

**PROCUREMENT PRACTICES AND COMPLETION OF KERRA ROAD
CONSTRUCTION PROJECTS IN BOMET COUNTY, KENYA**

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**A RESEARCH REPORT SUBMITTED IN PARTICIPATION FOR THE AWARD OF A
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THE UNIVERSITY OF NAIROBI**

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DECLARATION

This research project is my original work and has not been presented in any other University for the award of a degree.

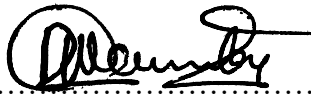
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DEDICATION

This study report is dedicated to my son Taai Charles and the entire Ombworos family for their unwavering support and encouragement in helping me reach my goal.

ACKNOWLEDGEMENT

I want to express my deepest gratitude to everyone who has shown me such tremendous support. To Dr. Reuben Kikwatha, my supervisor, for all of the help he has given me with my project report, including advice, direction, and encouragement. The professors who taught me in the first, second, and third semesters also deserve my gratitude; they were crucial in shaping my academic career. To my family members especially my son, I am grateful for the motivation you gave and ample time that you accorded me through the process of this report development, you endured my absence for many days and sometimes weeks. Finally, I register my gratitude to all my friends Ruto Linus & Emmanuel Motatiro and colleagues whom we have walked together since 2021, you are such good friends.

May the good Lord bless you all.

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ABBREVIATIONS AND ACRONYMS

BIM - building information modeling

KeRRA - Kenya Rural Roads Authority

KeNHA- Kenya National Highways Authority

KRB -Kenya Roads Board

KURA - Kenya Urban Roads Authority

KWS - Kenya Wildlife Service

UK-United Kingdom

RDT- Resource Dependency Theory

SET-Social Exchange Theory

USA- United States of America

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ABSTRACT

Completion of road construction projects is significant from a global perspective as it impacts directly on the social – economic development as well as infrastructural progression and transportation. The broad objective of implementing road construction projects is to enhance connectivity and enable business and trade within and without any country's boundaries. As such, road construction projects promote tourism, and provide improved access to necessities like healthcare and education. The 5 projects served as the unit of analysis for this study, which targeted workers and contractors working with KeRRA in Bomet County. The study's target population was 304, with a sample population of 171. This study made use of stratified proportional random sampling, an unbiased sampling technique for partitioning heterogeneous populations into homogeneous groups and then selecting within each subset to guarantee representativeness. A positive correlation between the two sets of data showed by the results. This means that if there is an increase in communication practices, the completion of road projects will increase by 26.6%, if finance practices is well managed, road project completion will increase by 45.4%, if the management puts more effort in tendering process, the project completion rate will increase by 16.7% and if the management focuses more on participatory monitoring and control, then completion of road projects will increase by 4.7%. The study's results indicate that effective communication strategies significantly impact the success of KERRA road construction projects in Bomet County, Kenya. In Bomet County, Kenya, KERRA road construction projects are more likely to be completed when fiscal management strategies are put into place. The highest score went to this variable, which means it's more significant and will have a bigger effect on how these projects turn out. In Bomet County, Kenya, the KERRA road improvement projects are significantly affected by the tendering system. The KERRA road construction projects in Bomet County, Kenya, are coupled with participatory assessment and monitoring processes. The KERRA road construction projects in Bomet County, Kenya, were the exclusive focus of this study, which also examined financial processes, the tendering process, participatory monitoring and control, and the methods for communicating with stakeholders. As a result, looking at the same factors at the federal level is essential. The results of this study and those from subsequent ones may then be compared.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Completion of road construction projects is significant from a global perspective as it impacts directly on the social – economic development as well as infrastructural progression and transportation. The broad objective of implementing road construction projects is to enhance connectivity and enable business and trade within and without any country's boundaries. As such, road construction projects promote tourism, and provide improved access to necessities like healthcare and education. (Haque & Rafiqul Islam, 2019). In a study by Jafari et al., (2020D), road projects in developing nations are affected by inadequate financial resources, poor planning, management and administration, and technical skills. This notwithstanding, Haque & Rafiqul Islam, (2019) observes that completing road construction projects in developing nations is especially important since it can enhance the distribution of products and services, connect rural areas to urban centers, and foster economic growth. Road construction projects are crucial in industrialized nations for maintaining and improving current infrastructure to satisfy the demands of an expanding population and economy. These projects must be finished in order to lessen traffic congestion, increase safety, and boost the general effectiveness of transportation networks. (Haque & Rafiqul Islam, 2019)

Concerns about road construction projects on a worldwide scale include things like how they affect the environment, notably in terms of deforestation and greenhouse gas emissions. As a result, environmentally friendly procedures and the usage of sustainable materials are increasingly being considered for road construction projects all over the world. (Su et al., 2018). Different factors have an impact on when road building projects are finished. To avoid issues that can adversely affect the project's effective completion and eventually jeopardize their interests, investors want to make sure the project scope, quality, time, and cost are satisfied. According to research conducted in the USA, finance challenges, cost unpredictability, poor management, and worries about

potential delays are causing capital construction projects to be scaled back or abandoned. (Van Jackson et al., 2017).

In Australia, McNair (2015) has emphasized the significance of contractors delivering a complete road facility at a predetermined price and timetable, to a specific standard, as failing to do so may result in financial losses for the contractor. Fapohunda and Stephen (2016) conducted a study in the UK and discovered conflicts between the objectives of construction projects and the appropriateness of cost, time, and quality. For the performance of project managers, they underlined the significance of project cost management, effective schedule delivery, and particular knowledge management domains. Locally, Kenya has seen significant growth in the building and road construction industries. Foreign businesses have shown a lot of interest in the Kenyan road construction industry. In Bomet for instance, many road projects go over budget because they are not completed on time. This is demonstrated by the large number of unfinished road projects. Even worse are road projects that are eventually finished but over budget and sooner than anticipated. The purpose of this research study is to determine the many factors that affect the effective completion of road construction projects in Bomet County, as there have been several incomplete and of poor-quality projects. "Kenya Engineer Magazine" published in 2015.

1.1.1 Procurement practices

In order to design, manage, and build various infrastructures, such as homes, offices, shopping centers, roads, bridges, etc., the procurement of construction projects necessitates the gathering and organizing of multiple different people, enterprises, and organizations. The definition of procure, which is where the word "procurement" comes from, is "to obtain by care or effort; to bring about and to gain." (Rosli et al., 2016). The act of paying money to obtain goods and services from an outside source is known as procurement. (Aqua Group, 1999). An administrative structure known as project procurement is needed to organize and carry out construction projects for a specific client. (Masterman, 2018).

1.1.2 Road Construction projects in Kenya

Infrastructure development is essential to achieving Kenya Vision 2030. Kenya has set up a substantial sum for building roads. Greater cooperation between County and National governments is crucial given the size of the investment in road development. Road construction businesses are

therefore essential to the socioeconomic growth of rural areas. This is in line with Kenya Vision 2030's objective of delivering services quickly and promoting social inclusion. (Kenya National Bureau of Statistics, 2014).

Road traffic makes up nearly all of the passenger and freight traffic in Kenya, approximately 93% of all traffic. Only 63,575 kilometres of the 177,800 kilometres total of the nation's roads are classified. Various agencies within the Kenyan government are responsible for maintaining the country's road network. Here are some of the Kenyan agencies involved: KRB, KeRRA, KeNHA, KURA, KWS, and the Department of Transport and Infrastructure. The ministry oversees all of these entities (KRB, 2017). Even though the aforementioned national government agencies and County government departments are responsible for ensuring the health of all roads and that adequate funding is provided in most cases, most road construction projects need to be better implemented.

According to sources, several roads in Kenya have failed as a result of inadequate technical supervision, management incompetence, and sub procurement procedures. Numerous projects in the country's western region have shown this to be the case. These projects encountered problems such bitumen bleeding faults immediately after surface dressing, delayed completion times of more than ten months, and cost overruns, which led to the projects' failure completion. (Kenya Engineer Magazine, 2015). Many firms have tried to adopt and execute operations management practices that have been successful in other areas of project management in reaction to these failures, but this has not proven effective. (Salahuddin, 2018).

1.2 Statement of the Problem

The evolution of societies and economies is greatly influenced by the construction of roads. The timely and effective completion of road building projects, however, continues to be a significant difficulty in many nations, and procurement methods are a crucial aspect that influences project outcomes. Road construction projects continue to experience delays, cost overruns, and other difficulties that jeopardize their overall success despite efforts to enhance procurement procedures. The procurement procedures that result in successful road building projects and those that cause delays and other issues must thus be better understood.

Kenya's development program, which aims to increase connectivity and assist economic growth, must include a key element on road infrastructure. However, there have been several problems with project management, insufficient money, and corruption that have caused delays, cost overruns, and subpar performance during the building and maintenance of Kenya's roadways. The Kenyan government has put into practice a number of initiatives to enhance project outcomes, including the adoption of cutting-edge technologies and creative procurement methods. Despite these initiatives, Kenyan road construction projects still encounter substantial obstacles like ineffective coordination, a lack of technical expertise, and insufficient monitoring and evaluation of project performance, which delay and hinder the projects' timely and successful completion. To increase the efficiency and efficacy of road construction projects in Kenya, it is necessary to investigate and tackle these issues.

Research has revealed knowledge gaps in this area, suggesting the necessity for more studies in this area. In their 2019 study, Ndegwa et al. sought to identify the variables that affect the rate of road construction project completion in Kenya's Kisii County: Although the study is confined to Kisii County, Kenya, it nonetheless offers valuable insight into what makes road construction initiatives there successful. Another study by Obura and Kweyu (2020) examined the evaluation of road building projects in Mombasa County, Kenya. The study fails to provide practical solutions or methods for overcoming these challenges. Many parties, including the owner, consultant, contractor, and even outside forces, can contribute to project delays, which are defined as a postponement of the initial projected completion date (Koushki and Kartam, 2004). This study therefore sought to answer the question, how does procurement practices influence the performance of road construction projects in Bomet County?

1.3 Study objectives

This research set out to answer the following questions:

- i. To determine the influence of financing on completion of KERRA road construction projects in Bomet County, Kenya
- ii. To determine the influence of Communication practices on completion of KERRA road construction projects in Bomet County, Kenya

- iii. To examine the influence of tendering process on completion of KERRA road construction projects in Bomet County, Kenya
- iv. To explore the influence of participatory monitoring and control on completion of KERRA road construction projects in Bomet County, Kenya

1.4 Value of the Study

By enhancing access to markets, health care facilities, and educational institutions, the completion of KeRRA road development projects will have a substantial influence on the county's economy. Improved infrastructure will also attract investments, create employment opportunities, and stimulate economic growth.

The national government will benefit from improved road infrastructure by enhancing the mobility of people, goods, and services across the country. It will also lower transportation costs, enhance commerce, and improve the country's economic competitiveness.

Following the completion of KeRRA road building projects, chances for research and academic studies in sectors like as transportation engineering, road safety, and economic growth will arise. The completion of KeRRA road development projects will illustrate the success of donor-funded initiatives in enhancing developing-country infrastructure. It will also improve donor-country ties and boost donor-recipient nation collaborations.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This section comprises a conceptual framework, a theoretical underpinning, an operationalization of the variables, and a literature review on the variables.

2.2 Theoretical framework

A theoretical framework is a collection of concepts, ideas, and assumptions that give a framework for understanding and analyzing a certain occurrence. It serves as the foundation for research studies by outlining the key variables, relationships, and processes involved in the phenomenon under investigation. Theoretical frameworks help researchers to develop hypotheses, design research studies, and interpret their findings.

2.2.1 Resource Dependency Theory

The Resource Dependency Theory (RDT) is a sociological theory proposed by Pfeffer and Salancik in 1978 that contends organizations rely on external resources to attain their objectives. The theory posits that organizations must develop relationships with suppliers of these external resources to ensure the timely and effective delivery of these resources. RDT highlights the importance of managing these relationships to ensure that the organization has access to the necessary resources to achieve its goals (Pfeffer & Salancik, 1978).

In road completion projects, RDT suggests that the success of these projects depends on the availability of external resources such as raw materials, equipment, and skilled labor. The availability and delivery of these resources are often outside the control of the project team, making it essential to build strong relationships with suppliers to ensure that these resources are delivered on time and within budget. The theory suggests that the success of road completion projects depends on the effective management of these external relationships.

The correlation between effective supply chain management and completed building projects was investigated by Sohail and Cavill (2002). Project performance, including quality, cost, and timeliness, was shown to be enhanced when effective supply chain management strategies, such as supplier collaboration and just-in-time inventory systems, were used. The effect of SRM on the completion of Pakistani road building projects was investigated by Ahmad et al. (2015). The study found that effective supplier relationship management, including communication, collaboration, and trust-building, was associated with improved project performance, including timely completion, reduced costs, and improved quality.

2.2.2 Social Exchange Theory

Sociologist George Homans put out the Social Exchange Theory (SET) in 1958. According to this theory, individuals act in a certain way because they engage in social exchange processes, where they try to get the most out of it while spending the least amount. The theory states that individuals participate in social interactions when they anticipate that the benefits will exceed the expenses. In order for social interactions to be productive, SET stresses the need of building trust and good relationships (Homans, 1958).

In road completion projects, SET suggests that the success of these projects depends on the social exchange processes between the client and the contractor. The theory posits that the success of road completion projects depends on the ability of the client and the contractor to build a relationship based on trust and mutual benefit. This can be achieved through effective communication, collaboration, and the establishment of clear expectations.

The authors Thabet and Dahal (2018) looked at how social interaction affected the outcome of Oman's road building projects. Better project performance, including on-time completion, higher quality, and lower costs, was linked to successful social exchange procedures between the contractor and the customer, according to the study. These processes include communication, trust-building, and collaboration. The effect of trust on the completion of Nigerian building projects was studied by Aibinu and Jagboro (2022). Project success, including on-time completion and higher quality, was shown to be significantly predicted by client-contractor trust, according to the study.

2.3 Empirical Literature

2.3.1 Completion of Road Construction Projects

Road construction projects play an important role in infrastructure development and economic growth. However, timely completion of such projects remains a challenge. Elinwa, Umeokafor, and Ugochukwu (2019) note that timely completion is necessary for realizing the benefits of road construction, such as improved road safety and reduced travel time. The failure to complete road projects within budget and on time can have significant economic consequences. Inadequate funding has been identified as one of the primary challenges to timely completion of road projects. Ndekugri and Owusu-Manu (2016) found that insufficient funding often leads to project delays and compromises on the quality of the work. Changes in project scope and design are also major contributors to project failure (Mohamed et al., 2020).

Effective project management has been identified as a key strategy for improving the completion of road construction projects. Ndekugri and Owusu-Manu (2016) found that proper project management practices can help reduce project delays and improve quality. Proper planning and design are also critical for timely completion of road projects, including the identification and management of project risks (Elinwa et al., 2019). Completion of road construction projects within budget and on time is essential for economic development. The lack of adequate funding, inadequate project planning, design, and management, and project scope changes are major contributors to project failure. Effective project management, proper planning and design, and the use of innovative technologies are strategies that can help improve project completion.

Several road development projects have stagnated due to ineptitude or poor performance in meeting or implementing policy objectives. Road building may be challenging, much more so when making objective and strategic judgments. Nallathiga, Shaikh, Shaikh, and Sheik (2017) did a study on factors affecting the success or failure of road infrastructure projects under PPP in India. The results revealed a great convergence across the different methods and consensus among project stakeholders in critical success/ failure factors of PPP in India projects. This is because the initiative entails various activities and stakeholders from conception to execution. However, arranging the necessary activities, such as the roles and responsibilities of subcontractors, contractors, construction managers, architect engineers, and clients is feasible to complete a road construction

project successfully. According to Narayanan, Kure, and Palaniappan (2018), given the multiple options available today, completing a big road construction project without experiencing schedule delays or cost overruns is more often than not the rule rather than the exception.

2.3.2. Financing and Completion of KERRA Road Construction Projects

Funding is the process of securing and making accessible the funds needed to carry out a project, program, or portfolio. There are also monetary resources that are utilized for the completion or conduct of particular specified tasks. Internal or external funding, or a combination of the two, can be used. Funding might range from modest allocations from a single departmental budget to complicated international financing of a joint venture. In certain situations, the work may be anticipated to self-fund, with earnings from earlier phases of work supplying finances to deliver the latter stages. (McKelvie,2009)

The construction of roads is essential for economic development and improving the lives of citizens. However, financing road construction projects is crucial for their completion. Insufficient financing leads to delays in the completion of road construction projects. The lack of funds affects the quality of materials used in the construction, leading to poor workmanship and subsequent delays. Delayed completion of road construction projects can cause inconvenience to road users, increase the cost of the project, and have a negative impact on the economy.

Financing is a crucial component of road construction projects. According to Song et al. (2019), the traditional funding model, where the government provides the majority of the funding, may not be sufficient to meet the growing demand for road infrastructure. The authors suggest that public-private partnerships (PPPs) and other innovative financing models, such as value capture financing, can help address the financing gap. However, successful implementation of these financing models requires effective risk allocation, a clear understanding of project costs, and transparent governance structures.

2.3.2 Communication Practices and Completion of KeRRA Road Construction

Communication is basically the way in which information flows from the sender to the receiver and back. However, the adoption of data analytics is heavily reliant on infrastructure support, such as hardware and software. Park and Koo (2015) found that investments in computer software and hardware have a positive impact on data analytics adoption. Similarly, Nordas and Piermartini (2014) reported that ICT infrastructure has a strong favorable influence on the adoption of data analytics. They argue that not adopting data analytics could be as costly as exporting data analytics services. Therefore, the ICT infrastructure becomes a key factor in the adoption of data analytics for many construction companies, serving as a conduit for boosting operational efficiency.

Limao and Venables (2021) utilized the quantity of available ICT equipment as a proxy for infrastructure quality, while Francois and Machim (2007) viewed computer usage as a factor of infrastructure development. These studies suggest that infrastructure expenses comprise a significant portion of the costs associated with the adoption of data analytics. Therefore, upgrading relevant infrastructures has a beneficial impact on the use of data analytics. Telecommunications infrastructures and internet accessibility can offer the necessary supporting infrastructure to promote the implementation of data analytics in a construction company.

Because the corporate world is built on the capacity to interact quickly and efficiently, information technology must make this feasible. People currently connect across time zones, from basic emails to video conferencing, to aid in everyday business growth and to create a platform for clients to communicate and retrieve information about the organization. This freedom to speak opens up prospects for better corporate decisions and easier penetration for development reasons. Also Each business strives to simplify its processes and be as effective as possible; expenditures are kept to a minimum while profits are maximized. Information technology also helps by automating regular processes, delivering error-free and quick data analysis, and offering data storage capacity. Instead of executing such duties manually, IT streamlines the process, reduces the possibility of errors, and better manages your resources (Olalla, 2000).

In the road construction industry, effective communication can help prevent delays and ensure timely completion of projects. Data analytics can help facilitate effective communication and

information sharing, but it requires adequate infrastructure support. Therefore, investing in relevant infrastructures such as ICT equipment, software, and hardware is necessary to ensure the successful adoption and implementation of data analytics in road construction projects. With the right infrastructure in place, data analytics can serve as a valuable tool for enhancing communication and promoting successful project completion.

2.3.3 Tendering Process and Completion of KeRRA Road Construction Projects

Companies often put out bids for the supply of goods and services through a process known as tendering. When a corporation needs or may need external resources to achieve its strategic objectives, the procurement function of business management is in charge of finding, acquiring, accessing, and managing such resources. Different procurement procedures can have a substantial impact on the project's quality and cost. The various approaches used in tendering road building projects include open tendering, selective tendering, negotiation, and design and build tendering methodologies (Birchal, 2017). Selective tendering, which involves inviting a limited number of prequalified contractors to submit bids for a project, is known to save time but may result in more expensive quotes (Ganderton, 2015). In a competitive tendering process, prequalification, tender documents, and bidding are three critical stages that encourage accountability and openness (Mathonsi and Thawala, 2015). However, the high cost of competitive tendering may lead to conflicts of interest and may or may not have a guaranteed evaluation mechanism. To strike a balance between open and selected approaches, open selective tendering can be employed, utilizing the open, selected, and negotiated tendering procedures (Mathonsi and Thawala, 2015).

The choice of procurement method can have a significant impact on the success of the project, with cost overruns being a common issue in road projects where the tendering process focused on cheap tender prices (Assaf and Al-Heiji, 2016). Therefore, it is essential to exercise caution when selecting a contractor for a road project to prevent contract overpricing and control associated selection expenses (Soyombo and Ogunsanmi, 2017). The subcontracting procedures and tender management are additional factors that can influence the procurement process, as they allow the contractor to use specialist expertise outside of their work zone and evaluate contractors' diverse policies on client-floated tenders (Soyombo and Ogunsanmi, 2017).

Moreover, the failure to respond to tenders is another component of the procurement process that can hamper the provision of desired services (Soyombo and Ogunsanmi, 2017). Overall, the tendering process should be carefully considered and selected based on the project's needs to ensure a successful completion of road construction projects while managing costs and maintaining quality. The studies conducted by Kemei and Mutai (2020) and Kihara and Kinyua (2017) highlight the challenges that the tendering process faces in Kenya. Corruption and favoritism in the tendering process lead to delays in the completion of road construction projects, which can have significant economic, social, and environmental impacts. The studies recommend that the government should ensure transparency and accountability in the tendering process to prevent corruption and favoritism.

In the road projects tendering plays a critical role in the completion of the proposed roads. This is because the process ought to be free and fair, due diligence should be carried out on the least evaluated bidder. The Public procurement and asset disposal act clearly gives guidelines on how suppliers should be selected, the time frames, the qualifications and also it protects against bias. In Kenya PPRA is the oversight authority that ensures that the procurement process was free and fair.

2.3.4 Participatory Monitoring and Control and Completion of KeRRA Road Construction Projects

To progress the agreed-upon and permitted project with minimum risk, monitoring and control involves making sure that all metrics and actions needed to finish the project stay within its scope, stay on schedule, and stay under budget. To attain the desired result when significant discrepancies are found, it is necessary to compare actual performance with planned performance and then take corrective action.

Road construction projects are completed on schedule thanks to participatory monitoring and management. According to Kemei and Mutai (2020), road development projects in Kenya were delayed due to a lack of participatory monitoring and supervision by government authorities. In order to finish road building projects on schedule, the research suggested that government agencies should implement participatory monitoring and control systems.

Monitoring and control are essential elements of procurement for road construction projects. The continuous and systematic tracking of inputs, activities, and processes ensures effective and efficient realization of desired outputs. Participatory monitoring, which involves the collection and analysis of data, validation, sharing, and utilization of monitoring findings, promotes shared decision-making, ownership, and accountability (Kathongo, 2018).

In the context of road construction projects, participatory monitoring is critical in ensuring that procurement processes are transparent and accountable. It helps to ensure that projects are utilizing resources effectively and efficiently to complete road construction projects on time and within budget (Oyola and Odhiambo, 2018). By tracking project inputs and activities, participatory monitoring promotes accountability and control of project resources, which is essential in preventing cost overruns and delays in completing road construction projects. Research has shown that participatory monitoring is a critical factor in the success and sustainability of road construction projects. In Ghana, for example, Kissi et al. (2019) found that participatory monitoring practices were a critical influencer of project success. Similarly, Sulemana (2018) found that participation in monitoring enhanced the performance of road construction projects. Makau Mackenz and Nicole (2018) conducted a meta-analysis on participatory monitoring and project success from a Kenyan perspective and found that participation in monitoring was critical in delivering quality results.

Participatory monitoring is an essential component of procurement for road construction projects. By ensuring transparency, accountability, and effective utilization of resources, it promotes project success and sustainability. Participatory monitoring should be conducted continuously and in a participatory manner to revitalize the use of resources and ensure effective completion of road construction projects (Micah and Luketero, 2017).

2.4 Conceptual framework

The four independent factors, the dependent variable, and the moderating variable are depicted in this conceptual framework

Independent Variable

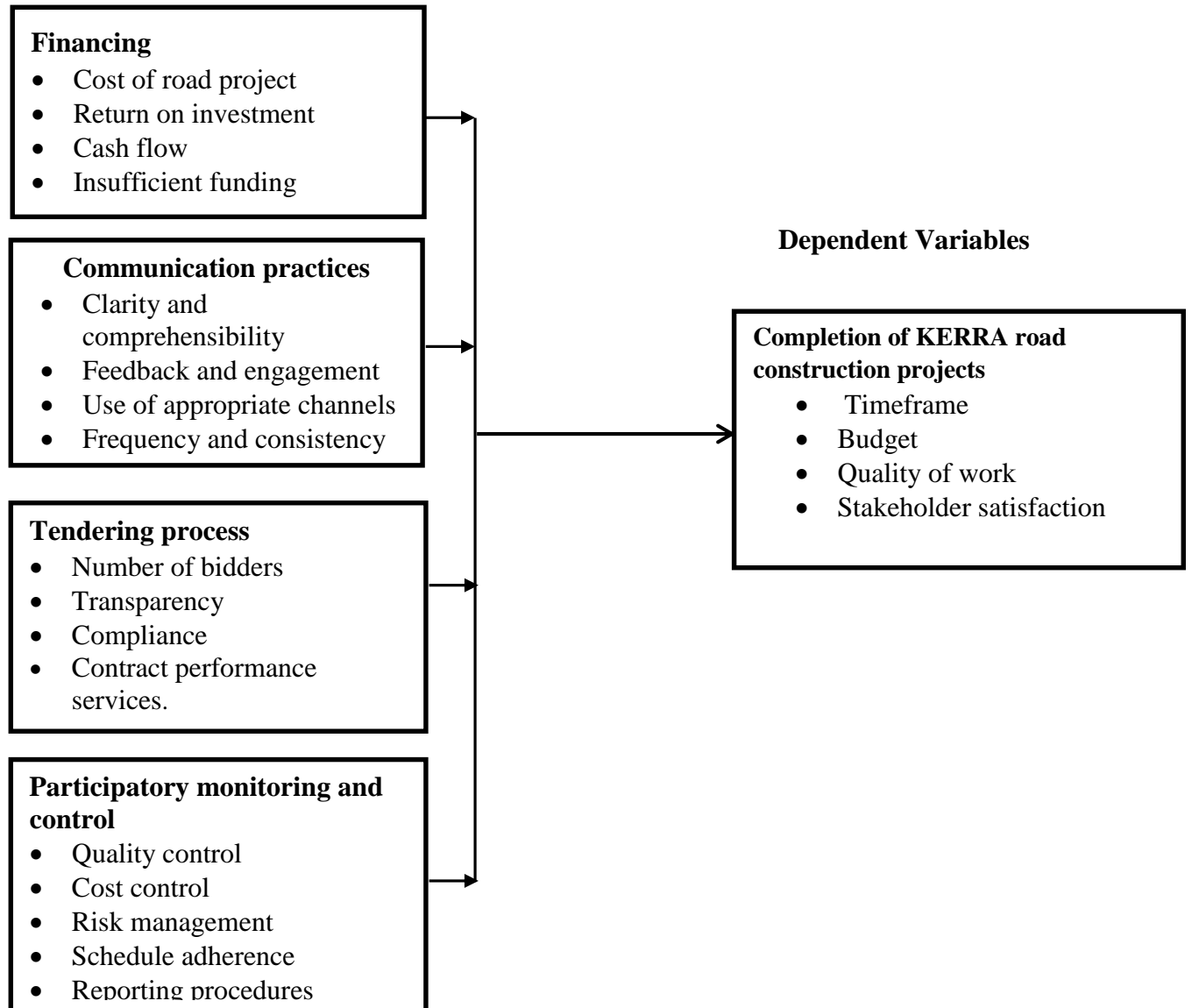


Figure 2.1: Conceptual framework

2.5 Research Hypothesis

The following research hypothesis guided this study:

H₀₁: Financing of road completion projects had no significant influence on the completion of KERRA road construction projects in Bomet County, Kenya

H₀₂: Communication practices had no significant influence on the completion of KERRA road construction projects in Bomet County, Kenya

H₀₃: Tendering process had no significant influence on the completion of KERRA road construction projects in Bomet County, Kenya

H₀₄: Participatory monitoring had no significant influence on the completion of KERRA road construction projects in Bomet County, Kenya

2.6 Knowledge gaps

Table 2.1: Research gaps

Study	Focus of the Study	Methodology	Findings	Gap in Knowledge
Mburu (2017)	The quality project planning and road construction projects' sustainability in Kenya	The researcher employed cross-sectional research design and an explanatory research design.	The researcher found quality planning, as major element of project planning in enhancing road construction projects' sustainability	This current research used descriptive research design to collect data and do analysis
Muhwezi, Baguma and Mubiru (2021)	An evaluation of building construction firms' quality planning practices in Kamwenge District, Uganda.	Descriptive design was deployed where quantitative and qualitative data were obtained using survey questionnaire and also documentary reviews	The procurement systems, on-site supervision and third party certification influenced timeliness, cost thus influencing quality planning practices	This study was limited to road construction, which differ from building construction projects in terms of technical requirements, resource requirements and stakeholders.
Njau and Omwenga (2019)	The influence of resource planning on the successful completion of major construction projects in Kenya	The researcher acquired primary data through the use of a self-administered questionnaire.	In Kenya, efficient building construction project implementation was significantly and positively connected to resource planning.	The completion of KeRRA road projects was used as the dependent research variable, which varies from building construction projects.

Abdi (2020)	Resource planning practices and Road Infrastructure Projects' performance in Wajir County, Kenya.	The study adopted descriptive survey design	Resource planning influences projects' performance positively and significantly	The study used the performance of Road Infrastructure Projects as dependent variable which is different from completion of KeRRA Road Construction Projects which will be the dependent variable
Ondiek (2018)	How project time planning, influences the success of road construction projects in Uasin Gishu County	The study used descriptive research design	The study found that there was a positive correlation between road construction projects' success and project time planning	The study used the success of road construction projects as dependent variable which is different from completion of KeRRA road construction projects'
Kirira, Liku, Owuor, and Mavole (2019)	Risk management strategies and road construction projects' performance	Introspective survey design was utilized in this study	Risk management strategies influence KeNHA road construction projects' Performance in Coast Region positively and significantly	The researcher focused on risk management strategies on construction performance which is different from KeRRA road construction projects

Simiyu (2018))	The capacity of local contractors and road projects' performance in Nairobi County	The researcher used census research design	The study revealed that financial, organizational, technical and capabilities of regulatory compliance influence road construction projects' performance	Dependent variable was road projects' performance which differs from KeRRA road completion projects
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CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The research methodology, population of interest, sample size and sampling process, research instruments, methods of data processing, reliability and validity, ethical issues, and study operationalization are all detailed in this part.

3.2 Research design

The researcher employed a descriptive research strategy to carry out the investigation. The design was selected due to its ability to handle questions such who, what, when, how much, and which (Kothari, 2004). Results from a descriptive research can go beyond mere facts; they can also lead to the formulation of fundamental principles of knowledge and the elimination of pressing issues. In order to avoid bias in data collection and interpretation as well as to provide a thorough account of the situation, descriptive study was meticulously planned. The researcher can collect in-depth replies from the participants using this strategy.

3.3 Target population

This study targeted employees and contractors working with KeRRA in Bomet County with the unit of analysis being the 5 projects (Merigi-Longisa, Ndanai- Chebilat, Kaboson-Sigor, Bomet-Litein, Kyogong –Siongiroi) being implemented by the organization. The target population was those working in the finance, communication, tendering and monitoring & control as well as road contractors working with the county. The target population for this study was 304 distributed as follows:

Table 3.1: Target population

Category	Frequency
Finance	75
Communication	90
Tendering	42
Monitoring & Control	93
Contractors	4
Total	304

3.4 Sample size and sampling procedure

A frame of sampling is defined as a collection of components from which samples will be obtained (Schindler, 2015).

3.4.1 Sample size

A supposed representation of the entire population is based on the sample size, which is a subset of the target population. Based on the sample determination algorithm provided by Kreijce and Morgan, a population of 171 was selected with a 95% confidence level and a 0.05 error margin. The sample size table was used for this purpose. You can see the sample in Table 3.2.

Table 3.2: The Sampling Matrix

Categories	Target population	Sampling Ratio	Sample1size
Finance	75	0.559	42
Communication	90	0.559	50

Tendering	42	0.559	25
Monitoring & Control	93	0.559	52
Contractors	4	0.559	2
Total	304		171

3.4.2 Sampling procedure

To ensure representativeness, this study used stratified proportional random sampling, an unbiased sampling approach that divides diverse populations into homogenous groups before making selections within each subset. To guarantee that various demographic subsets were sufficiently represented, stratified random sampling was employed. Each stratum was then constructed using respondents drawn at random from each grouping.

3.5 Research instruments

A combination of closed- and open-ended questions on self-administered surveys provided the bulk of the data used in this analysis. According to Snyder, there are numerous instances where unstructured or open-ended queries are simpler to analyze (2019). Due to their immediate usefulness, the surveys helped save time and money while also simplifying analysis. We were able to fill in some of the blanks in our knowledge of the research variables through interviews with key informants.

3.7.1 Reliability of the Research Instrument

Kothari (2004) argues that a research instrument's reliability is defined by the degree to which it maintains its results over time. To find out how consistent the surveys were, researchers employed the test-retest method. One alternative definition of reliability is the consistency with which a certain instrument yields the same findings in different tests. Thus, the gathered findings were

confirmed to be legitimate, and any distortions were prevented. Content dependability was assessed using Cronbach's Alpha, with values of 0.7 and above being considered.

3.7.2 Validity of the Research Instrument

Kothari (2004) argues that a research instrument's reliability is defined by the degree to which it maintains its results over time. To find out how consistent the surveys were, researchers employed the test-retest method. One alternative definition of reliability is the consistency with which a certain instrument yields the same findings in different tests. Thus, the gathered findings were confirmed to be legitimate, and any distortions were prevented. Content dependability was assessed using Cronbach's Alpha, with values of 0.7 and above being considered.

3.8 Data Collection Procedures

The University of Nairobi provided the researcher with an introduction letter. The National Council for Science and Technology gave their stamp of approval before researchers set out into the field to collect data. The researcher individually distributed questionnaires as they were the most suitable instrument for this study. A "drop-and-pick" format was used for the distribution of the surveys. The data collecting procedure was made easier and faster because of this. The surveys were distributed to all potential responders after their physical addresses were verified. After then, a later date was set up to collect the surveys. For each key informant, the researcher made an appointment and went to see them in person to conduct the interviews. On the responses that were provided, shorthand notes were made. If the interviewee gives their consent, the researcher will also record the interviews for later transcription.

3.9 Data Analysis

The data underwent cleaning, coding, and analysis. A computer-generated tool for statistical analysis, SPSS version 25 offers statistical presentation capabilities with inbuilt equations for simple comprehension and tabulates and analyzes the raw data for clarity. A multi-variant regression model was employed to determine the relative value of each independent variable. This model served as the basis for the regression analysis:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where:

Y = completion of KERRA road construction projects

β_0 = constant term

β_1 - β_4 are the coefficient function of the independent variables,

X_1 = Tendering

X_2 = communication practices

X_3 = Finance

X_4 = Monitoring & control

ϵ = Error term

3.10 Ethical Consideration

Prior to data collection, all interested groups were given an opportunity to participate. In order to facilitate and authorize the procedure, formal letters were sent to the personnel responsible for approval. The study's aims were defined in detail to remove any room for interpretation. Before data collection could start, consent forms were made and sent out to respondents for their review and signature. People who had attained legal adulthood were the only ones included in the study. At all times, the anonymity of the respondents was guaranteed by keeping their responses under wraps.

CHAPTER FOUR

DATA PRESENTATION, DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

The chapter begins with the presentation, analysis, and discussion of the data. All of the study's aims were met by the results, and the outcomes for each metric are detailed in their respective sections. An overview of the study's demographics, a description of the questionnaire return rate, a discussion of testing the data set for statistical assumptions, and an analysis of the data according to the study's objectives make up the main sections.

4.2 Questionnaire return rate

The percentage of individuals that filled out the survey as a whole relative to the overall sample size is known as the questionnaire return rate. The significance lies in the fact that the response rate furnishes the necessary data for a precise investigation (Kikwatha, 2018). Mugenda (2012) states that when it comes to data analysis and reporting, a response rate of 60% is satisfactory, but when it comes to evaluating outcomes and drawing conclusions, a return rate of 70% or more is excellent. Although 171 individuals were targeted as potential participants, a mere 142 actually participated. The outcome was an 83% response rate. Jack (2008) states that a response rate of 60% or above is considered optimal; as Kikwatha (2018) also achieved this level of response, it was adequate for drawing findings from this study.

4.3 Demographic information and Respondent's Profiles

Overall, demographic information was based on the gender, age and academic qualification. However, since this study involved different groups of levels of the respondents, that is directors, technical participatory, local community and local leadership it was important that their demographic profiles were also analyzed. The individual group profiles analyses their age, gender, academic qualification. Frequencies of each group for each category and their respective percentages based on the sample size were used.

4.3.1 Distribution of the Respondents by Gender

The gender variable was measured based on two levels that is male and female for all the groups sampled in this study. Overall distribution by gender was checked and the individual analysis of the gender distribution by gender was done to identify any disparities that may arise were caused majority by which group.

Table 4.1: Distribution by Gender

Gender	Frequency	Percentage
Male	93	65.5
Female	49	34.5
Total	142	100

According to the above data, 93 (65.5%) of all responders were male, while 49 (35.5%) were female. This demonstrates that both genders were active in the project, with men having the most.

4.3.2 Distribution of the Respondents by Age

The research intended to determine the age distribution of respondents. The findings are displayed in table 4.2.

Age	Frequency	Percentage
18 – 27	30	21.1
28 – 37	43	30.3
37 – 47	54	38
47 – 57	10	7
57 and above	5	3.5
Total	142	100

From the table, most of the respondents were aged between 37 – 47 years with 54(38%), between 28 – 37 years were 43 (30.3%), between 18 – 27 years were 30(21.1%), between 47-57 years with 10(7%) while 57 and above had the least respondents which were 5(3.5%).

The respondents in this study were all between the ages of 28 and 57, indicating that they are mature enough to supply the necessary information.

4.3.3 Level of education

The survey intended to determine the respondents' level of education. Table 4.3 displays the responses.

Level of education	Frequency	Percentage
Certificate	15	10.6
Diploma	53	37.3
Undergraduate	42	29.6
Postgraduate	32	22.5
Total	142	100

According to table 4.3, majority of the respondents had attained diploma level of education contributing to 37.3%, 10.6% of respondents had certificate, 29.6% of respondents had undergraduate while 22.5% had postgraduate. This shows that majority of respondents were learned hence can comprehend the questions in the questionnaire and give their honest opinion.

4.4 Completion of KERRA Road Construction Projects

Completion of KERRA road projects was considered as the dependent variable for this study. This section presents data analysis on completion of KERRA roads

Statement	SA	A	N	D	SD	Mea	Std.
	F	F	F	F	F	n	

	%	%	%	%	%		
The project is significantly behind schedule and deadlines are not being met	4 (1.4)	60 (4.3)	62 (4.4)	14 (10)	2 (1.4)	3.32	0.72
The project is well under budget and there are significant financial resources remaining	7 (5.9)	80 (57.6)	48 (34.5)	5 (3.6)	2 (1.4)	3.57	0.68
The project deliverables are of very low quality and do not meet the expected standards	8 (5.8)	75 (54.0)	47 (33.8)	10 (8.0)	2 (1.4)	3.58	0.74
The stakeholders are very unhappy with the project deliverables and the overall project performance	8 (3.6)	80 (57.6)	40 (28.8)	12 (8.6)	2 (1.4)	3.53	0.76
Total Scores						3.22	0.56
N=142							
Composite Mean = 3.22							
Standard Deviation = 0.506							

The table 4.4, the statement that clarifying vision of KERRA roads construction project to all stakeholders facilitated faster road construction was at minimal extent as is shown by 62 (44.6%) of respondents. The mean of the clarifying vision of KERRA roads construction project to all stakeholders facilitated faster road was 3.32, while its standard error was 0.061 which is a low standard error showing that the mean was true estimate of the population mean and standard deviation was 0.723. Engaging stakeholders in road construction project facilitated faster completion of road construction was at great extent as is reflected by the highest percentage of 80(57.6%). Engaging stake holders in road construction project facilitate faster completion of KERRA road construction responses was 3.57, while its standard error was 0.058band the standard deviation was 0.682. Ineffective mode data collection & management and supervision were a great extent as is shown by the corresponding percentages of 75(54.0%),80(51.8%) and 72(51.8%)

respectively. The percentage of individuals that filled out the survey as a whole relative to the overall sample size is known as the questionnaire return rate. The significance lies in the fact that the response rate furnishes the necessary data for a precise investigation (Kikwatha, 2018). Mugenda (2012) states that when it comes to data analysis and reporting, a response rate of 60% is satisfactory, but when it comes to evaluating outcomes and drawing conclusions, a return rate of 70% or more is excellent. Although 171 individuals were targeted as potential participants, a mere 142 actually participated. The outcome was an 83% response rate. Jack (2008) states that a response rate of 60% or above is considered optimal; as Kikwatha (2018) also achieved this level of response, it was adequate for drawing findings from this study.

4.5 Procurement Practices and Completion of KERRA Road Construction Projects

Procurement practices was considered as the independent variable in this study which had the following sub variables financing, communication practices, tendering process and participatory monitoring and control

4.5.1 Financing

Finding out how much of effect procurement processes have on the finishing of KERRA road improvement projects in Bomet County, Kenya was the original objective. This description is based on a study of the indicators of the various independent variables. We averaged the sum of each respondent's responses across all five likert ratings to get the variable procurement procedure. Five things evaluated on a five-point scale The following are the possible ratings on the "I like it" scale: neutral, strongly disagree, I concur, I strongly concur

Item	SD	D	N	A	SA	M	Std.
	F	F	F	F	F		
	%	%	%	%	%		
Financial							
There is efficiency metric	2	11	94	31	1	3.13	0.612
measures on how long it takes to complete the organization's	(1.4)	(7.9)	(67.6)	(22.3)	(0.7)	(0.052)	

	annual or periodic budgeting process							
6b	During budgeting, the financial ratio looks at a company's borrowing and the level of leverage	5 (3.6)	27 (19.4)	83 (59.7)	23 (16.7)	1 (0.7)	2.91 (0.062)	0.727
6c	The profitability metric estimates how much net income a public company generates per share of its stock	19 (13.7)	91 (65.5)	24 (17.3)	5 (3.6)	0 (0.0)	2.11 (0.057)	0.667
6d	Operations management team uses its assets to generate profit	16 (11.5)	97 (69.8)	19 (13.7)	7 (5.0)	0 (0.0)	2.12 (0.056)	0.664
Total Scores							2.48	0.416

N = 142

Composite Mean = 2.48

Standard Deviation = 0.416

Financial management systems' overall influence on road construction project completion was 2.48 and 0.416, respectively, according to the overall composite means (M). The results showed that most people agreed, to a lesser degree, that financial management approaches affect the completion of a road building project (M = 2.48, SD = 0.416).

On the item that aimed to demonstrate the extent to which an efficiency metric monitors how long it takes an organization to complete its yearly or periodic budgeting process. The results show that 94 respondents (67.6% of the total) somewhat agreed with this statement, suggesting that the organizational budgeting process does not have any effective metrics measured. This item's standard deviation (SD) was 0.612 and its mean (M) was 3.13. According to the results, most

people think that budgets that use effective metric measures significantly affect how quickly road projects are finished.

The next item examined financial ratios on the company's borrowing and the amount of leverage. According to the findings, 83 (59.7%) of respondents agreed with this item to some extent. A small minority (17.4%) agreed with the statement completely, while 21.9% agreed just partially or not at all. This item had a mean score of 2.91 and a standard deviation of 0.727. This result indicates that the majority of respondents agreed with the statement that the financial ratio considers a company's borrowing and leverage level while budgeting. Key informants agreed that correct financial ratio looks existed, but that when they were developed, execution became an issue.

The purpose of this item was to examine the reliability of profitability statistics in predicting the net income per share of stock for publicly traded companies. The results show that out of 110 people polled, 79.2% somewhat or strongly agreed that profitability measures the amount of net income a public company makes per share of stock.

The next task was to ascertain how well the operations management group makes use of its resources to generate a profit. The findings show that 113 out of 136 respondents (81.3% of the total) only partially agreed with this statement, suggesting that the operations management group isn't making good use of its resources. The standard deviation (SD) for this question was 0.664, and the mean (M) score was 2.12.

Finally, we looked at the amount of budget variance used to analyze several financial metrics, including expenses, profits, and income. The majority of respondents, 117 (84.2%), agreed with the problem to a modest or very tiny level, while 16 (11.5%) agreed to a big amount, according to the data. As a result, budget variance can be used to evaluate expenses, profits, or income, among other financial metrics. A standard deviation of 0.664 was associated with this item's mean score of 2.12.

4.5.2 Communication Practices

This section attempted to determine the impact of communication strategies on the construction of KERRA roads. The outcomes are shown below.

Item	SD	D	N	A	SA	M	Std.
	F	F	F	F	F		
	%	%	%	%	%		
Communication practices							
7a The cost of the road project is clearly communicated and easily understandable.	16 (11.5)	89 (64.0)	31 (22.3)	3 (2.2)	0 (0)	3.25 (0.054)	0.636
7b I have confidence in the accuracy of the cost information provided for the road project.	5 (3.6)	15 (10.8)	93 (66.9)	25 (18.0)	1 (0.7)	3.01 (0.058)	0.681
7c The information provided about the road project is clear and easy to understand	5 (3.6)	22 (15.8)	70 (50.4)	39 (28.1)	3 (2.2)	3.09 (0.069)	0.816
7d The communication channels used for the road project are appropriate and effective.	8 (5.8)	27 (19.4)	81 (58.3)	22 (15.8)	1 (0.7)	2.86 (0.066)	0.773
7e I am satisfied with the frequency and consistency of communication about the road project.	11 (7.9)	90 (64.7)	31 (22.3)	7 (5.0)	0 (0)	2.24 (0.057)	0.669
Total Scores						2.75	0.4124
N = 142							
Composite Mean = 2.75							
Standard Deviation = 0.4124							

An effort was made in item 7a to ascertain how well the road project's budget is laid out. The road project is clearly and concisely explained, since 113 people (81.3%) agreed with this item to varying degrees. The item had a mean (M) of 2.87 and a standard deviation (SD) of 0.788.

In order to find out how reliable the road project's budget estimates were, we used Item 7b. The findings showed that 120 people, or 86.3% of the total, agreed with this statement to varying degrees. Only three people (2.2%) firmly agreed with the statement, while sixteen (11.5%) disagreed completely. This shows that the road project budget estimates are believed to be accurate. The average score for this item was 3.25, with a standard deviation of 0.636.

Item 7c attempted to determine the extent to which information supplied regarding the road project is clear and easy to comprehend influences road project completion. The results show that the majority of 113 (81.3%) of respondents agreed to a very limited extent that the information supplied regarding the road project was clear and easy to grasp. Only a minority of respondents, 26 (18.7%), agreed that information was supplied. This item's mean score was 3.01, with a standard deviation of 0.681.

Item 7d aimed to determine the extent to which the road project's communication channels are acceptable and effective. affected the road project's completion. The results show that the majority of respondents (71.9%) agreed with this item to a very limited level, implying that the communication channels employed for the road project are only to a limited extent acceptable and successful. This item's mean (M) was 3.09, with a standard deviation (SD) of 0.816.

Item 7e sought to ascertain how much satisfaction with the regularity and coherence of road project communications impacts the final outcome of the road project. The results showed that 23 respondents (16.5%) strongly agreed with the item, whereas 116 respondents (83.5%) agreed to a lesser or moderate degree. The item had a standard deviation of 0.773 and a mean score of 2.86.. This result suggests that the majority of 116 (83.5%) of respondents agreed that the frequency and consistency of communication regarding the road project impact its completion. This is supported by key informants who stated that a road project may be finished on time provided the road progress is notified to the appropriate authorities on a regular and consistent basis.

4.5.3 Tendering process

Tendering process is very vital in any public entity. This study sought to establish the influence of tendering process on the completion KERRA road construction project. The results are presented as shown

Item	SD	D	N	A	SA	M	Std.
	F	F	F	F	F		
	%	%	%	%	%		
Tendering process							
8a I am satisfied with the number of bidders done for each road project	7 (5.0)	27 (19.4)	79 (56.8)	25 (18.0)	1 (0.7)	2.90 (0.066)	0.774
8b I believe there was fair competition among the bidders for the award of the tenders for the construction of the road project	4 (2.9)	22 (15.8)	82 (59.0)	29 (20.9)	2 (1.4)	3.02 (0.063)	0.737
8c The procurement process for the project was transparent	3 (2.2)	24 (17.3)	93 (66.9)	19 (13.7)	0 (0)	2.92 (0.053)	0.626
8d I believe the decision-making process for selecting the winning bid was transparent	20 (14.4)	36 (25.9)	50 (36.0)	33 (23.7)	0 (0)	2.69 (0.084)	0.992
Total Scores						2.89	0.483
N = 142							
Composite Mean = 2.89							

Standard Deviation = 0.483

Item 8a seeks to determine how happy respondents are with the number of bids for each road project. The results show that 106 (76.3%) of respondents agreed with this question to some extent, indicating that the respondents are pleased. The mean (M) and standard deviation (SD) for this item were 2.90 and 0.774, respectively.

Item 8b attempted to determine the extent to which fair competition among bidders for tender award influences road project completion. According to the findings, 104 (74.8%) of respondents agreed with this item to a minimum or very minimal amount. A minority of 31(22.3%) strongly agreed with the statement, while 4(2.9%) strongly disagreed. This item had a mean score of 3.02 and a standard deviation of 0.737.

Item 8c intended to determine the extent to which openness in the procurement process influences project completion. According to the findings, the majority of 117 (84.2%) of respondents felt that the procurement process was transparent to a very limited level. Only 19 (13.7%) of those polled believed that the instruction was beneficial. This item's mean score was 3.2.92, with a standard deviation of 0.626.

The purpose of item 8d was to find out how much the open procedure of choosing the winning bid affected the building of KERRA roads. According to the results, 86 respondents (61.9%) were somewhat in agreement with this statement, suggesting that the selection of the winning bid affects the completion of the road building. The standard deviation (SD) for this item was 0.992, and the mean (M) was 2.69. Despite the limited effect on the KERRA road development, this outcome implies that most respondents thought the winning offer selection process was open and honest.

4.5.4 Participatory Monitoring and Control

Every project needs to undertake monitoring and control since it has great influence on completion KERRA road projects. The results are presented as shown:

Item	SD	D	N	A	SA	M	Std.
-------------	-----------	----------	----------	----------	-----------	----------	-------------

	F	F	F	F	F		
	%	%	%	%	%		
Participatory monitoring and control							
9a	I am satisfied with the level of quality control measures in place for the project	6 (4.3)	87 (62.6)	7 (5.0)	33 (23.7)	6 (4.3)	2.61 1.032
9b	I believe the project is meeting the required quality standards	5 (3.6)	96 (69.1)	8 (5.8)	23 (16.5)	7 (5.04)	2.5 0.981
9c	The project is staying within budget	8 (5.8)	41 (29.5)	10 (7.2)	72 (51.8)	8 (5.8)	3.22 1.110
9d	I am satisfied with the level of cost control measures in place for the project	51 (36.7)	60 (43.2)	2 (1.4)	22 (15.8)	4 (2.9)	3.22 1.110
9e	The project team is effectively managing project risks	14 (10.1)	95 (68.3)	8 (5.8)	14 (10.1)	8 (5.8)	2.33 0.988
Total Scores						2.46	0.698

N = 142

Composite Mean = 2.46

Standard Deviation = 0.698

According to the data, the composite mean was 2.46 with a standard error of 0.059. This low standard error indicated that the mean was an accurate representation of the population mean. The composite standard deviation was 0.698, which was similarly a low result, indicating that there were little variances in the replies. The table results show that the majority of respondents, 87(62.6%) and 96(69.1%), indicated that the statements "I am satisfied with the level of quality control measures in place for the project" and "I

believe the project meets the required quality standards" were true to a very small extent, with standard deviations of 1.032 and 0.981, respectively. Both the statement that the project is staying under budget (mean = 3.22, standard deviation = 1.119) and the statement that I am comfortable with the amount of cost control mechanisms for the project (mean = 3.22, standard deviation = 1.119) make this point clear. By a margin of 0.988 and a mean of 2.33, 95.3% of those who took the survey think the project team is doing a good job of keeping risks to a minimum.

4.6 Regression Analysis

This study employed regression analysis to find a correlation between procurement techniques and the completion of KERRA road projects in Bomet County, Kenya. The purpose of the study was to evaluate this hypothesis. To test these theories, we utilized a linear regression analysis. $Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \epsilon$. The results are presented as follows

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.488 ^a	.268	.162	1.466	.268	3.122	3	136	.041

In the table, the correlation was 0.51, which means there is a positive and significant association; the r-squared value was 0.268. This shows that out of the variance in completion rates of road construction projects in Bomet County, 27% was attributable to overall procurement trends

Analysis of Variance (ANOVA)

Model	Sum of Squares	Df	Mean Square	F	Sign.
Regression	10.315	4	2.579	12.291	.000 ^b

Residual	28.112	138	.210
Total	38.427	142	

The table shows that the total sum of squares was 38.427, the regression sum of squares was 10.315, and the residual sum of squares was 28.111. With a p-value of 0.00, we missed the 0.05 criterion of significance. Consequently, we can say with 95% certainty that the end result of the KERRA road construction projects in Bomet County, Kenya is significantly impacted by the sum of all procurement procedures.

Regression Coefficient

Model	Unstandardized		Standardized	T	Sig
	Coefficients				
	B	Std. Error	Beta		
Constant	1.984	.303		6.540	.000
Communication practices	.138	.040	.266	3.476	.001
Finance management	.576	.115	.454	4.995	.000
Tendering process	.214	.119	.167	1.794	.075
participatory monitoring and control	.051	.098	.047	.517	.606

From the table the model was significant and therefore, $y = 1.984 + 0.266X1 + 0.454X2 + 0.167X3 + 0.047X4$ is the prediction model.

This therefore, this means that if there is an increase in communication practices, the completion of road projects will increase by 26.6%, if finance practices is well managed, road project completion will increase by 45.4%, if the management puts more effort in tendering process, the project completion rate will increase by 16.7% and if the management focuses more on participatory monitoring and control, then completion of road projects will increase by 4.7%. Overall, finance management practices have the highest score of 45.4% with participatory monitoring and control having the least score.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The findings, interpretations, and recommendations are all detailed in this section. The findings summary elaborates on the study's conclusions with regard to each of the four objectives. The results form the basis for drawing conclusions, and the research's value to society is assessed. The emphasis is on suggestions in the last section. In addition, recommendations for future studies are provided.

5.2 Summary of Result Findings

In this study, the questionnaire return rate was 83%, which was higher than the usual proportion, providing a solid foundation for drawing conclusions and drawing generalizations about the population based on the data. The survey found that 65.5% of respondents were male, compared to 34.5% who were female. The majority of responders have completed up to the certificate level of schooling. The sections that follow provide a summary of the findings from each aim.

5.2.1 The Effect of Communication Practices and Completion of KERRA Road Construction Projects

Determining the influence of communication tactics on the execution of KERRA road building projects in Bomet County, Kenya was the primary target. Researchers found a high level of internal consistency in the Likert scale responses across the board. Composite statistics showed an average of 2.46 and a standard deviation of 0.698. With a standard error of only 0.059, the mean estimate was considered to be a reliable representation of the population mean. The majority of respondents indicated that communication methods were given relatively little weight in road development, as indicated by the mean.

In Bomet County, Kenya, this study set out to test the idea that the use of various forms of communication had no discernible effect on the rate of road construction project completion. A strong positive correlation between communication strategies and the completion of road building projects was found in the study. The results showed that there is a connection between the methods

of communication and the outcome of road construction projects. The null hypothesis that communication tactics did not significantly affect the completion of KERRA road building projects was rejected since the linear regression prediction model was likewise significant. These results are in line with those of Al-Bahar and Crandall (2016), who found that when choosing the best contractor to build a road, factors like the project's budget, the contractor's financial capability, the contractor's technical competence, and other factors like communication are considered. Critical to the project's success is the creation of a communication strategy that details the process's handling, defines and prioritizes important project goals, and reflects on risk concerns. Respondents stressed the significance of communication throughout the interview schedule, saying that it helps management choose companies with the right skills and abilities to do the job.

5.2.2 The Influence of Financing on Practices and Completion of KERRA Road Construction Projects

The second goal was to determine how much financial management techniques impact the completion of KERRA road development projects in Bomet County. Five products were considered for this goal. The study discovered that the Likert scale replies had an average internal consistency across all items. The average and standard deviation of the composite were 2.48 and 0.416, respectively. The standard error for the mean estimate was 0.00467, indicating that the mean estimate was an accurate depiction of the population mean. According to the mean, most respondents felt that financial management procedures were addressed only to a very limited level in the execution of KERRA road projects.

The null hypothesis was evaluated in this goal, which stated that there is no significant association between financial management practice and the completion of KERRA road building projects in Bomet County, Kenya. The study discovered a substantial beneficial relationship between financial management practices and the completion of KERRA road development projects in Bomet County. The findings are consistent with those of Choy, Chow, Lee, and Chan (2017), who said that payment conflicts prevent a company from adopting appropriate contract management. It is critical to design methods of assessing progress and to establish genuine acceptance standards. Njie et al. (2055) conduct a literature research and identify numerous pricing and payment strategies utilized in the worldwide building sector. However, it was highlighted that in most cases, cost overruns for construction projects result in greater expenses that were not considered in during

the first phases of the project, crippling the entire project because the overruns were not accounted in during the initiation stage. "Sometimes the project can spill over to another year and this means that the financial implication must go up since the project will require participatory and equipment at site to spent more time and this has direct implication on the cost of the project" It is also critical for the project team to exercise caution throughout the early stages of project development so that they can budget for incidental and spillover expenses if they occur.

5.2.3 The Effect of Tendering Process and Completion of KeRRA Road Construction Project in Bomet County

The third goal was to determine how much the tendering procedure influences the completion of road building projects in Bomet County. The study discovered that the Likert scale responses for all items had high internal consistency. The average and standard deviation of the composite were 2.75 and 0.4124, respectively. The standard error for the mean estimate was 0.098, indicating that the mean estimate was an accurate depiction of the population mean. The mean indicates that, on average, most respondents stated that the tendering procedure was used only to a limited extent in the execution of KERRA road building projects.

This objective was to test the null hypothesis that the KERRA road improvement projects in Bomet County, Kenya, were not significantly impacted by the tendering system. An extremely strong link ($r=0.148$) between the tendering process and the finalization of KERRA road construction projects was found by the study. The results showed that the KERRA road construction projects in Bomet County, Kenya, were completed in relation to the tendering method. Notable as well was the model for prediction that relied on linear regression. These results are in line with those of (Assaf and Al-Heiji, 2016), who found that the procurement method can significantly affect project performance; for example, when road projects were bid with an emphasis on low bid costs, cost overruns were common.

5.2.4 Participatory Monitoring and Control and Completion of KERRA Road Construction Projects

The fourth objective was to assess the level of success in Bomet County's KERRA road construction projects in terms of participation monitoring, control, and completion. All items'

Likert scale replies showed strong internal consistency, according to the study. The composite had an average of 2.89 and a standard deviation of 0.483. With a standard error of only 0.055, the mean estimate accurately portrayed the population mean. In order to finish the KERRA road building projects, the majority of respondents said that participatory monitoring and control was only partially handled, according to the mean.

This aim tested the alternative hypothesis that participatory development methods in Bomet County, Kenya do not significantly increase the likelihood of a project's successful conclusion. With a correlation value of 0.190, the study found a strong link between the completion of KERRA road building projects and participatory monitoring and control. In Bomet County, Kenya, the results showed that KERRA road construction projects were more likely to be finished when participants were actively involved in monitoring and controlling the process. The linear regression prediction model produced a significant model. Participatory monitoring and control is a critical link between the project and its execution. The findings in participatory monitoring and control are consistent with those of Kathongo (2018), who contends that monitoring and control are critical components of road construction project procurement. Continuous and systematic tracking of inputs, activities, and processes ensures that expected outputs are realized effectively and efficiently. Participatory monitoring encourages shared decision-making, ownership, and responsibility through data collection and analysis, validation, sharing, and usage of monitoring results.

5.3 Conclusions

The effectiveness of KERRA's procurement strategies greatly influences the time it takes to finish road construction projects. Consequently, it is the responsibility of the National government to ensure that project procurement is effectively linked with procurement processes. Finding out how procurement procedures affected the final results of KERRA road construction projects in Bomet County, Kenya, was the driving force for this study. Based on the data collected for this investigation, the following conclusions were drawn:

Communication techniques play an important role in the execution of KERRA road development projects in Bomet County, Kenya. There is need to ensure that there is proper communication

within the organization to ensure that there is delivery of information and feedback. This will ensure that there is smooth flow of activities in the road construction sector

Financial management techniques in Bomet County, Kenya, have a favorable impact on the completion of KERRA road building projects. This variable received the highest score, suggesting that it is more important and has a greater impact on the completion of these projects. Funds need to be well managed so as to ensure that the planned budget is properly used for payments of the contractors, suppliers and employees. This will motivate all the stakeholders and consequently lead to higher completion rate of the roads.

The tendering procedure has an important impact on the completion of KERRA road development projects in Bomet County, Kenya. Construction of road require frequent flow of materials and services. Procurement process is known to be a complex activity which needs to be prioritized. Delayed tendering process will mean that materials and services will not get to the site in time and this will lead to delayed completion of the project leading to cost overruns of the project from the initial one which was budgeted for that project.

Participatory monitoring and control creates a significant impact on project completion of KeRRA projects in Bomet county. This shows that lack of periodic quality control and cost control measures leads to no accountability. Projects delayed and quality was comprised since there were no regular accountability checks that would point out gaps, if the processes involved in the construction of projects were followed through. It would have also pointed out the risks that were unforeseen.

5.4 Recommendations

This study found that most KERRA road building projects do not end on schedule, which may be explained by a gap in the procurement techniques for completing these projects. Without appropriate policies to support them, workers' efforts will be in vain. Consequently, this study recommends that appropriate regulations be put in place to encourage various forms of communication, such as financial, tendering, and participatory control and monitoring. To make sure policies are put into action, we need policies and, from those policies, the necessary laws.

This study employed a descriptive survey methodology to bolster a mixed-methods approach. This method was chosen for the study because it enabled the researchers to analyze the data descriptively, as well as through regression and correlation. It follows that the method can be recommended for use in comparable studies in the future.

5.5 Suggestions for further studies

The scope of this research was confined to communication techniques, financial procedures, the tendering process, participatory monitoring and control, and the completion of KERRA road building projects in Bomet County, Kenya. It is consequently critical to analyze the same variables in national government. This will allow for a comparison of current and future study findings.

In addition, at national government, the projects are mega and their challenges could be different from those in county level which was the focus of this study. It is therefore, suggested that another similar study can be carried out at that level to enable comparison of findings.

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APPENDIX I: QUESTIONNAIRE

SECTION A: DEMOGRAPHIC INFORMATION

This questionnaire is aimed at collecting data for the purpose of research only. Please tick where appropriately and your responses will be kept secretly and will be used for research purpose only.

1. Please indicate your gender

Male () Female ()

2. Please indicate your Age Bracket

18- 27years () 28 -37years ()

38 -47years () 48- 57 years ()

More than 58 years ()

3. Which is your highest level of education?

Post Graduate ()

Undergraduate ()

Diploma ()

Certificate ()

Any other (specify).....

SECTION B: FINANCING

Please tick appropriately by showing the extent to which you agree or disagree with the following statement on a scale of 1-5 where: 1)-Strongly Disagree 2)-Disagree 3)-Neutral 4)-Agree 5)-Strongly Agree

Statement	1	2	3	4	5
The cost of constructing roads is reasonable					
I am satisfied with the cost incurred on this road's construction					

The return on investment for the road project is satisfactory					
I expect a good return on investment for this road project					
The cash flow generated by the road project is sufficient					
The cash flow projections for the road project are accurate					
The debt service coverage ratio for the road project is acceptable					

SECTION C: COMMUNICATION PRACTICES

Please tick appropriately by showing the extent to which you agree or disagree with the following statement on a scale of 1-5 where: 1)-Strongly Disagree 2)-Disagree 3)-Neutral 4)-Agree 5)-Strongly Agree

Statement	1	2	3	4	5
The cost of the road project is clearly communicated and easily understandable.					
I have confidence in the accuracy of the cost information provided for the road project.					
The information provided about the road project is clear and easy to understand					
I feel well-informed about the road project and its progress.					
My feedback and opinions have been actively solicited and considered for the road project					
I feel engaged and involved in the road project decision-making process.					
The communication channels used for the road project are appropriate and effective.					
I am satisfied with the variety and availability of communication channels used for the road project.					

Communication about the road project is frequent and consistent.					
I am satisfied with the frequency and consistency of communication about the road project.					

SECTION D: TENDERING PROCESS

Please tick appropriately by showing the extent to which you agree or disagree with the following statement on a scale of 1-5 where: 1)-Strongly Disagree 2)-Disagree 3)-Neutral 4)-Agree 5)-Strongly Agree

Statement	1	2	3	4	5
I am satisfied with the number of bidders done for each road project					
I believe there was fair competition among the bidders for the award of the tenders for the construction of the road project					
The procurement process for the project was transparent					
I believe the decision-making process for selecting the winning bid was transparent					
The winning bidder is compliant with all relevant regulations and requirements					
I am satisfied with the level of compliance demonstrated by the winning bidder					
The winning bidder is performing well on the contract					
I believe the contract requirements are being met satisfactorily.					

SECTION E: PARTICIPATORY MONITORING AND CONTROL

Please tick appropriately by showing the extent to which you agree or disagree with the following statement on a scale of 1-5 where: 1)-Strongly Disagree 2)-Disagree 3)-Neutral 4)-Agree 5)-Strongly Agree

Statement	1	2	3	4	5
I am satisfied with the level of quality control measures in place for the project					
I believe the project is meeting the required quality standards					
The project is staying within budget					
I am satisfied with the level of cost control measures in place for the project					
The project team is effectively managing project risks					
I am satisfied with the level of risk mitigation measures in place for the project					
The project is on schedule and meeting the required milestones					
I am satisfied with the level of schedule management measures in place for the project					

SECTION F: COMPLETION OF KERRA ROAD CONSTRUCTION PROJECTS

Please tick appropriately by showing the extent to which you agree or disagree with the following statement on a scale of 1-5 where: 1)-Strongly Disagree 2)-Disagree 3)-Neutral 4)-Agree 5)-Strongly Agree

Statement	1	2	3	4	5
The project is significantly behind schedule and deadlines are not being met					


The project is well under budget and there are significant financial resources remaining					
The project deliverables are of very low quality and do not meet the expected standards					
The stakeholders are very unhappy with the project deliverables and the overall project performance					

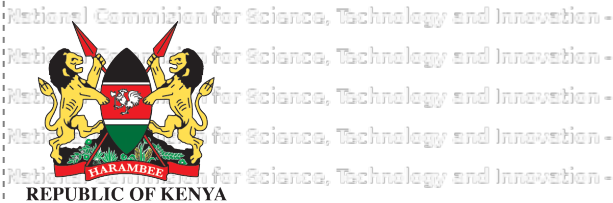
INTERVIEW GUIDE

Thank you for participating in this interview. I am conducting this interview to gather information about procurement practices and the completion of KERRA Road construction projects in Bomet County. Your participation is valuable to me, and I appreciate your time.

1. How can you describe the financing process for the KERRA Road construction project?
2. What are the sources of funding for the KERRA Road construction projects?
3. How is the budget allocated to various aspects of the project, such as labor, materials, and equipment?
4. Can you describe the communication practices used during the KERRA Road construction projects?
5. How are stakeholders informed of project updates and changes?
6. What methods are used to communicate progress, challenges, and solutions during the project?
7. What criteria are used to evaluate bids?
8. How are contracts awarded, and what factors are considered?
9. How is the progress monitored during the KERRA Road construction projects?
10. What measures are taken to ensure quality control and compliance with regulations?
11. How are risks assessed and managed during the project?

APPENDIX II: RESEARCH PERMIT

 REPUBLIC OF KENYA	 NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION
Ref No: 442309	Date of Issue: 25/July/2023
RESEARCH LICENSE	
	
This is to Certify that Ms.. ENIDY KERUBO OMBWORO of University of Nairobi, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Bomet on the topic: PROCUREMENT PRACTICES AND COMPLETION OF KERRA ROAD CONSTRUCTION PROJECTS IN BOMET COUNTY, KENYA for the period ending : 25/July/2024.	
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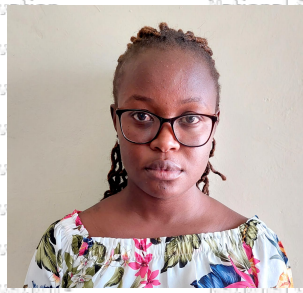


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The National Commission for Science, Technology and Innovation, hereafter referred to as the Commission, was established under the Science, Technology and Innovation Act 2013 (Revised 2014) herein after referred to as the Act. The objective of the Commission shall be to regulate and assure quality in the science, technology and innovation sector and advise the Government in matters related thereto.

CONDITIONS OF THE RESEARCH LICENSE

1. The License is granted subject to provisions of the Constitution of Kenya, the Science, Technology and Innovation Act, and other relevant laws, policies and regulations. Accordingly, the licensee shall adhere to such procedures, standards, code of ethics and guidelines as may be prescribed by regulations made under the Act, or prescribed by provisions of International treaties of which Kenya is a signatory to
2. The research and its related activities as well as outcomes shall be beneficial to the country and shall not in any way;
 - i. Endanger national security
 - ii. Adversely affect the lives of Kenyans
 - iii. Be in contravention of Kenya's international obligations including Biological Weapons Convention (BWC), Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO), Chemical, Biological, Radiological and Nuclear (CBRN).
 - iv. Result in exploitation of intellectual property rights of communities in Kenya
 - v. Adversely affect the environment
 - vi. Adversely affect the rights of communities
 - vii. Endanger public safety and national cohesion
 - viii. Plagiarize someone else's work
3. The License is valid for the proposed research, location and specified period.
4. The license any rights thereunder are non-transferable
5. The Commission reserves the right to cancel the research at any time during the research period if in the opinion of the Commission the research is not implemented in conformity with the provisions of the Act or any other written law.
6. The Licensee shall inform the relevant County Director of Education, County Commissioner and County Governor before commencement of the research.
7. Excavation, filming, movement, and collection of specimens are subject to further necessary clearance from relevant Government Agencies.
8. The License does not give authority to transfer research materials.
9. The Commission may monitor and evaluate the licensed research project for the purpose of assessing and evaluating compliance with the conditions of the License.
10. The Licensee shall submit one hard copy, and upload a soft copy of their final report (thesis) onto a platform designated by the Commission within one year of completion of the research.
11. The Commission reserves the right to modify the conditions of the License including cancellation without prior notice.
12. Research, findings and information regarding research systems shall be stored or disseminated, utilized or applied in such a manner as may be prescribed by the Commission from time to time.
13. The Licensee shall disclose to the Commission, the relevant Institutional Scientific and Ethical Review Committee, and the relevant national agencies any inventions and discoveries that are of National strategic importance.
14. The Commission shall have powers to acquire from any person the right in, or to, any scientific innovation, invention or patent of strategic importance to the country.
15. Relevant Institutional Scientific and Ethical Review Committee shall monitor and evaluate the research periodically, and make a report of its findings to the Commission for necessary action.

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