating these environments are crucial for mitigating risks and optimizing project performance. In conclusion, addressing these root causes through improved project management practices, enhanced human resource capabilities, strategic cost management, efficient procurement strategies, optimal resource utilization, and proactive risk management can significantly enhance contractor performance in the construction industry. This holistic approach is essential for fostering sustainable development and achieving successful project outcomes aligned with stakeholders' expectations.

Empirical Literature Review

Project performance is crucial in the construction industry, measured by timely completion and client satisfaction (Omopariola et al., 2019). Effective project management significantly influences success, focusing on cost, time, and quality (Ibrahim, 2016). In Nigeria, challenges like delayed financial support and client payment delays hinder project performance (Omopariola et al., 2019). Strategies include prompt client payments and effective project planning to manage cash flow and minimize variation orders. In South Africa, proactive risk management practices are critical, addressing political stability and economic fluctuations to enhance project success (Mthimkhulu & Aigbavboa, 2017). Studies from Brazil emphasize regulatory compliance and environmental factors affecting infrastructure projects (Santos & Almeida, 2018). In China, technological advancements improve project efficiency and quality through innovation (Liu & Tao, 2017). In Canada, climate variability impacts project timelines and costs, highlighting environmental considerations (Smith & Johnson, 2019). In Saudi Arabia, poor communication and delayed payments are key issues affecting project performance (Ibrahim, 2016). Contractors stress payment delays, while consultants prioritize planning and scheduling issues. In Kenya, political instability and delayed payments affect project timelines and costs, with minimal adoption of safety measures by construction firms (Peter & Evelyn, 2015). In Ethiopia, factors contributing to construction delays include economic factors, slow decision-making, and inadequate funding (Nesru & Tadel, 2020). Effective planning and material supply management are crucial to mitigate delays. Identifying and addressing root causes such as financial delays, inadequate planning, and external environmental factors are crucial for improving contractor performance globally. Future research should focus on comprehensive methodologies to understand these factors better and optimize project outcomes in the construction industry. The construction industry faces persistent challenges affecting contractor performance globally. While studies identify issues such as delayed payments and inadequate planning, there remains a gap in understanding the core reasons

behind poor contractor performance comprehensively. Addressing this gap through integrated research methodologies is essential to develop targeted strategies that enhance project outcomes and support sustainable development in the construction sector, both locally and globally.

RESEARCH METHODOLOGY

This research study was conducted over a period from December 5, 2021, to March 30, 2022, as outlined in the work schedule and plan attached to this report. The study employed a mixed-methods approach to comprehensively address the factors contributing to poor contractor performance in the construction industry. This approach combines qualitative and quantitative methodologies to leverage their respective strengths and produce complementary insights. For the quantitative aspect, a cross-sectional survey design was utilized. This design involved distributing self-completion questionnaires to a sample of 314 respondents selected from stakeholders involved in public construction projects in Addis Ababa. The survey aimed to collect data on various factors affecting contractor performance, using a structured questionnaire with closed and open-ended questions. The response rate was high at 97%, reflecting strong engagement from the targeted participants. On the qualitative side, a phenomenological case study approach was adopted. This involved in-depth interviews with 15 key stakeholders directly involved in specific public building projects in Addis Ababa. The qualitative data collection focused on understanding the lived experiences and perceptions of these stakeholders regarding the root causes of poor contractor performance. Data analysis encompassed thematic analysis for qualitative data and statistical analysis using SPSS for quantitative data. This comprehensive approach aimed to provide a nuanced understanding of the issues at hand and explore causal relationships between various factors influencing contractor performance in public construction projects. Ethical considerations were paramount throughout the study, with approval obtained from relevant authorities and informed consent obtained from all participants. Confidentiality of data was maintained, and participants were assured of their rights throughout the research process. In brief, this mixed-methods study contributes to the existing literature by offering a detailed examination of the factors affecting contractor performance in the construction industry in Addis Ababa. The findings aim to inform policy and practice in enhancing project outcomes and supporting sustainable development in the sector.

RESULTS AND DISCUSSION

Case Analysis

The government of Ethiopia has constructed low- and middle-class condominiums in Addis Ababa and other cities, along with a mortgage facility for the population. Urban renewal efforts involve demolishing Kebele-owned rental units to build apartments under housing development programs. Project activities use traditional methods, separate from land selection and contractor roles. The city is building high-rise condominiums in Bole Bulbula to finance housing programs. Sites like Lot 1 and Lot 2 are leased for con-

struction. Projects aim to provide residential units to bank saving customers. The area is near Addis Ababa, with multiple construction contracts awarded for housing blocks and infrastructure. 175 hectares in Bole Bulbula are allocated for 34,280 condominium units. Sites are chosen to minimize construction costs, with some within the city for easy access and others on the outskirts requiring transportation for city services.

The Root Causes

This study identifies six primary factors contributing to contractor performance issues in condominium projects: cost, people, professional management, design and documentation, materials and equipment, and environmental factors. Projects frequently experience delays in payments and lack effective financial management plans. This leads to significant cost overruns and challenges in budget adherence. Poor labor productivity and insufficient skills among subcontractors contribute to project delays and inefficiencies. Government policies to support micro and small enterprises (MSEs) lack integration with construction sector needs. Contractors often face issues with project management, including inadequate planning, poor resource allocation, and communication gaps among project stakeholders. These factors hinder project efficiency and completion. Issues such as frequent design modifications, inadequate documentation, and poor quality control lead to construction defects and maintenance challenges for condominium residents. Supply chain issues, price volatility of construction materials, and inadequate equipment management contribute to delays and increased costs in construction projects. While construction practices in Ethiopia generally avoid harmful chemicals, poor waste management and environmental disruptions pose risks to local ecosystems and communities. Sustainable building practices are essential to mitigate these risks.

Survey Results - Ranking of Factors

This section summarizes the findings of a survey on factors influencing contractors' performance in public building construction projects. The survey categorized these factors into six main groups: Cost, People, Professional Management, Design and Documentation, Material and Equipment, and Environmental Factors. Below is a condensed overview of each group's findings based on the severity index (S.I.) derived from the survey responses.

Cost Factors

The survey identified ten factors contributing to cost-related challenges for contractors. Payment delays emerged as the most severe issue across contractors and consultants, while clients highlighted material price escalations. This disparity indicates varied perspectives on cost impacts among stakeholders. Effective cost management practices were recognized as crucial for project profitability, requiring improvements in rework cycle management and feedback mechanisms (Damoah et al., 2018).

People Factors

Thirteen factors were assessed under this category, revealing significant alignment on labor-related issues causing poor contractor performance. Poor labor productivity was consistently cited as a primary concern by contractors and clients, although consultants emphasized contractor inexperience. Addressing labor productivity is critical due to its substantial impact on project quality, duration, and costs (Onoh, Umar, & Orji, 2020).

Professional Management Factors

Eight factors were categorized under professional management, with poor communication among project participants identified as the most severe issue by all stakeholders. Contractors also highlighted poor resource management, while clients noted challenges in project controlling. Effective project management practices, including clear communication and robust resource planning, are crucial for mitigating these challenges (Akomah & Jackson, 2016).

Design and Documentation Factors

Six factors related to design and documentation were assessed, with design changes identified as the most severe issue by contractors and consultants. Unclear site drawings were highlighted as a significant concern by contractors, underscoring the importance of detailed and accurate documentation in minimizing errors and improving project efficiency (Onoh et al., 2020).

Material and Equipment Factors

Seven factors were examined under this category, with equipment shortages and poor material storage ranked as the top issues across contractors and clients. Effective management of material resources and equipment is crucial for maintaining project timelines and quality standards, underscoring the need for improved supply chain management and resource planning (Nesru & Tadele, 2020).

Environmental Factors

Ten factors were assessed, revealing concerns about fraud, negligence, and inadequate procurement laws as top issues impacting contractor performance. The complex business environment and regulatory challenges in Ethiopia were noted as significant hurdles, requiring reforms to enhance transparency and operational efficiency (Omopariola et al., 2019).

Summary Factors Rating

Across all categories, payment delays, poor communication, and inadequate resource management emerged as common challenges affecting contractor performance. These findings highlight the need for integrated solutions addressing financial, operational, and regulatory aspects to enhance project outcomes and stakeholder satisfaction (United Nations Human Settlements, 2022).

Groups Ranking

Cost factors were consistently rated as the most significant by contractors and consultants, emphasizing their impact on project timelines, costs, and quality. Clients prioritized professional management factors,

underscoring the importance of effective project oversight and stakeholder coordination in achieving project goals (Donghoon, 2013).

Severity Rank Correlation

The Spearman's correlation analysis indicated a strong agreement among respondents regarding the severity of factors influencing contractor performance. This consensus supports the reliability of the study findings and underscores the importance of addressing shared challenges to enhance construction project outcomes (Spearman's Coefficient, 2022). These summarized findings provide a clear understanding of the critical factors influencing contractors' performance in public building construction projects in Ethiopia. Addressing these challenges requires collaborative efforts among stakeholders to improve project management practices, enhance resource efficiency, and streamline regulatory frameworks.

Overview of Root Causes of Poor Performance

In construction projects, contractors play a pivotal role, influencing project outcomes significantly. The study emphasizes the need to address issues affecting contractor performance to enhance overall construction quality in the area. Key factors identified include payment delays, material escalation, variation, capital investment challenges, and issues related to fraud and corruption. Cost-related challenges were highlighted as a major concern across the industry. Payment delays emerged as a critical issue stemming from budget shortages, bureaucratic delays, and organizational changes among clients. Escalating material prices also posed significant financial burdens for contractors. The study underscores the importance of adequate initial capital investment for contractors to manage project finances effectively. Inadequate scheduling and planning were identified as primary contributors to subpar contractor performance. The lack of integrated project management technologies and poor implementation exacerbated project risks, leading to cost and time overruns. Improving planning processes and adopting advanced project management tools were recommended to mitigate these challenges. Low labor productivity and poor material management were cited as critical issues affecting project success. Factors contributing to low labor productivity included ineffective contractor-owner relations, low wages, inadequate training, and experience gaps among workers. Addressing these issues is crucial for improving project efficiency and quality. The Ethiopian construction industry faces challenges related to business sustainability and profitability, exacerbated by regulatory constraints and fluctuating material prices. Contractors expressed concerns about credit availability and profit margins, reflecting the industry's competitive and financial pressures. Addressing these systemic issues through regulatory reforms and financial support mechanisms was recommended to stabilize contractor operations.

Possible Recommendations to Alleviate the Problem of Contractors' Poor Performance

To enhance contractor performance, the study recommends implementing systematic payment settlement mechanisms such as online systems for payments and project monitoring. Mitigating variation works

promptly, enhancing labor productivity through motivation and skills development, and reviewing profit margins to ensure sustainability were also suggested. Accessible credit facilities and financial support were highlighted as critical for managing cash flow challenges and improving financial resilience among contractors. This overview provides a comprehensive analysis of the root causes impacting contractor performance in Ethiopian construction projects, along with actionable recommendations to address these challenges effectively.

Discussions

This study delves into the perceptions of various stakeholders—contractors, clients, and consultants—regarding the severity of factors contributing to poor performance in public building construction projects. It analyzes collected data to rank these factors based on respondent feedback and assesses the primary root causes of contractor underperformance. Cost-related issues emerged as the predominant root cause of poor contractor performance in the Ethiopian construction industry. The study underscores the critical impact of cash flow problems, fraudulent practices, and the challenging construction environment on contractor operations. Similar findings by Nuru and Ilias (2014) and Raid and Yerevan (2018) emphasize the significance of cost performance in determining project success and contractor profitability. Payment delays were highlighted as a major concern, leading to financial strain and operational disruptions for contractors, as supported by Onoh et al. (2020) and other researchers. These delays, often stemming from bureaucratic processes and insufficient documentation, contribute to cost overruns and project delays. The study also identifies management and people-related factors as significant contributors to contractor performance issues. Stakeholder consensus, as highlighted by Peter and Evelyn (2015), underscores the importance of effective project leadership, resource availability, and quality management practices. Effective project management hinges on factors such as communication, decision-making, and coordination effectiveness, as noted by Mukuka, Aigbavboa, and Thwala (2014). Moreover, human resources management plays a pivotal role in enhancing project team performance, as emphasized by Nesru and Tadele (2020). In conclusion, addressing cost-related challenges, enhancing management practices, and optimizing human resources management are crucial for improving contractor performance in Ethiopian public building construction projects. These insights underscore the need for systematic reforms in payment processes, regulatory frameworks, and project management practices to foster sustainable development in the construction sector.

CONCLUSIONS

The success of construction projects heavily depends on the management, financial, technical, and organizational performance of involved parties. This study reveals that construction managers often need to reassess their priorities and understanding of the operating environment. It concludes that contractors, clients, and consultants perceive factors like cost, personnel, and management with similar seriousness.

Cost performance emerges as a critical determinant of contractor success throughout construction projects, influencing outcomes from start to finish. The study highlights that poor cost performance is a pervasive issue in construction, often leading to project delays and increased costs. Despite recognizing the importance of factors like cost, knowledge, and management, respondents in the study rated aspects such as design and documentation, materials, equipment, and environmental considerations lower.

In conclusion, the study underscores that challenges related to cost, personnel, and management are primary contributors to contractors' underperformance in construction projects. Addressing these factors effectively is crucial for improving overall project outcomes and efficiency in the construction sector. The study concludes with a set of targeted recommendations to enhance contractor performance in public building construction projects in Ethiopia. Contractors are advised to focus on improving financial decision-making and management, including better working capital utilization. They should also prioritize human resources development by hiring qualified personnel and implementing robust training programs. Clients are urged to ensure prompt payment to contractors to minimize delays and optimize project timelines. Consultants are encouraged to enhance project management practices and utilize cost-effective design criteria to improve overall project efficiency and client satisfaction. Stakeholders across the construction industry are advised to minimize scope changes and implement stringent anti-corruption measures. These recommendations aim to improve project outcomes and contribute to the sustainable development of Ethiopia's construction sector, benefiting all involved parties and contributing to broader industry advancement.

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