ASSESSMENT OF FACTORS AFFECTING THE QUALITY OF GOVERNMENT FINANCED CONSTRUCTION PROJECTS: A CASE OF DAR ES SALAAM REGION IN TANZANIA

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A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF PROJECT MANAGEMENT

DEPARTMENT OF MARKETING, ENTERPRENEURSHIP AND MANAGEMENT

THE OPEN UNIVERSITY OF TANZANIA

2025

CERTIFICATION

The undersigned certifies that he has read and hereby recommends for acceptance by The Open University of Tanzania a dissertation titled, "**Assessment of Factors Affecting Quality of Government Financed Construction Projects: A Case of Dar es Salaam Region in Tanzania".** In partial fulfilment of the requirements for the degree of Master of Project Management (MPM) of the Open University of Tanzania.

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Prof. Gwahula Raphael

(Supervisor)

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Date

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DECLARATION

I, **Jackline Nicetas** declare that, the work presented in this dissertation is original. It has never been presented to any other University or Institution. Where other people's works have been used, references have been provided. It is in this regard that I declare this work as originally mine. It is hereby presented in partial fulfilment of the requirements for the Degree of Master of Project Management (MPM) of the Open University of Tanzania.

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Signature

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Date

DEDICATION

I dedicate this work to the Almighty God and to my beloved family, whose love and support have been my greatest inspiration

ACKNOWLEDGEMENT

First, I thank my Almighty God for his wonderful mercy and grace that was with me the whole time of undertaking this study. Again, my sincere appreciation goes to my supervisor for the excellent supervision throughout the time of undertaking my research. I also thank my coursework lecturers and the entire community of the Open University of Tanzania for supporting me by enriching my knowledge and skills, which all advanced my ability to develop this study. May God blesses them all and excels in their profession.

ABSTRACT

This study explores the factors influencing the quality of government-financed construction projects, with a focus on the Dar es Salaam Region. The research specifically investigates three main areas: (1) how project financing impacts the quality of construction projects, (2) the role of the government procurement system and processes in ensuring project quality, and (3) the effect of the availability of project equipment and spare parts on the quality of these projects. A qualitative approach was employed, utilizing interviews and document reviews for data collection. The data were analyzed through context analysis. Key findings reveal that factors related to project financing, such as budget flexibility, adequacy, timely disbursement, and utilization, play a significant role in determining the quality of construction outcomes. Moreover, project quality is heavily influenced by effective planning, design, and procurement systems and processes. The study recommends that for government-financed construction projects to meet quality standards, there is a need for a systemic and holistic reform of procurement procedures. Additionally, establishing a project unit equipped with the necessary knowledge and skills in managing project materials, including equipment and spare parts, is essential to ensure quality performance.

***Keywords**: Project, Quality, Government, Construction Projects.*

TABLE OF CONTENTS

LIST OF TABLES

LIST OF ABBREVIATIONS

CIUP	Community Infrastructure Upgrading Program
EFQM	European Foundation for Quality Management
ITA	International Trade Administration
JNIA	Julius Nyerere International Airport
PMBOK	Project Management Body of Knowledge
PDCA	Plan-Do-Check-Act
PPP	Public-Private Partnerships
TAZARA	Tanzania Zambia Railway Authority
TQM	Total Quality Management
UNEP	United Nations Environmental Programme

CHAPTER ONE

BACKGROUND OF THE PROBLEM

1.1 Chapter Overview

This chapter introduces the concept of quality in projects and discusses the background to the research problem, statement of the research problem, objectives, research questions to be addressed, significance of carrying out this study, and organization of the report.

1.2 Background to the Research Problem

Project management success, widely discussed by scholars, is often linked to the achievement of project quality. It is defined as the effective application of concepts, knowledge, skills, tools, and techniques to meet project objectives and improve the likelihood of project success. According to recent studies, this approach not only ensures that project goals are met but also enhances overall project efficiency and stakeholder satisfaction (PMI, 2021; Kerzner, 2022). These contemporary definitions emphasize the critical role of structured methodologies in driving successful project outcomes. Project success has traditionally been measured by the timely delivery of cost and quality objectives (PMI, 2021). Globally, the construction industry is critical, with around 10% of the global economy dedicated to constructing and operating homes and offices (UNEP, 2019). This sector consumes significant resources, including wood, minerals, water, and energy, and contributes to employment and economic growth (World Bank, 2020). In Tanzania, the construction industry has played a significant role in economic development, with the sector's average growth rate

increasing from 1.3% in 1994 to 12% in 1998. Informal sector participation is crucial in providing housing and infrastructure for 80% of the rural population. The industry also contributes 8.9% to employment and an average of 4.6% to the GDP between 1999 and 2000 (Ministry of Finance Tanzania, 2022).

UK working groups on Key Performance Indicators (KPIs) identified several parameters for benchmarking, including construction cost, time, cost predictability, and client satisfaction (Akintoye & Takim, 2002). However, cost overruns and delays in project implementation remain major challenges, particularly in developing countries (Kigari & Wainaina, 2010). Leadership plays a crucial role in managing construction companies, though there has been limited research on leadership behavior in construction projects (Bresnen et al., 1986). Despite policies and high-quality training in Tanzania, construction projects often face cost overruns, delays, and quality issues, leading to collapsed buildings and dissatisfied clients (Kibuchi, 2011). The challenge remains in aligning project outcomes with client expectations and effectively utilizing available resources.

1.3 Statement of the Research Problem

The quality of government-financed construction projects in Tanzania frequently falls short of the specifications outlined in project plans. Numerous projects have been closed without meeting the desired quality standards or completed with significant deviations in time, cost, and scope. This mirrors global challenges within the construction industry, which is often plagued by delays, cost overruns, and stakeholder disputes (González et al., 2022). In Tanzania, the construction sector has been

particularly susceptible to issues like uncontrolled schedules, accidents, and conflicts among project teams. More concerning is the recurrent abandonment and incompletion of both public and private construction projects, necessitating substantial additional resources to revive them (Mlinga, 2020).

Construction is inherently a high-risk, multifaceted industry, involving various elements such as human resources, materials, site conditions, and machinery, all of which must be carefully managed (Aibinu & Jagboro, 2020). The mismanagement of these factors often leads to substandard outcomes, particularly in government-financed projects, where public funds are at stake, and accountability is critical. Despite the presence of policies aimed at ensuring project quality, the Tanzanian construction industry continues to struggle with performance issues. Furthermore, there remains a notable gap in understanding how key factors—such as financing, procurement processes, and equipment availability—impact the overall quality of government-funded projects.

This study aims to bridge this gap by systematically analyzing the primary factors that affect the quality of government-financed construction projects in Tanzania, specifically within the Dar es Salaam region. While previous research has examined the prevalence of delays and cost overruns in construction projects (Memon et al., 2019; Saleh et al., 2017), comprehensive studies focused on government-funded projects are limited. This research will offer insights into improving project quality by addressing the management of critical resources and aligning project outcomes with time and budgetary constraints.

1.4 Research Objectives

1.4.1 General Objective

The general objective of this study was to assess the factors affecting the quality of government-financed construction projects, using a case study of the Dar es Salaam Region.

1.4.2 Specific Research Objectives

i) To determine whether project financing affects the quality of construction projects

ii) To examine the contribution of the government procurement system and process to the quality of construction projects

iii) To assess whether the availability of project equipment and spare parts affects the quality of construction projects.

1.5 Research Questions

i) Is project financing affects the quality of construction projects?

ii) What are the contributions of the government procurement system and processes to the quality of construction projects?

iii) Does the availability of construction equipment and spare parts affect the quality of construction projects? 1.6 Significance of the Study.

The findings of this study contribute substantially to the academic discourse, offering critical insights for students and professionals in the field of quality management, particularly within government-financed construction projects. The study serves as a

foundation for future research, filling gaps that were previously unexplored and paving the way for subsequent studies to expand on these findings. It also holds practical implications, offering valuable information for government officials, policymakers, planners, contractors, engineers, and architects, enhancing their capacity to improve policy planning, decision-making, and project execution. Moreover, the study provides a comprehensive understanding of the key factors influencing the quality of government-financed construction projects, serving as an essential reference for further academic and practical inquiries into the field.

1.6 Organization of the Dissertation

This paper is organized into three main chapters. Chapter One offers an introduction to the study, encompassing the background, problem statement, research objectives, research questions, significance, and assumptions. Chapter Two reviews the literature, featuring an introduction, an exploration of relevant literature that shapes the theoretical foundation, and the conceptual framework underpinning the proposed study. Chapter Three outlines the research methodology, detailing the research philosophy, approaches, target population, sample size, sampling techniques, variables and measurement procedures, data collection process, as well as data processing and analysis methods. The document concludes with a reference list and the proposed questionnaires as appendices.

CHAPTER TWO

LITERATURE REVIEW

2.1 Chapter Overview

This section provides a conceptual definition of the quality of government-financed construction projects. This chapter also explores the bulk of previous efforts and research done in reference to the problem of study. Finally, available models for predicting project quality are discussed.

2.2 Conceptual Definitions

2.2.1 Quality

In the construction industry, quality refers to the achievement of acceptable levels of performance in construction activities (Enshassi et al., 2009). This occurs when these activities meet or surpass the client's or owner's requirements. Quality in construction is realized when the final product conforms to the established specifications. However, achieving consistent quality over time in construction remains a challenge and has been an ongoing issue globally. A lack of efficient quality management practices leads to significant losses in time, money, materials, and resources (Ali et al., 2021). For instance, when a designer specifies a certain grade of concrete, deviations from that specification can result in compromised quality (Atkinson et al., 2012). The International Organization for Standardization (ISO 9000:2015) defines quality as "the degree to which a set of inherent characteristics fulfills requirements."

2.2.2 Project

A Project is a temporary, unique, and revolutionary attempt or endeavor to produce

some type of tangible or intangible result (a particular product, service, benefit, competitive advantage, etc.). It usually consists of a sequence of interrelated duties that are planned for execution over a constant length of time and inside certain necessities and barriers, such as cost and quality (Bennett, 2019). According to the PMBOK (Project Management Body of Knowledge) 3rd edition, A project is defined as a “temporary endeavor with a beginning and an end, and it must be used to create a unique product, service or result.

In this case the project means any project to be paid for by the city but which is funded by the state or Government funds to construct, re model or reconstruct any public works , public buildings structures roadways, parks, schools, belonging to thec city within its geographical bounderies as they exist.

2.2.3 Project Financing

Project finance is the funding (financing) of long-term infrastructure, industrial projects, and public services using a non-recourse or limited-recourse financial structure. The debt and equity used to finance the project were repaid from the cash flow generated by the project. Project financing is a loan structure that relies primarily on a project's cash flow for repayment, with the project's assets, rights, and interests held as secondary collateral. Project finance is especially attractive to the private sector because companies can fund major off-balance-sheet projects.

2.2.4 Government Construction Project

A government construction project refers to any infrastructure or building development initiative that is funded, managed, or overseen by government bodies or

public sector agencies. These projects are typically financed through public funds and aim to serve the needs of the general population or specific sectors of society, such as transportation, education, healthcare, or housing.

Government construction projects can range from the construction of roads, bridges, and highways to public schools, hospitals, administrative buildings, and other public service facilities. They are often subject to strict regulations, guidelines, and standards set by government authorities to ensure quality, safety, and efficient use of resources. These projects are also characterized by their complexity due to the involvement of multiple stakeholders, including government agencies, contractors, consultants, and the public.

One key aspect of government construction projects is their accountability and transparency, as they involve taxpayer money. As a result, they are often closely monitored to ensure that they meet deadlines, remain within budget, and achieve the desired quality. However, these projects can also be prone to challenges such as delays, cost overruns, and disputes due to the bureaucratic processes and the coordination required among various parties

2.2.5 Procurement System and Process

A procurement system refers to the structured framework through which organizations acquire goods, services, or works from external sources. This system encompasses the policies, procedures, tools, and technologies employed to manage the entire procurement cycle, ensuring efficiency, compliance, and transparency. A procurement system may include elements such as vendor selection, contract management, purchase

order processing, inventory management, and supplier relationship management. It aims to optimize resource allocation, control costs, mitigate risks, and achieve the best value for the organization.

2.2.6 Project Success Criteria

Ikaa et al. (2013) identified project success criteria as the characteristics or principles used to evaluate the success of a project. These criteria encompass various factors, including the achievement of project objectives, the benefits delivered to customers, commercial viability, and future growth potential. Common success criteria include the project mission, financial arrangements, support from top management, effective monitoring, design quality, the experience of project managers and project teams, and adequate training (Kumar et al., 2021; Tzeng et al., 2022). These elements collectively contribute to a comprehensive understanding of what defines project success and guide stakeholders in assessing project outcomes effectively.

2.3 Theoretical Literature Review

Many theories have been developed to explain the link between the factors affecting the quality of construction projects. These theories provides frameworks and conceptual lenses through which researchers and practitioners can understand, analyze, and improve project outcomes. These theories help identify and explain the complex interactions between various factors—such as management practices, resources, stakeholder involvement, and environmental conditions—that influence the quality of construction projects. Here are some key theories often referenced in this context:

2.3.1 Theory of Constraints (TOC)

The Theory of Constraints (TOC) is a management philosophy developed by Dr. Eliyahu M. Goldratt in the 1980s. The core premise of TOC is that every organization has at least one constraint that limits its ability to achieve higher performance and quality (Goldratt, 1990). TOC emphasizes identifying these constraints and systematically improving them to optimize the overall performance of the organization. The theory provides a framework for continuous improvement by recognizing that an organization is a chain of dependent events, and the weakest link in this chain determines the overall performance (Goldratt, 1990). In the construction industry, TOC is particularly relevant as projects are often complex and involve multiple interdependent tasks. Constraints can manifest in various forms, such as:

- **Resource Availability**: Limited availability of skilled labor, materials, or equipment can slow down project progress.
- **Project Timelines**: Delays in one part of the project can cascade, affecting subsequent tasks and overall completion times.
- **Regulatory Approvals**: Compliance with legal and regulatory requirements can create bottlenecks, delaying project milestones.

TOC encourages project managers to identify these constraints and implement strategies to address them, thereby enhancing overall project efficiency and quality (Kumar & Kaur, 2019). By focusing on the constraints, construction teams can prioritize resources and efforts where they are needed most, ultimately leading to improved project outcomes.

Despite its effectiveness, the Theory of Constraints has several limitations and gaps, particularly in its application to the construction industry:

- **Oversimplification of Complex Systems:** TOC may oversimplify the complexity of construction projects by focusing solely on one constraint at a time. However, construction projects often have multiple, interrelated constraints that can change dynamically throughout the project lifecycle (Sanchez & Perez, 2022). This limitation can hinder a comprehensive understanding of project performance and may lead to inadequate solutions.
- **Neglect of Non-Quantifiable Factors**: TOC primarily emphasizes quantifiable constraints, such as resources and time. However, factors such as team morale, stakeholder engagement, and communication are also critical to project success and are often more difficult to measure (Geraldi & Lechler, 2012). Ignoring these qualitative aspects may lead to suboptimal outcomes despite improvements in quantifiable areas.
- **Implementation Challenges**: While TOC provides a framework for identifying and managing constraints, practical implementation can be challenging. Organizations may face resistance to change, lack of training, or insufficient understanding of the theory's principles (Goh & Kwan, 2016). This resistance can limit the effectiveness of TOC in real-world applications.
- **Limited Focus on Continuous Improvement**: TOC promotes the idea of addressing constraints in a sequential manner. However, construction projects require continuous improvement and adaptability to changing conditions. A rigid adherence to the TOC framework may inhibit the flexibility needed to respond to new challenges as they arise (Farris et al., 2010).

- **Lack of Comprehensive Metrics**: TOC's reliance on throughput, inventory, and operating expense metrics may not adequately capture the multifaceted nature of project quality in construction. Quality metrics often involve subjective assessments that are not easily aligned with TOC's objective measures (Geraldi & Lechler, 2012).

The Theory of Constraints offers valuable insights into improving project performance in the construction industry by identifying and addressing limiting factors. However, its application is not without challenges, and recognizing these gaps can help project managers and organizations enhance their strategies for effective project management.

2.3.2 Joseph M. Juran's Quality Management Theory

Joseph M. Juran's Quality Management Theory introduced as the Juran Trilogy in 1986, revolutionized the approach to managing quality. This framework focuses on three universal processes: quality planning, quality control, and quality improvement, which together form a comprehensive strategy for achieving and maintaining high-quality outcomes across all functions, levels, and product or service lines (Keyton, 2008).

2.3.2.1 Core Components of the Juran Trilogy

*Quality Planning:*This involves establishing quality goals, identifying customers and their needs, and designing products or services to meet those needs. In construction projects, this stage ensures that project specifications align with client requirements and adequate plans are in place for procurement, spare parts, and financing.

Quality Control: This step monitors performance to ensure that quality goals are met. In construction, it involves assessing the procurement process, ensuring spare parts meet standards, and verifying that financial resources are utilized as planned to avoid overruns or delays.

Quality Improvement: The focus here is on continuous enhancement through identifying inefficiencies or obstacles that hinder performance. Breakthrough improvements are achieved by designing innovative solutions and fostering leadership support to drive meaningful change (Ofori, 2006).

2.3.3 Impact on Key Construction Project Areas

Spare Parts Management: Ensures that spare parts meet required specifications and are available on time to prevent delays. By designing a robust supply chain for spare parts, projects can avoid costly interruptions. Monitors spare parts for compliance with quality standards during procurement and usage. This reduces the likelihood of defects that could compromise the project's quality. Encourages the adoption of predictive maintenance strategies and innovative inventory systems to ensure timely availability of spare parts and minimize downtime.

Procurement Process: Emphasizes designing procurement policies that prioritize transparency, efficiency, and supplier reliability. This ensures that materials and equipment meet project needs. Involves stringent checks at every stage of the procurement cycle, from vendor selection to delivery, to maintain quality and prevent fraud or delays. Advocates for ongoing evaluation of procurement practices to identify

bottlenecks and implement solutions, such as e-procurement systems, to streamline operations.

Project Financing: Ensures that financial resources are allocated effectively, with budgets aligned to project needs. Planning also considers contingencies to address unexpected costs. Tracks the utilization of funds to prevent overspending or mismanagement. This ensures that financial performance aligns with project milestones Proposes adopting advanced financial management tools and practices to enhance budget flexibility and improve disbursement efficiency, enabling timely execution of project activities (S.M et al., 2015).

Juran's theory provides a structured approach to addressing the complex challenges of construction projects. Its application ensures that critical components like spare parts, procurement processes, and project financing are managed with a focus on continuous improvement, thereby enhancing project outcomes and aligning with client expectations.

2.4 Empirical Literature Review

Several scholars have studied the factors affecting construction projects in different contexts and ways. Few of these studies have revealed various important factors in different countries and various project types, ranging from social to construction projects. Other scholars have discussed several factors that influence the overall quality, while others have discussed factors on the success and failure of construction projects. The studies highlighted in this review are as follows:

Saleh et al. (2009) conducted a study titled ‘Factors Affecting the Performance of Construction Projects in the Gaza Strip. ’ The main aim of this study was to identify the factors affecting the performance of local construction projects and elicit perceptions of their relative importance. A comprehensive literature review was conducted to generate a set of factors that are believed to affect project performance. The study employed a qualitative approach, and 120 respondents were engaged in this study through questionnaires. The study involved various respondents, namely, owners, consultants, and contractors. The findings of this study revealed that the most important factors affecting construction project performance in Gaza were border and road closures, material shortages, unavailability of resources, low level of project leadership skills, escalation of material prices, unavailability of highly experienced and qualified personnel, and poor quality of available equipment and raw materials. The study recommends that project owners work collaboratively with contractors and facilitate regular payments to overcome delays, disputes, and claims. Another recommendation made from the findings of this study focused on the project participants, namely owners, contractors, and consultants, to actively have their input in the process of decision-making. Finally, the study recommended continuous coordination and the relationship between project participants is required through the project life cycle in order to solve problems and develop project performance.

Nor et al. (2012) titled, “Factors Influencing the Construction Cost of Industrialized Building System (IBS) Projects.” The main aim of this study was to evaluate and rank a range of factors that Malaysian IBS stakeholders consider important. Through a descriptive design, the study employed a questionnaire method to collect data from 44

respondents to determine the opinions of IBS contractors and manufacturers on factors affecting IBS construction costs in the Malaysian construction industry. The questionnaire was developed based on a combination of an extensive literature review and a series of discussions/interviews involving quantity surveyors, engineers, and contractors. The findings of this study revealed various factors associated with the main project characteristics, contract procedures and procurement methods, contractors' and consultants' attributes, and design parameters in addition to external market conditions.

A study conducted in Ethiopia by Abera et al. (2016) titled “Factors affecting the performance of construction projects under the Oromia Industry and Urban Development Bureau, Ethiopia”. This study was carried out to examine the factors that affect cost, time, quality, and leadership style performance during construction projects under the Oromia Industry and Urban Development Bureau. The study employed a questionnaire method of data collection, whereby 30 questionnaires from owners, consultants, and contractors were collected, and a desk study of 10 completed building construction projects in the Oromia industry and urban development were investigated.

This study found that 100% of building construction projects suffered from both time and cost. It was further estimated that the cost of the project ranges from a minimum of 12% to a maximum of 60% of the contract amount, whereas the actual amount ranges from 7% to a maximum of 170% of the contract time. The study further revealed various factors such as financial problems and improper planning, design

changes, construction project educated personnel, relevant work experienced personnel, quality of materials and equipment used in project construction, and conformance to specifications. The study further revealed that leadership performance problems were the major problems in the building construction projects of the Oromia Industry and Urban Development Bureau. In the same study it was discovered that the key to the success of a construction project in Ethiopia was the involvement of a project manager (PM) to manage a construction project.

In connection with the above literature, Boon et al. (2017) conducted a study titled "Impacts of Design Changes on Construction Project Performance." The main aim of this study was to analyze the relationship between design changes and consequent rework, to recognize their resulting impacts on project performance, and to provide insights for directing further studies in the Malaysian context. The study employed a literature review design method that focused on a peer literature review. The findings of this study revealed that design changes are important factors that cause project delays and cost overruns. Corroborate findings were found in studies conducted in both developed and developing countries around the world because construction projects commonly share key characteristics. However, previous studies conducted in Malaysia that were published in top-tier construction management journals failed to recognize design changes as a major cause of project schedule and cost overruns. Thus, recommendations for further study were provided for design changes as a major cause of schedule and cost overruns in construction projects in Malaysia, as well as other factors that stimulate design changes and the ability to predict the resulting impacts on project performance.

Wael et al. (2019) conducted a study titled ‘Factors Affecting Construction Labor Productivity in Yemen. ’ The main objective of this study is to identify and rank the factors affecting construction labor productivity in Yemen. This study was descriptive in nature. The study employed questionnaire as the data collection method to collect data from 52 architectural and structural engineers who were working on construction projects. The study designed a questionnaire for four primary groups: human/labor, management, technical and technological, and external. The findings revealed that technical and technological factors ranked first among the four groups. The top five factors identified were the most significant in their effect on construction labor productivity in Yemen, such as labor experience and skills, availability of materials at the site, leadership and efficiency in site management, availability of materials in the market, and political and security situations.

Furthermore, Vidhyasri et al. (2018) conducted a study titled ‘Assessment of Influencing Factors in Construction Project Scheduling. ’ The main objective of this study is to assess various influencing factors in construction projects, focusing on scheduling. The study

Another study conducted by Eke et al. (2016) was titled “Performance of construction projects in the Gauteng Province of South.” The main objective of this study was to determine whether there was a difference in the perceptions of consultants and contractors regarding the factors affecting the performance of construction projects. The methodology of data collection for this study was a questionnaire, and the design was quantitative, whereby 60 respondents were engaged in this study, including

architects, quantity surveyors, planners, construction managers, architects, project managers, and contractors. The findings of this study indicate that there is a significant difference in the perceptions of consultants and contractors regarding the factors affecting the performance of construction projects. For consultants, general time factors and conformance to specifications are the most important performance indicators for project success, while from the contractors' view, cost factors including delay in payment from owner to contractor is a major critical success factor. The two groups unilaterally agreed that introducing the best planning and scheduling technique before and during construction would assist in improving the quality of construction projects in the country.

Based on the literature review, this study makes a significant contribution to academic research, policy development, and practical applications within the construction industry. By addressing the context-specific challenges of government-financed projects in Tanzania, the study bridges critical knowledge gaps. It enhances the existing body of literature by offering empirical insights into factors such as procurement systems, leadership performance, and environmental conditions that impact project quality. Unlike global studies that provide generalized findings, this research contextualizes its outcomes to Tanzania’s unique socio-economic, political, and environmental realities, ensuring greater relevance and applicability to the local setting. Furthermore, the study enriches construction management theories by demonstrating how leadership effectiveness, stakeholder collaboration, procurement efficiency, and workforce competency collectively influence the quality of government-funded projects.

The study also provides data-driven recommendations to improve public sector construction outcomes. Specifically, it emphasizes the need for reforms in government procurement systems, the adoption of robust quality management frameworks, and strategic resource allocation. By promoting best practices, the study identifies quality management tools and processes that can enhance construction project outcomes. Additionally, it advocates for greater integration of technological innovations and modern construction methods, encouraging stakeholders to adopt advanced quality assurance systems to meet project standards effectively.

In terms of performance metrics, the study offers measurable indicators—such as adherence to specifications, project timelines, and stakeholder satisfaction—that can help monitor and improve project quality. These indicators provide a foundation for assessing project success and identifying areas for ongoing improvement.

The study also supports Tanzania's national development strategies by emphasizing the importance of reliable infrastructure, such as roads, schools, and healthcare facilities. By improving construction project quality, the study contributes to building infrastructure that meets long-term societal and economic needs. From an economic perspective, the study highlights the role of enhanced project quality in reducing cost overruns, minimizing delays, and ensuring the efficient use of government funds. These improvements not only boost economic growth but also optimize public resources for broader developmental impact. Additionally, the study addresses critical reputation-building issues, as tackling factors that hinder project quality will help

restore public trust in government-financed projects and improve the credibility of contractors and other stakeholders involved.

In summary, this study provides a holistic approach to understanding and addressing the challenges affecting construction project quality in Tanzania. By offering actionable recommendations and promoting strategic reforms, it lays the foundation for improved performance, enhanced infrastructure development, and strengthened economic outcomes in the public construction sector.

2.5 Research Gap

Through the literature reviews and theories developed around the topic, several studies have studied the factors that affect the quality of construction projects in several ways. Several studies have identified the critical factors in both developed and developing countries and various project types and construction companies, while other studies have discussed how these identified factors influence the success and failure of construction projects. For instance, Wael et al., (2019) conducted study titled “Factors Affecting Construction Labor Productivity in Yemen. The study revealed that the technical and technological factors ranked first among the four groups. The top five factors identified were the most significant in their effect on construction labor productivity in Yemen, such as labor experience and skills, availability of materials at the site, leadership and efficiency in site management, availability of materials in the market, and political and security situations. Similar studies were conducted by Saleh et al. (2016) on Factors Affecting the quality of Construction Projects in the Gaza Strip, and Vidhyasri et al. (2018) on Influencing Factors in Construction Project Scheduling.

All these studies concluded that the majority of construction projects in different countries within different contexts are not completed within the initially set targets of time, and sometimes the quality tends to be an issue owing to several factors. In Tanzania, however, no specific study has focused on the factors that tend to affect the quality of construction projects financed by the government. Thus, there is a need to conduct the study and emphasize the topic, especially within the Tanzanian construction context, considering all social, political, and economic contexts for research relevance and applicability.

While global and regional studies have explored factors affecting construction project quality, there is a lack of studies that specifically analyze government-financed construction projects in Tanzania. Existing studies primarily focus on general construction projects or private sector construction, leaving a gap in understanding how government procurement systems, regulations, and financing methods influence project quality.

This study shows how the government procurement procedures, and financial systems impact project quality outcomes in Tanzania's public construction sector. This highlight the need for targeted studies to better understand and improve the quality of government-financed construction projects in Tanzania.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Chapter Overview

This chapter outlines the systematic approach undertaken to conduct the study. It details the research methodology, including the research design, study population, sample size, sampling techniques, data types and sources, data collection methods, issues of reliability and validity, data analysis procedures, and a chapter summary.

3.2 Research Philosophy

This study adopted an interpretivist paradigm, which aligns with a naturalistic approach to data collection, including interviews and observations (Myers, 2019). Given its qualitative nature, this paradigm was appropriate, as qualitative research seeks to understand people’s subjective experiences and how they construct their reality. Interpretive research emphasizes understanding social phenomena within their natural settings, allowing researchers to engage deeply with participants' perspectives. As Saunders et al. (2019) highlight, in interpretivist research, meanings and insights often emerge toward the end of the research process. Accordingly, this study identified the factors influencing the quality of government-financed construction projects after comprehensive data analysis.

3.3 Research Design

In line with the interpretivist paradigm, this study employed a qualitative approach, enabling an in-depth exploration of individuals, organizations, interventions,

relationships, and communities (Yin, 2018). An inductive approach was adopted, where theories emerged from observations rather than being predetermined.

A qualitative case study methodology was utilized to understand the factors affecting the quality of government-financed construction projects. This approach allowed for a comprehensive examination of intricate phenomena within a specific context, revealing underlying motivations, trends, and opinions on the challenges and solutions in Tanzania's construction sector.

3.4 Area of the Research

The study was conducted in the Dar es Salaam region, specifically covering the five districts of Kinondoni, Ilala, Temeke, Ubungo, and Kigamboni. This area was chosen for its accessibility and convenience, as the researcher was based in the region. The target population comprised three main groups: engineers working in government institutions such as District or Municipal Councils, TANROADS, and the Regional Administrative Office; technical staff employed by contractors, including the contractors themselves; and decision-makers, such as District, Town, and Municipal Directors responsible for overseeing and administering construction projects. A total of 40 participants were included to ensure a comprehensive representation of perspectives and experiences regarding the factors influencing the quality of government-financed construction projects.

3.5 Sampling Strategy and Techniques

The study adopted a non-probability sampling approach to ensure the selection of respondents aligned with the research objectives by targeting individuals with the most

relevant and informative insights. Unlike probability sampling, non-probability sampling relies on the researcher's judgment rather than random selection (Kothari, 2019). This approach was particularly suitable for the qualitative nature of the study, as data were collected exclusively from key informants who possessed the requisite knowledge and experience related to the research questions. Therefore, the study employed purposive sampling, convenience sampling, and the saturation techniques to achieve a robust and valid understanding of the factors affecting the quality of government-financed construction projects.

3.5.1 Purposive Sampling Technique

The purposive sampling technique, a form of non-probability sampling, involves selecting participants based on the researcher’s judgment regarding their relevance to the study's objectives (Kothari, 2019). This method was chosen because it is particularly effective when only specific individuals can serve as primary sources of data due to their expertise and unique roles in the research context. Given the focus on government-financed construction projects, purposive sampling enabled the researcher to target engineers, surveyors, construction workers, and decision-makers directly involved in these projects. This approach ensured that the study captured in-depth, context-specific insights from knowledgeable informants engaged in project planning, execution, and oversight.

3.5.2 Convenience Sampling Technique

Convenience sampling, another non-probability method, involves selecting participants based on their accessibility and readiness to participate (Lavrakas, 2020).

This technique was employed because it is practical when time and resource constraints limit the research process, and respondents' availability becomes a key factor. Engineers, surveyors, construction workers, and decision-makers were selected based on their accessibility and willingness to contribute, as their work frequently involves tight schedules and extensive travel. The convenience sampling method enabled the researcher to gather timely and relevant data while accommodating the participants' professional commitments.

3.5.3 Saturation Technique

The saturation technique, a core principle in qualitative research, determines the point at which no new themes or information emerge from the data, ensuring the study has captured all relevant insights (Kaiser, 2019). In this study, the saturation technique was used during interviews with engineers, surveyors, construction workers, and decision-makers. Once the data collected reached a point where no additional information or novel themes were observed, the researcher concluded the sampling process. This ensured the study achieved data adequacy and comprehensiveness, validating the findings and ensuring the robustness of the analysis. By combining purposive sampling, convenience sampling, and data saturation techniques, the study ensured the selection of participants who provided detailed, insightful, and contextually rich data on the factors influencing the quality of government-financed construction projects. These methods were instrumental in addressing the research objectives effectively while overcoming practical challenges such as participant availability and time constraints.

3.6 Data Collection Methods

The researcher collected and used both primary and secondary data. Primary data were collected through interviews and questionnaires, whereas secondary data were collected through document analysis.

3.6.1 Primary Data

Primary data are those that the researcher prepares for a specific study, that is, data collected for the first time. These data were required because they generated new and original information. The researcher collected data through document reviews and interviews.

3.6.1.1 Key Informant Interview

Key informant interviews involve engaging a select group of individuals who possess specialized knowledge and insights about a particular subject (Kumar, 2022; Kothari, 2019). These individuals are chosen based on their expertise, professional roles, or lived experiences that are relevant to the research topic. Unlike surveys, key informant interviews prioritize depth over breadth, allowing the researcher to obtain detailed and context-specific information.

In this study, a relatively small but strategically selected group of participants was interviewed. The researcher employed both **structured** and **unstructured** interviews to capture comprehensive perspectives. Participants included engineers, surveyors, construction laborers, and decision-makers on construction project boards. This methodological approach enabled the researcher to gain an in-depth understanding of several critical aspects, including: The government procurement system and its impact

on construction projects (World Bank, 2021); The availability of construction equipment and spare parts, which influences project timelines and costs (OECD, 2022); The process of project financing in government-funded construction initiatives (UN-Habitat, 2023).

By combining structured and unstructured interview techniques, the study ensured flexibility while maintaining research rigor. The inclusion of multiple stakeholders provided a holistic view of the challenges and opportunities within the construction sector.

3.6.2 Secondary Data

Secondary data refer to the data that already exist; they comprise published data. The researcher will use a documentary review as the secondary data collection method. The researcher reviews various project data tools and documents, including Project Reports and course evaluation tools.

3.6.2.1 Document Review

Document review is a systematic process of examining printed and electronic materials to extract relevant information for research purposes (Bowen, 2022; Kothari, 2004). This method was employed in combination with other qualitative techniques—such as interviews, focus group discussions, and direct observation—to ensure data triangulation and enhance the validity of findings (Flick, 2023).

The document review included: Reports from TANROADS and other key construction regulatory bodies; Websites of leading construction companies and industry

organizations; Government publications and policy documents related to infrastructure development; Online resources, including data repositories and academic literature on construction project management.

By integrating document analysis with primary data collection methods, the study ensured a well-rounded understanding of the research subject. This multi-method approach helped cross-validate findings, reducing the risk of bias while enriching the study's conclusions.

3.6.2.2 Data Analysis Technique

Content analysis is a research tool used to determine the presence of certain words, themes, or concepts within qualitative data. Researchers can quantify and analyze the presence, meanings, and relationships of such words, themes, or concepts. For example, evaluating language used within a news article to search for bias or partiality (Columbia Public Health, n.d.). This method allows for both quantitative and qualitative analysis, enabling researchers to identify patterns in communication content. Content Analysis was done by first identifying the research question, which in this case was, " "Does project financing affect the quality of construction projects? What is the contribution of the government procurement system and process to the quality of construction projects and the last question is the availability of construction equipment and spare parts that affect the quality of construction projects? These questions guided the systematic coding of textual data to identify recurring themes, patterns, and insights related to the quality of construction projects.

Narrative interpretation focuses on understanding the stories and personal accounts of individuals to gain insights into their experiences. This method involves interpreting the core narratives from a study group's personal stories, allowing researchers to understand how individuals experienced a particular event or phenomenon (Dovetail, n.d.). By analyzing these narratives, researchers can construct a comprehensive understanding of the factors influencing the quality of construction projects.

Combining content analysis and narrative interpretation provided a robust framework for analyzing the data. This approach facilitated a comprehensive understanding of how project financing, government procurement processes, and the availability of construction equipment and spare parts impact the quality of construction projects.

3.7 Ethical Issues and Considerations

Ethical considerations play a fundamental role in research by guiding researchers on what is permissible and ensuring the protection of participants' rights and well-being (Resnik, 2020). In this study, all ethical protocols were strictly adhered to, including obtaining informed consent from participants, maintaining the confidentiality of information, and ensuring privacy and anonymity. Participants were fully informed about the study's purpose, procedures, potential risks, and benefits before providing their consent. Additionally, data confidentiality was maintained by securely storing records and restricting access to authorized personnel only (Israel, 2018). To uphold anonymity, personal identifiers were removed or coded, ensuring that respondents could not be linked to their responses. The study also received ethical clearance from

the university, following all necessary protocols and approval procedures before data collection commenced.

CHAPTER FOUR

PRESENTATION, ANALYSIS AND DISCUSSION OF FINDINGS

4.1 Chapter Overview

This chapter presents the respondents' sociodemographic information, such as educational background, experience with government-financed construction projects, their roles, and the level of experience in the field. In this section, we discuss the relationships between the independent and dependent variables in connection with the research objectives. The study then presents an analysis of the data gathered in different forms such as figures and tables.

4.2 Social Demographic Information

The respondents'social demographic information is presented in this section, starting with the educational background of the respondents, followed by the experience level of respondents within government-financed construction projects, designation, and professional backgrounds. The main aim was to reveal the relationship and understanding of respondents regarding government-financed construction projects in Tanzania.

4.2.1 Education Level

Since the study utilized a critical informant method for data collection, understanding the educational background of key informants was essential in establishing its relationship with the study findings. Consequently, participants were asked to briefly indicate their highest level of education, particularly in the construction industry. The

researcher categorized educational qualifications into secondary school, diploma, bachelor’s degree, master’s degree, and above master’s level.

Analysis of the data using the content analysis technique revealed that 59% of respondents held a bachelor's degree, making them the majority. Additionally, 25% had a diploma, while 10% possessed qualifications beyond the undergraduate level, such as a master's degree or higher. A smaller proportion, 6%, had only completed secondary education at the time of data collection. These findings suggest that most employees working on government-financed construction projects are adequately qualified in terms of educational background. Therefore, in line with the study's objectives, it can be inferred that educational attainment is a significant factor positively influencing the success of government-financed construction projects.

Table 4.1: Education level

Education Level	Frequency	Percentage
Secondary	3	6%
Diploma	10	25%
Degree	23	59%
Above Degree level	4	10%
Total	**40**	**100%**

4.2.2 Designation of the Key Informant

The researcher was interested in knowing the current designation of critical information to clearly understand whether the key informants were suitable for this study. The primary purpose was to ensure that the collected information came from the individual with first-handed information and understand the government-financed construction projects well. Therefore, after the analysis, the data show that most of the

key informants were engineers' supervisors of construction work. Some were surveyors, artech, and construction managers, while a few were contract managers and construction employees. The table below shows the distribution of the designations in detail.

Table 4.2: Designation of the key informant

Designation	Frequency	Percentage
Engineer supervisor	3	8%
Surveyor	6	15%
Artech	3	8%
Construction manager	3	8%
Contract Manager	2	5%
Electrician	7	18%
Construction foreman	16	40%
Total	**40**	**100%**

As shown in the above table, the majority of the critical informants were construction foremen, constituting 40% of the total vital informants; 18% were electricians, 15% were surveyors, 8% were Artech, engineer supervisors, and construction managers, and only 5% were contract managers. Therefore, it can be concluded that all respondents were suitable and knowledgeable regarding the key objectives of this study. This is because all respondents were experts and had different experiences in various fields such as surveys, Artech, electricity, and management.

4.2.3 Experience of Key Informants in Construction

The researcher was interested in knowing the experience of key informants in government-financed construction projects. The data showed that the majority of the key informants had less than five years of experience in a government-financed construction project (31%). In comparison, crucial information with experience

ranging from 16 to 20 years was 24%, 10 – 15 years was 19%, 6-10 years was 14%, and only those with more than 20 years were 12%, as shown in the table below. Based on the assessment from other studies, it can be concluded that extensive experience in construction projects has a positive impact on the quality of the project.

Table 4.3: Experience of key informants in construction

Level of Experience	Frequency	Percentage
0-5 years	13	31%
6-10 years	6	14%
10 – 15 years	8	19%
16 – 20 years	10	24%
Above 20 years	5	12%
Total	**40**	**100**

4.2.4 Project Financing and Quality Performance

The first objective of this study was to determine whether project financing affects the quality performance of construction projects. Thus, based on the assessment, the researcher revealed several factors of project financing that affect the quality performance of construction projects. The factors revealed include budget flexibility, budget adequacy, timely budget disbursement, proper budget utilization, project quality planning and design, procurement system, and processes.

4.2.5 Adequacy of Construction Budget Allocation

One researcher was interested in knowing how project financing and budget adequacy, in particular, affect the quality performance of construction projects. Hence, during the interview with the construction team at the site, it was noted that the budget allocated in most government construction projects was not always adequate, and in case there was any deficiency, there were always delays in budget reallocation. Governments

usually receive various grants/funds for construction projects to meet their expenses. Adequacy budget allocation has been identified as a key factor that influences the quality performance of a project. Furthermore, the study revealed that when budget allocation is inadequate, project scope and specification are often compromised.

> *One of the respondents pointed out that "adequacy of budget allocation plays a great role on quality performance, and that where the construction budget is adequate from its commencement, it is more likely that the project will be executed smoothly and with quality. Subsequently, when all the construction team remain assured with the project budget adequacy, tend to do the work diligently and within the planned scope"* (Surveyor, March 2022)

It was also noted that the adequacy of the construction budget allocation is a significant factor in the quality performance of a project and timely delivery. It can be concluded that adequate budget allocation determines the efficiency and quality of a project. Thus, to meet and improve the quality of government financing of construction projects, it is necessary to ensure that the allocation of the construction project is adequate. The findings of this study corroborate those reported by Dikilediv et al. (2014). They revealed that the construction team/organisation must allocate adequate financial resources and other structures that facilitate the effective implementation of projects and other organizational objectives. These resources should be both financial and physical in nature.

4.2.6 Budget Flexibility

Another variable studied by a researcher to determine the relationship between project financing and quality performance is budget flexibility. A researcher conducted an interview, and it was noted that the construction project budget should constantly be

subjected to change before project completion because there are many changes happening during project implementation, such as climate, price fluctuation, and technological changes. Thus, budget flexibility is necessary to meet the initial scope of a construction project. It was noted that if the budget is fixed, it could affect the quality performance of the construction project.

> *During the discussion one the respondents highlighted that "meeting quality performance of the project the budget must be flexible and not fixed due to several factors which are out of control to the project team. When the construction project is flexible it allows the construction team to make analysis and establish the deviation from the expected output in order to meet the intended project quality.* (Surveyor, March 2022)

This finding corroborates the study by Garbharran et al. (2012), which revealed that the costs for construction materials are not fixed due to fluctuations and turnover. Thus, a flexible budget provides an opportunity for budget adjustment, while maintaining the same quality performance.

4.2.7 Timely Budget Disbursement

The researcher was interested in knowing if timely budget disbursement, among other factors, affects the quality of government-financed construction projects. Hence, budget disbursements are the most critical aspect of construction project implementation. This is because scheduled activities for a construction project are translated into measurable outputs in the execution of the project goal by the project implementation team. Thus, timely budget disbursement is a critical aspect that influences the quality performance of government-financed construction projects.

> *It was highlighted by one of the respondents that the government of Tanzania receives huge finance from various sources to fund some construction projects within the public sector. However, despite this fact,*

> *most of those projects experience huge delays on disbursement of funds from the funder thereby leading to confusion and affect the quality and timely implementation of project activities.* (Surveyor, March, 2022)

This finding corroborates that of Lavagnon (2013). The findings indicated that at the inception of a project, there was a considerable delay between the time of contract signing for the execution of the project and the application for the first disbursement of the approved budget. It was noted that the delays sometimes took an average of 20 months (Bagoole, 2011). Hence, such anonymous delays tend to adversely affect preliminary activities (Kaufmann, 2012). Further, it was noted that delays in the kick-off of the project impact the performance of the project and its quality in several ways, including staff turnover, price fluctuation leading to diverting to the original plan, and so forth.

4.2.8 Effective Budget Utilization

Effective budget utilization was one of the aspects that the researcher was interested in knowing whether it affected the quality performance of government financing construction projects. After the assessment of the data gathered, it was determined that the budget plays a vital role in the expenditure and planning tools for any institution. In addition, since the budget provides a lead on the evaluation of the target and expected output, effective utilization of the budget is necessary to provide a positive impact on the planned activities within the project. According to this finding, it can be concluded that effective budget utilization in the construction sector is often determined by the economic development of any country, because budget utilization is affected by several factors, both intrinsic and extrinsic.

> *One of the respondents pointed out that, right after budget approval, the implementation team embarks on the challenging task of spending funds. Utilizing construction project budget effectively to meet the original plan while ensuring value for money and quality of work is often just as challenge than planning how to spend it.* (Surveyor, March, 2022)

Furthermore, budget overutilization can be caused by budget non-compliance. It was highlighted that because project budget funds allocated to spending units for appropriated expenditures are generally controlled, these overruns generate spending arrears. In a construction project, ineffective budget utilization, which often causes overruns, is often the result of an off-budget spending mechanism. It can be concluded that effective budget utilization can be achieved by following all compliance processes and procedures, audit systems, and reporting systems, as well as ensuring the effectiveness of the basic budget execution controls. In addition, the project team should ensure that sound budget preparation processes and adequate institutional arrangements are prerequisites for avoiding ineffective budget utilization. However, there are some instances where the project budget is underutilized. This does not necessarily mean that there is good fiscal discipline, but that it may have implications for the quality performance of the project.

4.2.9 Project Quality Planning and Design

The research was interesting in knowing how project quality planning affects the quality performance of government-financed construction projects. The key informants were asked based on their experience if they were aware of any factors that would compromise the quality of the government construction project as a result of budget allocation. Without strong quality project planning from the beginning of the

construction phase, a project carries an increased risk that the user or end product will not achieve the planned quality. Furthermore, it was highlighted that project quality planning and design help in determining the scope of what is going to be measured, the metrics that determine whether the project is successful, and how those will be satisfied from the start to the end of the project.

> *One among the key informants during the interview pointed out that "In most of the construction project there is quality assurance systems and unit in place which support implementation of the project to reach its quality. Most of the quality assurance unit composed of audits, testing, and peer review"* (Surveyor, March, 2022)

This finding implies that project quality planning and design are very important to ensure that the project meets its scope, and quality remains at standards as per the initial plan. Neglecting quality makes it difficult for the project implementation unit to deliver a successful project. Therefore, before the construction project is executed, the project construction lead should set the standards to meet to qualify the project as successful.

This finding corroborates the study by Noor et al. (2013), which states that project quality is one of the third dimensions of any project, construction project in particular. Thus, the success of a project depends on the project management team to effectively and efficiently manage time, cost, and quality. However, quality is a much more elusive substance and its management can often be problematic (Ntuli et al., 2014). This study viewed quality in project performance as an attribute that should be controlled to achieve the desired outcomes from project activity, and that quality is not an outcome but an integral part of the activity (Gwaya et al., 2014). The study pointed

out that to achieve quality performance of a project, a combination of intangible and tangible components should be combined to produce a quality product or service.

4.2.10 Project Team Skills and Knowledge

The researcher was interested in determining whether the skills and knowledge of people leading the construction of the government finance construction project may have an impact on the quality performance of the project. The main aim was to understand whether the construction unit is capable of utilizing up-to-date technology and equipment in construction activities. The findings highlighted that there is a linkage between the skills, knowledge, and quality performance of the construction project and that project success depends on the technical knowledge of the construction unit. This means that all construction project units must be capable of utilizing up-to-date technology, equipment, spare parts, materials, and the project itself.

> *As highlighted by one of the respondents during the interview that, "any project not just construction project requires a skilled and knowledgeable project team. This is because the construction project is very complex and requires various skillset rights from the begin of the project. Artech, surveyor, electrician, plumbers, geologist and so forth need to work together throughout the project cycle. All this individual must have a certain skillset in order to meet the project scope and maintain the project quality, time and budget".* (Engineer, March, 2022)

This finding relates to the study conducted by (Mesfin, 2019), who examined the relationship between the project management skills of conceptual, human, political, and technical skills and performance measures of scheduling, budgeting, quality performance, document and contract administration, risk management, and procurement management. The findings of this study show a positive relationship between the four CM skills: emotional intelligence, interpersonal skills, apparent

sincerity and budgeting, and project cost performance (Dejene et al., 2016). Only one skill type of interpersonal influence was positively correlated with project-time performance. Also, another study done by Hashim et al (2019) found a relationship between CM skills and project performance. This study also discovered that CM skills play an important role in project delivery.

Therefore, the findings imply that the skills and knowledge of the construction unit affect project quality performance in terms of project cost and time.

4.3 Government Procurement System and Process on Quality Performance of Construction Projects

The second objective of this study is to examine the contribution of the government procurement system and process to the quality of construction projects. The government procurement system and process factors related to quality performance are identified and discussed in the following subsections. Overall, the findings highlight that for the government to achieve efficient financed construction projects, there is a need to implement a systemic and holistic approach to procurement procedures and processes, which is crucial to quality performance.

4.3.1 Procurement System and Processes

The researcher conducted a critical informant interview with constructors and surveyors to determine whether the procurement system and processes in place within the construction company affected the quality performance of the government financing construction project. The procurement of construction projects involves

many processes, including gathering and organizing myriads of separate individuals and firms. Thus, procurement processes involve the whole process of acquiring goods and services from another for some consideration.

> *As highlighted by one of the respondents that "Failure of proper and effective procurement procedures affects majority of the government financing construction projects, this is due to the increased complexity, uncertainty and time pressure as results majority of the construction unit failed to adhere to the procurement process and procedures. The quality of construction projects can be compromised by mistake done in the procurement process such as delay in delivery of required materials, poor quality of materials, or outdated technology and so forth. Thus, proper procedure must be followed in procurement to ensure effective implementation of the construction project within the scope and quality.*

This finding is in line with the study by Ketema et al. (2015), which revealed that customary procurement procedures potentially cause various problems in all stages of the procuring of goods and services. A tailored procurement system and procedures must be implemented to enhance the fulfillment of different project objectives.

Therefore, this finding implies that it is the fact that quality performance depends on cost and time which as the two most important parameters of project performance, and can be determined during the procurement stage. It has been stressed that in today's highly competitive and uncertain business environment, contractors demand better value from their investment in construction projects by the government. Thus, the government requires construction projects to be completed on time, within the estimated cost, and with the right quality. According to other studies, as mentioned above, the use of various project procurement systems is now trying to meet client needs. This is because different procurement methods have different effects on the cost, time, and quality of the project. Each project procurement system has its own

peculiarity in terms of pre-tender and post-tender activities and processes, the division of risks between clients and contractors, and the effectiveness of project monitoring and control. Therefore, it is important at the outset of the project to carefully consider all factors when selecting the most appropriate procurement approach for a construction project. This is because each system has its own features and peculiarities that affect the cost, time, and quality of a project.

4.3.2 Biding

As part of the government procurement system and procedures, bidding for construction projects is based on the governing law for procurement. It was highlighted that bid invitations for construction projects are often open to qualified contractors. The purpose of the open bidding process is to enhance competition and transparency. This is very different from the private sector procurement process, in which clients usually invite a limited number of trustworthy contractors or negotiate directly with only one preferred supplier or contractor. Furthermore, the findings revealed that the government procurement process, in particular, does not require the invitation of a limited number of bidders because it tends to affect the project duration and increases the likelihood of selecting the most eligible contractor.

> *It was highlighted by one of the respondents during an interview that "government procurement process and procedures require an open invitation especially for the construction projects. This is because closed bidding is likely to result in a lower bid and unqualified bidder or not meet the criteria set forth. (*Contractor, February, 2022)

This finding implies that invitation to a limited number of contractors to bid for the government construction project helps build and strengthen the long-lasting

relationship and a continuous workload over time for the preferred contractors, in turn improving innovation. In addition, by limiting the bidding process, the government is aware of and has a rich background of the contractor's knowledge and capacity, as well as skills about the scope of the project. The researcher can conclude that, in this finding, a higher number of contractors invited in the bid invitation is more likely to result in better quality, innovation, and time performance.

4.3.3 Review and Selection of Tender

The researcher was interested in determining whether the procurement process could affect the quality performance of the government financing construction project. Respondents were asked how tenders were reviewed and selected during the procurement process. The review and selection process during the procurement of the contractor is one of the most important tasks faced by the government before the actual implementation phase. This is because, in this process, the contractor is selected to determine project success or failure based on the contractor's expertise. The findings highlighted that bid review and tender selection include different parameter assessments such as bid price, technical competence, management capability, earlier experience, reference objects, quality management systems, financial stability, and collaborative skills.

> *As quoted from one of the respondents that "The review and selection process of tenders is very fair as it's guided by criteria set forth for that particular tender. The one bid a fair price and same quality, and of course meet all the standards is the one securing the tender for the construction project. All the parameters are assessed during the selection such as bid price, competencies and capabilities as well as earlier experience which provides a path for how the bidder will meet the intended project goal.* (Contractor, February, 2022)

This finding implies that there are various aspects of the selection and evaluation of tenders during the procurement process. Thus, not just the lowest bidder is the one securing the tender, but also a bidder with capacity, experience, and financial stability is the one to secure the tender, and the process follows the government procurement procedures. Therefore, all factors related to competence and experience, including site management, supervision, and planning on behalf of the contractor, are common causes of project time and budget utilization. Therefore, careful selection through proper bid processes and procedures can reduce cost growth, time overrun, and improve quality performance, work environment, and innovation throughout project implementation.

This study relates to the study conducted by Reddy and Shaiku (2020), which states that bid invitation plays a crucial role in the procurement process and procedure, as it shows the links to all success criteria, including how the project scope, time, budget, and quality are achieved. In addition, during selection of the tender, focus on bidding price is certain to bring down the bidding price and is also likely to get a low overall project cost; in turn, cost and time overruns as well as quality compromise are more likely. Therefore, tender selection should focus more on soft parameters and not on the bidding price for better performance in terms of time, quality, and innovation.

4.3.4 Procurement Related Factor That Affects Quality Performance

The researcher was interested in determining whether procurement processes or procedures affect the quality performance of the construction project. Hence, respondents were asked during the key informant interview to describe whether the

government procurement process was related to the quality of the construction project. The findings show that time, control of project design, and contractor control of construction projects are among the procurement factors that affect project quality. Thus, at each procurement stage, bid invitation, bid evaluation, subcontracting, selection, and compensation may affect the quality performance of the project if less consideration is given during the entire process. It was highlighted that procurement selection also plays a vital role in project success.

> *One of the respondents highlighted the three selection criteria during the tender selection, these criteria include bidder's characteristics, project scope/requirements, and external environment. These was mentioned to be among the most important criteria for the selection although there are other criteria but the three are most important soft parameters for the selection of the bidder.* (Contractor, February, 2022)

This finding is related to the study by Rotich (2015), which states that selection criteria for awarding tender to the vendor depend on three factors: client characteristics, project requirements, and the external environment, but also the use of the three factors together but expansively considers client requirements to include cost-related factors, time-related factors, and quality-related factors.

This finding implies that the quality performance of government-financed construction projects can be met by ensuring that a well-recognized procurement system, processes, and procedures are in place. Therefore, government officials, including policymakers, financiers, planners, and designers, should be aware of the required and proper procurement system to ensure that the quality performance is met by an entity that will undertake the project. This is because an effective procurement system significantly influences successful project outcomes.

4.4 Project Equipment and Spare Part, and Quality Performance

Respondents were queried on various aspects concerning project equipment and spare parts, focusing on their impact on the quality performance of construction projects. The inquiries centered on themes such as the quality of equipment and spare parts, the technology employed, and their utilization within the projects. Several key informants emphasized that the requirements for project equipment and spare parts are pivotal to the quality performance of construction projects. They highlighted the necessity for project teams to possess appropriate knowledge and skills related to equipment, spare parts, and other project materials. Furthermore, informants noted the importance of contractors considering the latest equipment and technology during the tendering process to achieve project objectives. Awareness of up-to-date technology, equipment, and materials is essential for the construction unit to ensure the project's quality performance.

This finding aligns with recent studies indicating that the selection of materials and technology significantly influences construction project success. For instance, a study by Gurgul and Zima (2022) demonstrated that integrating artificial intelligence and metaheuristic algorithms in material and technology selection enhances project parameters, leading to improved economic outcomes. The research underscores that the choice of material solutions and appropriate technology profoundly impacts project success indicators.

Moreover, respondents indicated that many government-financed construction projects are executed using specific plants and equipment to ensure quality

performance. However, the timely availability of equipment and spare parts is crucial. Delays in procuring necessary equipment or parts can adversely affect project timelines, costs, and overall quality performance. This observation is supported by recent industry reports highlighting that equipment shortages, such as those experienced in large-scale projects, can lead to significant cost increases and project delays.

These insights imply that equipment and spare parts are vital components in the execution of construction projects. Contractors should ensure the availability of all necessary equipment and materials to prevent disruptions during project execution. While it may not be feasible for contractors to own all required equipment, strategic decisions regarding purchasing or leasing can mitigate potential challenges. Effective equipment management has been shown to enhance project profitability by ensuring timely project completion and cost-effectiveness.

In summary, the strategic selection and management of equipment, spare parts, and technology are critical to the success of construction projects. Staying abreast of technological advancements and ensuring the timely availability of resources can significantly enhance project quality and performance.

CHAPTER FIVE

CONCLUSION AND RECCOMENDATIONS

5.1 Chapter Overview

This chapter summarizes the findings, conclusions, and recommendations on the factors affecting the quality of government-financed construction projects. The chapter starts with the conclusions and recommendations.

5.2 Conclusion

Respondents were asked several questions regarding project equipment and spare parts in relation to construction quality performance. The questions centered on the quality of equipment and spare parts, the technology employed, and the utilization of these resources. Multiple key informants emphasized that equipment and spare part requirements are critical for ensuring high-quality construction outcomes. They also highlighted the importance of having a project team with the necessary knowledge and skills to manage equipment, spare parts, and other materials effectively. Given the continual emergence of up-to-date equipment and technology in the construction sector, participants noted that contractors should carefully consider modern solutions when awarding tenders. This proactive approach ensures alignment with project goals and enhances overall quality performance (Li, Lu, & Wu, 2021; Serpell et al., 2021).

These findings align with Dejene and Semeneh (2016), who demonstrated that equipment, materials, and technology uncertainties significantly influence project success. Likewise, Badi and Pryke (2021) suggest that adopting contemporary

technologies and securing reliable access to critical construction resources help reduce project risks. Moreover, integrating Total Quality Management (TQM) with technology fosters improved process management and customer focus, essential for delivering successful projects (Khosravi & Afshari, 2011). Project characteristics, including complexity, size, design, and material type, also shape performance, as they demand varying equipment, materials, and technology requirements (Ntuli & Allopi, 2014).

Several respondents further indicated that most government-financed construction projects are executed using specialized equipment and plants to ensure quality outcomes (Badi & Pryke, 2021). However, timely availability of these resources is pivotal for meeting project timelines, staying within budget, and achieving quality standards (Mallewo, 2014). In line with these observations, Otim and Alinaitiwe (2013) found that delays in acquiring essential equipment or spare parts frequently lead to project overruns, reinforcing the importance of robust supply chain and resource management (Serpell et al., 2021).

Overall, these insights underscore the significance of equipment and spare parts in maintaining smooth construction operations. Contractors should ensure they have access to the necessary equipment—either through ownership or by hiring—to avoid project disruptions. This perspective aligns with Chinchore and Khare (2014), who recommend that contractors receive specialized training to identify, select, and justify the most appropriate plants and equipment based on utility and cost-effectiveness. Ultimately, investing in modern technology, adopting TQM principles, and

prioritizing resource availability can lead to more efficient, cost-effective, and high-quality project outcomes.

5.3 Implication of the Study

5.3.1 Practical Implication

This study sought to answer several research questions to assess the factors affecting the quality of government-financed construction projects. This was achieved through data collection, using both primary and secondary data.

Accordingly, the first significant practical contribution of this research derives from the following factors that the researcher has assessed: project financing, procurement system and processes, project equipment, and spare parts. These factors must be considered in the planning stage of any government-financed project because they form the basis of the quality of the project's outcome as a whole.

Another implication is that the main stakeholders of the construction projects industry, which are government-financed, must consider the impact of these factors when preparing tenders for these construction projects. These include the specification of the terms of construction projects, such as the timeline, availability of funds, and expected quality of the project's outcome to be considered.

5.3.2 Theoretical Implication

Previous researchers, such as Keyton (2008), identified that the main key argument to ensure the quality of construction projects was the three universal steps of quality planning, quality control, and quality improvement. However, through this study, the

researcher could show the breakdown of factors that add to or consist of these steps. The framework, summarized in Figure 2.1, is premised on the notion that only three variables affect the quality of government-financed construction projects. However, the researcher was able to show that there are other factors that may affect the quality of government-financed construction projects, such as time, political factors, environmental factors, and financial factors, such as inflation, which were not assessed in this study. The framework also suggests the need to consider individual factors or items rather than generalizing approaches and solutions, which may exclude some crucial factors to be considered while planning and executing to ensure the quality of the project.

5.4 Recommendations

Based on the findings of this study, which highlighted challenges related to equipment and materials, the following recommendations are made for improving the quality of government-financed construction projects:

i) **Careful Consideration of Procurement Systems and Methods**: It is crucial for all stakeholders involved—governments, clients, consultants, suppliers, and project team members—to carefully assess and refine the procurement system and method used in construction projects. This includes evaluating the procurement process to ensure that it aligns with quality objectives and minimizes delays or resource shortages that could compromise the project's outcomes.

ii) **Ensuring Availability of Equipment and Materials**: During the implementation phase of the project, the project implementer should prioritize

the availability of all required equipment and materials on-site in a timely manner. This proactive approach will help avoid project delays and ensure that quality standards are consistently met. Coordination among all parties is key to achieving smooth execution without disruptions.

iii) **Use of Up-to-date Materials**: The study further recommends the use of up-to-date, high-quality materials to meet the intended quality standards of the project. Ensuring that the materials used are both modern and suitable for the specific project requirements will contribute to the durability, safety, and overall success of the construction project.

By addressing these recommendations, stakeholders can mitigate the challenges related to equipment and materials, ensuring that government-financed construction projects meet their quality and timeline objectives effectively.

5.5 Areas for Further Research

From the findings of the study, the following areas have been identified for further research to enhance the understanding of factors affecting the quality of government-financed construction projects:

- **Procurement-related Factors**: An in-depth analysis is required to understand how procurement practices, including tendering processes, contractor selection, and contract management, influence the quality of construction projects. This could include examining issues such as the transparency and competitiveness of the procurement process and its alignment with project quality goals.

- **Effective Budget Utilization**: Further research should explore how budget allocation and utilization practices impact the overall quality of construction projects. This would involve examining how financial management, cost estimation, and resource allocation strategies contribute to meeting quality standards within government-financed projects.
- **Broader Factors Affecting Quality**: A more comprehensive investigation is necessary to explore a wider range of factors that influence the quality of government-financed construction projects. These could include regulatory frameworks, project management practices, stakeholder involvement, contractor expertise, and the availability of skilled labor. Each of these elements may play a critical role in determining project quality outcomes.

These areas of further study could provide valuable insights for improving the management, execution, and outcomes of government-financed construction projects.

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APPENDICES

Appendix I: Questionnaire

Dear respondent,

I am pleased to offer you this questionnaire designed to assess *the factors affecting the quality of government-financed construction projects in Tanzania. A Case of Dar Es Salaam.* Your answers will be kept strictly confidential. No information about you or your organization will be released to anyone except only the report.

A. Personal Profile

1. Demographic information

Please select the response that best describes your answer

i. Which level of Education do you have?

- ☐ Below Secondary
- ☐ Diploma
- ☐ Degree
- ☐ Above Degree level

ii. Please indicate your designation

- ☐ Engineer supervisor
- ☐ Surveyor
- ☐ Architect
- ☐ Construction manager
- ☐ Contract Manager
- ☐ Electrician
- ☐ Construction foreman

iii. Please indicate your years of experience?

- ☐ 0-5 Years
- ☐ 6-10 Years
- ☐ 10-15 Years
- ☐ 16-20 Years

☐ Above 20 Years

B: Research Questions

1. What is a Quality construction project look like/what does it mean?

   ---
2. Why is it challenging to deliver a quality government financed construction project?---
   ---
3. Does the project team plan and design before executing a construction project? Yes/No ---
4. What is the procedure to get finances from the Government for construction projects? ---
   ---
5. Is project financing affects quality performance of construction projects? Explain; ---
   ---
6. Is the budget allocated for the construction project adequate? ---
   ---
7. Is the budget for government-financed construction projects flexible? ---
   ----(If Yes/No) How does it impact the quality performance of the project? ---
   ---
8. Is there timely fund disbursement for construction projects from the government? ---
   If NOT, does it affect the quality performance of the project?
9. Is there a relationship between effective fund utilization and project quality performance? If Yes, explain---
   ---
10. Does the team you have in the project possess the required skills and knowledge to deliver quality project outcomes? Explain ---
    ---

11. Explain what is the procurement procedure/process when conducting the government-financed projects?----------
    ----
    ----
12. Is there a relationship between the availability of equipment and spare parts and the quality performance of the project?
13. What needs to be improved to ensure the quality of construction projects financed by the government?

Thank you for your corporation

Appendix II: Research Clearance Letter

THE OPEN UNIVERSITY OF TANZANIA

DIRECTORATE OF POSTGRADUATE STUDIES

P.O. Box 23409
Dar es Salaam, Tanzania
http://www.out.ac.tz

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REF: PG201609082

23rd October, 2021

Regional Administrative Secretary,
Dar es Salaam Region,
P. O. Box 5429,
DAR ES SALAAM.

RE: RESEARCH CLEARANCE

The Open University of Tanzania was established by an Act of Parliament No. 17 of 1992, which became operational on the 1st March 1993 by public notice No.55 in the official Gazette. The Act was however replaced by the Open University of Tanzania Charter of 2005, which became operational on 1st January 2007. In line with the Charter, the Open University mission is to generate and apply knowledge through research.

To facilitate and to simplify research process therefore, the act empowers the Vice Chancellor of the Open University of Tanzania to issue research clearance, on behalf of the Government of Tanzania and Tanzania Commission for Science and Technology, to both its staff and students who are doing research in Tanzania. With this brief background, the purpose of this letter is to introduce to you Ms. **Jackline Nicetas Shirima** No: **PG201609082**pursuing **Master of Project Management.** We here by grant this clearance to conduct a research titled "**Assessment of Factors Affecting Quality of Government Financed Construction Projects; A Case of Dar es Salaam Region".** She will collect her data in your region between 25th October to 10th November, 2021**.**

In case you need any further information, kindly do not hesitate to contact the Deputy Vice Chancellor (Academic) of the Open University of Tanzania, P.O. Box 23409, Dar es Salaam. Tel: 022-2-2668820.We lastly, thank you in advance for your assumed cooperation and facilitation of this research academic activity.

Yours Sincerely,

Prof. Magreth S. Bushesha
For: VICE CHANCELLOR
THE OPEN UNIVERSITY OF TANZANIA

Appendix III: A Letter of Permit

Date: 16 November 2021

Ref. No; CRB/202/RD/67/3

Ms. Jackline Nicetas
P.O. Box 125
Dar es Salaam,
Tanzania

Dear Ms Nicetas

Subject: Approval of Data Collection Permit Request

Greetings from the Contractors Registration Board (CRB).

We acknowledge receipt of your request to conduct research on *Factors Affecting the Quality of Government-Financed Construction Projects: A Case Study of Dar es Salaam Region, Tanzania.* After reviewing your request, we are pleased to inform you that your permit to collect data has been approved.

You are authorized to proceed with data collection within the Dar es Salaam region, in accordance with ethical research guidelines. We appreciate your assurance regarding confidentiality and the anonymity of participants. Kindly ensure that all data collection activities comply with relevant regulations and respect the privacy of respondents.

Should you require any further assistance or clarification during your research process, please do not hesitate to contact our office.

We wish you success in your study and look forward to any insights your research may provide.

Sincerely,

Eng. David Jere
Assistant Registrar Research and Development