

**PROJECT MANAGEMENT PRACTICES AND IMPLEMENTATION OF ROAD
INFRASTRUCTURE PROJECTS IN GARISSA COUNTY, KENYA**


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**A Research Project Submitted in Partial Fulfilment of the Requirements for the Award of
Degree of Master of Arts in Project Planning and Management of the University of Nairobi**

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DECLARATION

This research project report is my original work and has not been submitted for academic award in any other university.

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DEDICATION

To my family: Sylvia, Ethan and Sophia, for their deep love and faith in me.

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LIST OF ABBREVIATIONS AND ACRONYMS

AMCP	:	African Monetary Co-operation Program
ANOVA	:	Analysis of Variance
CDF	:	Constituency Development Fund
GDP	:	Gross Domestic Product
IMF	:	International Monetary Fund
JKEP	:	Jua- Kali Empowerment Programmes
KeNHA	:	Kenya National Highways Authority
KeRRA	:	Kenya Rural Roads Authority
Km	:	Kilometre (s)
KRB	:	Kenya Roads Board
KURA	:	Kenya Urban Roads Authority
KSh.	:	Kenya Shillings
KWS	:	Kenya Wildlife Service
M&E	:	Monitoring and Evaluation
MDGs	:	Millennium Development Goals
MoR	:	Ministry of Roads
MoRT:		Ministry of Road and Transport
MTP III	:	Third Medium Term Plan of Vision 2030
NACOSTI	:	National Commission for Science, Technology and Innovation
NHIF	:	National Hospital Insurance Fund
PPPs	:	Public Private Partnerships
PRA	:	Participatory Rural Appraisal
RMLF	:	Road Maintenance Levy Fund
SD	:	Standard Deviation
SPSS	:	Statistical Package for Social Scientists
WASH	:	Water, Sanitation, and Hygiene

ABSTRACT

The implementation of infrastructure development is significantly impacted by project management practices, which increase the risk of delays, cost overruns, contractual disputes, arbitration, and quality deviations. Some projects are completely abandoned. In lieu of this, my research aimed to determine how project management methods and practices impact project implementations. The scope was infrastructural road projects in Garissa County, Kenya. Consequently, this study was limited accordingly. Financial disbursements, monitoring and control mechanisms, risk management and stakeholder participation were the independent variables implicated as project management techniques. As a dependent variable, execution of infrastructural projects in Garissa was considered. Therefore, the research objectives were; (i) to determine how financial disbursement practices by road agencies affect implementation of road infrastructure projects in Garissa County, Kenya; (ii) to determine how risk management practices by road agencies affect implementation of road infrastructure projects in Garissa County, Kenya; (iii) to determine how monitoring and evaluation practices by road agencies affect implementation of road infrastructure projects in Garissa County, Kenya; and (iv) to determine how stakeholder engagement practices by road agencies affect the implementation of road infrastructure projects in Garissa County, Kenya. For this investigation, descriptive survey research design was utilized. The target population included 162 officials (inspectors, engineers, procurement officials, and site agents/project managers) working with road agencies and road projects within Garissa County, and civic leaders who represented county residents. The entire population was utilized for data collection. For data collection, questionnaires whose reliability was evaluated using Cronbach's method were utilized. Upon analysis, the questionnaire data were sorted and keyed into SPSS Version 23, and descriptive and inferential statistics were generated accordingly. Using the Shapiro-Wick test to determine normality, Pearson Correlation as well as linear regression were chosen to establish relationship between study variables. The regression model was evaluated using the F-test at a confidence level of 95% following analysis of variance. Monitoring and evaluation practices ($r=0.825$) had the greatest influence on successful execution of infrastructural projects undertaken by the County Government of Garissa and respective road agencies within Garissa, followed by financial disbursement practices ($r=0.787$), stakeholder engagement practices ($r=0.772$), and risk management practices ($r=0.691$). Therefore, it was determined that execution of road infrastructure projects within Garissa County was, in a significant way, influenced by project management techniques. Before initiating projects, it is recommended that project implementers involve stakeholders more in planning and budgeting, employ more consultants to lead M&E, develop a comprehensive capacity building plan for the M&E team, and conduct adequate risk analysis to estimate probability of risk occurrence and reoccurrence, and its impact. Government is also advised to amend the Kenya Public Procurement and Disposal Act (2015) to discourage underquoting and front-loading by contractors, develop policies to diversify sources of funding for road agencies, and policies to shield contractors from lenders' high interest rates.

CHAPTER ONE

INTRODUCTION

1.1 Background

A well-designed road infrastructure is important not only for lowering transportation costs, but also for promoting the growth of main economic sectors, improving commerce, expanding access to social services, and increasing public transportation efficiency. It leads to economic growth by creating industrial expansion and scaling up markets. Road infrastructure, in this case, means all physical assets located within the road reserve. This includes the road itself, earthworks, drainage, structures (culverts, bridges, etc.), associated road furniture, and any other buildings that serve the road (Law Insider, n.d.).

Roads are worth investing in, especially in countries with limited road infrastructure. This has been suggested by empirical studies as well as scientific facts (NG C. P. *et al*, 2019). Highway infrastructure investment in Sri Lanka, has seen a 60 percent rise in industrial output. Improvements in China's urban and key regional roadways have boosted the industrial and service industries' Gross Domestic Product (GDP) shares. Furthermore, road development in China, specifically rural roads, has seen a substantial increase in the country's national GDP, compared to high-grade highways, thus larger gains over costs on rural road investments. (Renwick, N. *et al*, 2018).

In Africa, infrastructure development is viewed as a crucial factor for the continent's economic advancement. It facilitates increased productivity, reduces poverty, and enhances human welfare. Therefore, infrastructure development is viewed as a vital factor that can influence achievement of the Millennium Development Goals (MDGs). Over fifty percent of Africa's recent economic growth is attributable to infrastructure investment (African Development Bank, 2019). Further investments in the area, have the potential to achieve more. According to the World Bank (2017), improving on quality and quantity of infrastructure to march the world's best performing countries could increase productivity, improve standards of living and lead to more equality in Africa.

Kenya has placed a strong emphasis on, among others, infrastructure development since adopting its Vision 2030 strategy. Vision 2030 aims, in addition to providing a suitable economic environment, to transform the country into a middle-income economy and to consolidate that status

(Government of Kenya, 2018). The Kenya's current Big Four Development Agenda involves ensuring food security, provision of universal healthcare, promoting manufacturing through industrialization, and provision of affordable housing. To achieve this, quality and appropriate road infrastructure is required.

Road infrastructure projects are considered high-risk investments, with the government mostly being the sole source of finance. Their magnitude and capital requirements make private companies unable to build extensive stretches of roads. The scales of road projects bring with them many factors that contribute to project's feasibility. These factors relate to technology, management, economy, finance, culture, social aspects, safety, political aspects, environment and marketability of the project products (Daniels R., 2021).

Even with feasibility studies and prior planning, delays in road projects, all over the world, are major problems facing professionals in the industry (Rivera L., 2020). These delays range from delays in implementation to delays in completion of projects if implemented. The delays result in lost time, and affect the cost and quality (Santoso and Soeng, 2016). According to Mejia, G. *et al* (2020), unfavourable consequences of delays in projects include cost overruns, disputes related to contractual issues, arbitration, and non-conformities in terms of quality.

Another major problem with project implementation is cost overruns. According to Aljohani, A. *et al* (2017), construction industries, often than not, fail to finish projects within the stipulated budget. Nine out of ten projects normally experience cost overruns.

Project risk assessment, stakeholder participation, finance availability, and monitoring and evaluation are some of the elements that are thought to influence infrastructure project implementation. These factors are perceived to be capable of augmenting or reducing satisfaction derived from the projects (Linger, *et al*, 2016). By managing these factors, implementation of road infrastructure projects can be smoothed, thus the need to study them. It is against this background that this study is conceptualised.

The road network in Kenya is managed through the Infrastructure State Department under the Ministry of Roads and Transport (MoRT). The department's mandate is to develop and maintain the country's road infrastructure. It delivers its mandate through: Kenya Roads Board (KRB) –

which funds, oversees and coordinates all road network maintenance in Kenya through the use of Fuel Levy; Kenya National Highways Authority (KeNHA) -manages, develops and maintains national trunk roads (roads classified as Class S, A and B roads); Kenya Rural Roads Authority (KeRRA)- manages, develops and maintains Class C roads; Kenya Urban Roads Authority (KURA)- manages, develops and maintains urban roads; Kenya Wildlife Service (KWS) - manages, develops and maintains roads within the game reserves and national parks; and the County Governments in Kenya - manages, develops and maintains County Roads (Roads classified below class C), (Kenya Roads Board, n.d.).

Garissa County, like other counties, has benefitted from these governmental efforts with several projects being undertaken within the county. Several projects have been completed and others are underway, being undertaken by the various road agencies within the county, namely KeNHA, KURA, KeRRA and the County Government.

However, implementation of road programmes within the county have continued to fall short of plans. From the Garissa County Government Integrated Development Plan of 2013-2017, the road network within the county was a total of 1,804.5Km which comprised: roads with bitumen surface - 29.9Km, with gravel surface- 304Km and with earth surface - 1,479Km. One of the objectives of the development plan was to increase bitumen roads from 21.5km to 200km by 2017 and gravel roads from 304km to 1000 km by 2017. However, The Garissa County Integrated Development Plan (2018-2022) showed that by 2017, only 35.5 km of roads had a bitumen surface and 420 km gravel surface. This meant that there was a delay in implementation of road projects planned between 2013 and 2017. The two development plans continue to highlight poor road network as one of the biggest impediments to development. Road Inventory and Conditions Survey undertaken between 2016 and 2018 corroborate this fact. The survey showed that, although most of the paved roads in Garissa County are in good conditions, majority of gravel and earth roads were in poor conditions (Intercontinental and Geodev, 2018). This means that many roads remain inaccessible during the rainy season, limiting traffic flow within the county and across its borders.

The rural access index in Garissa County is below 27% according to Kenya Roads Board (n.d.) which is very low. In terms of other travel infrastructure, there are four bridges, three over River Tana, and one at Modogashe (all functional); 8 airstrips, two in Dadaab and one in each of the

other sub-counties of Lagdera, Garissa Township, Hulugho, Balambala, Fafi and Ijara; and zero kilometres of railway line. That means with the current state of roads in the county, the county finds itself almost isolated during the rainy season.

Road projects implemented by the various road agencies suffer from delays in completion and cost overruns, with project cost appraisals being prevalent. This is brought about by various factors with project management techniques/approaches perceived to be the major impediments to the smooth execution of these projects. Therefore, this research project assessed how various project management practices including financial disbursement, risk management, monitoring and evaluation and stakeholder engagement generally affect the execution of infrastructural road projects in Garissa County.

1.2 Problem Statement

Numerous governments seek to promote economic development by enhancing road infrastructure, particularly in economically disadvantaged regions. The infrastructure of roads promotes economic growth by facilitating the efficient movement of people and goods. In addition, they provide access to various social and economic activities that cannot contribute to long-term economic growth in the absence of a functional road infrastructure (Prus, P. and Sikora, M, 2021).

Infrastructural development, including road projects, face significant delays resulting in the risks of cost overruns, disputes related to contractual issues, arbitration, and non-conformities in terms of quality (Mejia, G. *et al*, 2020). The projects often not surpass timelines allocated and planned budget. Some projects are abandoned altogether. Therefore, there is need to understand the factors that affect project implementation in order to enable project implementers make the right decisions, avert the potential risks, and implement projects successfully. Such an understanding would aid in developing mitigation measures in time to reduce or eliminate the impact of identified issues.

Factors that are thought to influence successful execution of project roads in Garissa County include project management methods of financial disbursement, management of risks that comes with the project, monitoring & evaluation, and stakeholder participation.

Several studies have previously been undertaken on these project management methods. These studies have been discussed in details under Chapter 2: literature review. A few examples include: critical success factors in the implementation of community based projects in Kiambu County, Kenya (Wachira & James, 2018); risk management in Indonesia Construction Project; a case study of a toll road project (Wibowo *et al*, 2018); effect of project monitoring & evaluation on performance of road infrastructure projects constructed by local firms in Kenya (Maendo *et al*, 2018); and determinants of successful projects implementation of infrastructure projects in devolved units: a case study of Mombasa County, Kenya (Adek, 2016).

However, there exists gaps in knowledge from these studies. The gaps identified have been discussed in details under Chapter 2. In highlight, some of the studies did not focus on road projects. Almost all of them focused on one financier and therefore did not give a conclusive picture of the issues cutting across different financiers and managed by different institutions. In Garissa County, no study has investigated correlation between various project management methods and execution of infrastructural road projects. Therefore, this study purposed to bridge the various knowledge gaps by looking into how different project management techniques/methods affect the execution of infrastructural road projects within Garissa.

1.3 Purpose of the Study

The main goal of this research was to determine how project management methods and practices affect implementation of road projects in Garissa County, Kenya.

1.4 Study Objectives

From this study's primary objective, the objectives below were derived:

- i. To determine how financial disbursement practices by road agencies affect implementation of road infrastructure projects in Garissa County, Kenya
- ii. To determine how risk management practices by road agencies affect implementation of road infrastructure projects in Garissa County, Kenya
- iii. To determine how monitoring and evaluation practices by road agencies affect implementation of road infrastructure projects in Garissa County, Kenya
- iv. To determine how stakeholder engagement practices by road agencies affect the implementation of road infrastructure projects in Garissa County, Kenya

1.5 Research Questions

The research questions that the study attempted to address are as follows:

- i. How does financial disbursement practices affect implementation of road infrastructure projects in Garissa County, Kenya?
- ii. How does risk management practices affect implementation of road infrastructure projects in Garissa County, Kenya?
- iii. How does monitoring and evaluation practices affect implementation of road infrastructure projects in Garissa County, Kenya?
- iv. How does stakeholder engagement practices affect implementation of road infrastructure projects in Garissa County, Kenya?

1.6 Research Hypotheses

The research overall null hypothesis was:

Ho: there is no significant relationship between project management techniques/practices and implementation of road infrastructure projects in Garissa County, Kenya

Specific null hypotheses stated that:

- i. Ho: there is no significant relationship between financial disbursement practices and implementation of road infrastructure projects in Garissa County, Kenya
- ii. Ho: there is no significant relationship between risk management practices and implementation of road infrastructure projects in Garissa County, Kenya
- iii. Ho: there is no significant relationship between M&E practices and implementation of road infrastructure projects in Garissa County, Kenya
- iv. Ho: there is no significant relationship between stakeholder engagement practices and implementation of road infrastructure projects in Garissa County, Kenya

1.7 Study Significance

The national and county governments and project sponsors/financiers could use this study's findings and conclusions to better comprehend project design and implementation. With that knowledge, they can align their policies on implementation and supervision of projects to improve on project management practices. Governments and funders are able to use the findings to align project designs and implementation to requisite financial models even before construction commences. This would aid in averting delays in execution of planned works.

Professionals in the road sector from governments and financiers, consultants and contractors could use findings from this research to improve their project management practices, which would see timely procurement and implementation of road construction projects. Thus, the construction industry would improve in terms of project execution.

The study's findings could help road building contractors, consultants and clients determine when to involve stakeholders in order to improve the project's completion success. Furthermore, the findings, which reveal gaps that can be researched, can be used by various scholars and researchers aiming at developing practical skills regarding how to do research.

1.8 Study Delimitation

This study examined how project management methods affect execution of infrastructural road projects in Garissa County, Kenya. Financial disbursements, risk management, monitoring and evaluation procedures, and public stakeholder participation were among the Project management techniques analysed. The study did focus on infrastructural road projects as it was thought to provide the most accurate information regarding project management procedures. The respondents were officials (engineers, inspectors, procurement officials, and site agents/project managers) working with road agencies and on road projects within Garissa County and civic leaders who represented the county residents. These respondents were given questionnaires to fill out in order to get their opinions on the study's topic.

These respondents were chosen because it was assumed that they had sufficient knowledge on project management procedures employed in the implementation of projects associated with road infrastructure. The research employed descriptive survey method. Selection of this design was based on the reasoning that the study aimed at explaining the phenomenon in terms of attitudes, values, and qualities by determining and reporting on how things are carried out.

1.9 Limitation of the Study

Because of Garissa's unpredictability in security and linguistic hurdles, the study's principal limitation was access to the requisite information. Meeting with some respondents was a challenge especially for the people implementing projects away from the county headquarters. This was already thought that it would have an impact on the questionnaire return rate, preventing the study from collecting adequate data needed during the planning stage of data collection. To alleviate this

problem, the researcher administered questionnaires both physically and electronically. This paid off as 135 out of 162 questionnaires were returned duly filled.

The target respondents took quite some time in responding to the questionnaire which could be explained by the fact that filling the questionnaires did not fall under their job specifications or their key performance indicators. This problem was mitigated by following up on a biweekly basis until enough questionnaires were returned.

1.10 Study Assumptions

The researcher made assumption that infrastructural road projects under research were incorporating project management principles, and that the responders would be cooperative and supply as much information as possible. This was proved to be the case during data collection.

1.11 Significant Terms

This study made use of key terms defined below:

Project Management Practices: These are the principles, activities, and procedures that project managers within Garissa County use in ensuring timely completion of infrastructural projects, in an effective, efficient and lawful manner.

Road Infrastructure Projects: Refers to projects undertaken within Garissa County involving constructing road assets which may refer to one or more of; the road itself, earthworks, drainage, structures (culverts, bridges, etc.), associated road furniture, and buildings that serve the road.

Financial Disbursement: In project words, it refers to a variety of payment types made over a period of time for goods and services, including related expenses such as interest payments on delayed payments incurred during the construction of a road infrastructure project within Garissa County.

Risk Control/Management: Involves detecting, evaluating, and preventing or limiting risks that may affect road infrastructure projects planned results for road projects within Garissa County.

Monitoring and Evaluation: This is the attempt by projects implementers for road projects within Garissa County to cover all work done during or post implementation to define, select, collect, analyse, and use data.

Stakeholder Engagement: The process by which project managers engage relevant stakeholders involved in the road projects within Garissa County, ranging from community to government agencies and financiers, with the goal of achieving the set objectives.

1.12 Study Organization

The report for the research study comprises five chapters. Chapter One contains study background, problem statement, aim and objectives, significance of study, delimitations, limitations, and underlying assumptions. Definition and usage of key terminologies are also discussed in the chapter. The second chapter consists of substantial empirical and historical study on the topic of road infrastructure project implementation, as well as major theories pertaining to project management methodologies.

The third part describes collection of data and data processing procedures, while the fourth chapter outlines actual study's outcomes, analysis, and finally interpretations. The last part analyses and synthesizes the findings and provides a conclusion. In chapter five, the study's suggestions and recommendations are also detailed. Following the conclusion are the bibliography and appendices.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

In relation to implementation of infrastructure road projects, this chapter evaluates the preceding research published on financial disbursement, risk management, monitoring and evaluation techniques, and stakeholder participation. The chapter also includes a conceptual framework, an empirical analysis of the variables under study, and the theoretical framework used. A list of knowledge gaps for the analysed literature is also provided.

2.2 Implementation of Road Infrastructure Projects

Development in a country can be used in gauging rapidity of its economic growth. Physical infrastructures, like buildings, roads, and bridges, can be used to assess this pace. (Critical 5, 2015). Infrastructure availability is a critical aspect of assessing economic progress. However, by every metric of infrastructural performance, Sub-Saharan Africa ranks last among all developing areas. In the Global Competitiveness Report's infrastructure category, the region, though housing more than 14% of world's population, scored a mere 2.91 (Calderon, C. *et al*, 2018)

Ministry of Roads (MOR) Service Charter explains that roads serve as the primary mode of transportation for 80% of all passenger and cargo traffic in Kenya. As a result, infrastructure has been recognized by Vision 2030 Strategy as a crucial element of long-term economic development. A functional and strong road network is beneficial for job development, wealth creation, employment preservation, and overall economic growth (Osman & Kimutai, 2019). In line with the Vision 2030 Strategy, numerous road projects are being implemented as part of sustained development under the economic pillar of the strategy.

The total estimated value of road infrastructure in Kenya is over KSh. 3.5 trillion (Kenya Roads Board, n.d.). This constitutes a network of approximately 246,757 Km of roads. The Kenya Roads Board Database divides the network as follows: approximately 161,821Km of classified roads and 84,000Km of unclassified roads. The Kenyan Government has boosted investment in road sector by allocating funds in the annual budgetary allocations, and by Public Private Partnerships (PPPs). In the PPPs, the private sector is brought on board to finance various road infrastructure. The private entities include foreign banks, organisations and governments, which come in through as

Special Purpose Vehicles (SUVs). Sale of long-term infrastructure bonds is also another way that the Kenyan Government is financing road infrastructure. All these investments follow the Third Medium Term Plan (MTP III) of Vision 2030, for 2018-2022 period, in which the government planned for the reconstruction, expansion and development of 10,000 kilometres of roads comprising of conventional roads (2,500Km) and Low Volume Sealed Roads (7,500Km) (Government of Kenya, 2018).

Despite the massive investment in the road sector, some areas have lagged behind with implementation of road programmes falling way short of plans. As mentioned earlier in the background of this project (Chapter one), Garissa County is one of them.

2.3 Financial Disbursement and Implementation of Road Infrastructure Projects

According to African Economic Outlook of 2018, the continent's infrastructure investment requirement is about \$130–170 billion per year, with a \$68–\$108 billion funding deficit (African Development Bank, 2018). The outlook, however, goes on to state that infrastructure funding in Africa and elsewhere should not be a financial constraint. Road infrastructure can be funded from the nearly \$100 trillion held by institutional investors, which includes insurance firms, pension funds, and sovereign wealth funds. In addition, there is seemingly limitless resources that can be utilized from the industrialized nations' central banks and public sector. Furthermore, Africa can borrow from ways used to finance transport infrastructure projects in Europe, as outlined by Carvalho, D. *et al* (2018); promoting cross-financing (for example, highway toll revenues funding railways), extending the polluter pays principle to value positive externalities (for example, recognizing the environmental benefits of rail versus road), developing banking laws that recognize infrastructure's unique needs, and promoting private investor participation are examples.

Most successful projects are well funded. With adequate funds, it is easy to strategize on project implementation activity by activity, and their timeframes (Le Brasseur and Zinger, 2015). Osman & Kimutai (2019) after investigating critical factors contributing to the successful implementation of Wajir County Road projects, found that mobilization of resources made the biggest impact on the execution of these projects. The research employed descriptive research design. Similarly, Murithi *et al* (2017) while studying publicly funded construction projects within Kenya's Trans-Nzoia County and the factor that influenced their timely completion, found that project success is

influenced by adequate resource allocation. In a survey research whose sample size was 32 out of 85 projects implemented by the county government, it was found out that, in particular, financial problems and payments issues substantially affected the completion of publicly financed construction projects within agreed timeline. In addition, procurement of construction materials was delayed by lack of resources. The study's recommendation was that the county administration allocates enough resources towards all its projects.

Kimemia (2015) conducted research in project delays in the Kenyan construction industry, taking KENHA Coastal region as a case study. From the study, it was found that budgets allocations suffered from long procedures, misallocation, and embezzlement by management and being slashed all the time resulting in compromise of the activities that they were intended for. In similar research, Adek (2016) embarked on a study within Mombasa County to determine the vital factors that impact successful project implementation. According to the findings, the allocation of county's resources had a substantial influence on project execution. The investigation discovered that the Mombasa's funds for expertise and full execution process were insufficient, as were the salaries paid to county project staff.

Wambui *et al* (2015) looked at factors that affected Nairobi County Road Projects and their completion. They discovered that project funds and project delays were related. The study discovered that availability of funds, their adequacy, accessibility, money management measures and cost saving measures all impacted the road projects under consideration and their completion. For the road projects to be completed successfully, the study proposed that effective resource mobilization methodologies and capacity assessments be used. Wafula (2017) while studying road projects in Machakos County concluded that capital availability significantly contributed to road projects' performance. Bureaucracy in fund disbursement process led to delays and inconsistencies in project implementation.

2.4 Risk Management and Implementation of Infrastructural Road Projects

Definition of a risk is the possibility of a loss or probability that an investment will lose its value (Merriam-Webster, n.d.). In a more appropriate context, project risk means an uncertain condition or event that affects project objectives, or at least one of them, if it happens (Project Management Institute, 2017). Managing risks, according to the Project Management Institute (2017), involves

planning for risk management, identifying risks, qualitative and quantitative analysis of risks, planning the responses to risks, implementation of the responses and monitoring the agreed upon implementation strategies. This process serves to amplify the probability and/or effects of positive risks while decreasing probability and/or effects of the negative ones. Some of the categories of risks that affect projects are related to technology, schedule, cost, financial, contractual, client, weather, environmental, political and people. Some of the mitigation methods of negative risks include risk sharing, risk avoidance, risk transfer and risk reduction (Wiley, D. *et al*, 2021)

According to Almagir, M *et al* (2017), several developing countries, in a bid to enhance their transportation infrastructure, are mobilizing investment funds through borrowing money internationally or negotiation against accessing the local natural resources. Given the remarkable speed and scope of these activities, it is critical to analyse the potential repercussions of large-scale projects thoroughly, especially road projects. Although roads can provide significant economic and social benefits in the right situations and places, they, on the other hand, can result in significant cost overruns, corruption, and environmental consequences, as well as limited economic gains against high social and political turmoil, if they are not well planned or handled. Onyekwena, C. & Ekeruche, M.A. (2019) in their blog noted that there is an increase in concerns about the possible crisis that could come with increasing debts in Africa. As of 2017, a total of 19 countries in Africa had gone over the upcoming economies' debt-to-GDP set by African Monetary Co-operation Program (AMCP) at 60% ratio threshold while 24 African countries had gone over the debt-to-GDP threshold of 55% as advised by International Monetary Fund (IMF). According to the blog, surpassing these thresholds means that the said countries were highly susceptible to economic changes and the ability of their governments to recover economically in case of recession was highly reduced. Past debt crises have been devastating for several Africa's economies, and therefore, the blog advises that there is need to carefully track the recent debts being taken by African countries and prevent them from getting out of hand.

Several studies have shown that risk management practices contribute to successful execution of projects. Zailani, S. *et al* (2016) set to explore how strategies on risk mitigation influenced project completion time and its performance. Random sample of 204 Malaysian construction companies was studied. The outcomes showed environmental risks, monetary risks and coordination issues affected performance of construction projects negatively. Wibowo, Hatmoko and Nurdiana (2018)

who did a research on how risk management practices affected construction projects within Indonesia obtained similar results. The research was based on Semarang-Solo Section I Toll Road Project case study and used descriptive research design. On top of the significance of risk assessment, the results also indicated that stakeholders had a different perception of risks based on their interests in the project.

Njue *et al* (2019) studied Jua- Kali Empowerment Programmes (JKEP) within Nairobi, Kenya and how their performance was affected by risk management practices. The study used cross-sectional correlational- survey method. The findings proved that risk management methods positively impacted JKEP performance. Similarly, Aduma and Kimutai (2018) researched on strategies of risk control and how they affected success of the National Hospital Insurance Fund (NHIF) project. Descriptive research method was utilised for this investigation. From the investigation, it was found that risk prevention measures influenced most performance of the project, followed by risk control, acceptance, and lastly risk transfer.

Matu, J.M *et al* (2020) studied the way risk management strategies influenced roads infrastructure projects under KURA in Kenya, particularly their completion. The study found significant influence of risk control methods on completion of projects under KURA. Similarly, Ondara *et al* (2017) undertook research on methods of risk management employed by construction companies in several counties within Kenya and their impact on performance. The researcher adopted explanatory research design based on the theory of positivism. The investigation concluded that risks related to resources and personnel, and management strategies used to control the risks influenced the firms' performance.

2.5 M&E and Implementation of Road Infrastructure Projects

As per Simister (2019), all works undertaken during or after project to define, select, collect and use data/information constitute projects M&E. Callistus and Clinton (2018) noted that monitoring and evaluation practices appear to have been side-lined in construction industry while much attention is given to other project management areas in project delivery. This neglect is despite the several researches that have shown that M&E is key to project or programme success.

Wambua and James (2019), conducted a study on Makueni County Education Projects to understand how M&E affected their performance. They found that M&E accounted for 62.4% of

the success of the projects. They recommended further studies to understand other factors that accounted for the 37.6% influence on performance. Wanjala (2017) had corresponding results in his study on the effects of monitoring approaches on Kenya State Corporations Projects performance. He found that state corporations' staff achieved higher performance where monitoring best practices were employed. The study used descriptive research design method and positivism research philosophy where sample size of 65 drawn from a population 187 state corporation was studied.

In a study to evaluate factors that influenced implementation of Kiambu County community-based projects, Wachira & James (2018) found M&E to be critical in successful execution of projects. Similarly, Wandiri and James (2020) studied 18 projects that involved rural roads' construction in Machakos County to investigate how planning, execution, monitoring and control influenced their performance. The study employed descriptive and causal research designs. The study concluded that project monitoring influenced its performance positively and also significantly.

Maendo *et al* (2018) identified infrastructure project M&E as a critical management role. In a study that focused on projects around Lake Victoria Basin and implemented by Kenyan companies, it was found that monitoring was useful in keeping track of infrastructural projects' implementation. It also offered timely reports on status of project implementation, including input deliveries, work schedules, and expected outcomes. On evaluation, it was concluded that it is used to objectively assess current or finished projects in relation to their conception, implementation, and impact. In the case of Kenya's Kajiado County, Sialala (2016) looked at impact of integrating M&E on completion of projects on access roads. Descriptive research methodology guided this investigation. The study discovered that project completion was influenced positively by the quality M&E integration and punctuality of budget allocation to the M&E process. Timely M&E integration exposed mistakes in project implementation and provided avenues for project implementers to learn and improve. It also allowed participants in similar industries to gain knowledge from one other's experiences, allowing them to build on their expertise.

2.6 Stakeholder Engagement and Implementation of Road Infrastructure Projects

In any development project, it is crucial to have stakeholders' involvement through every phase of the project cycle. Involvement of people in their developments speeds economic and social

progress while guaranteeing that the developmental benefits are equitably distributed (Wen & Qiang, 2019). Among other activities, stakeholders are involved in procurement of materials, resources and people coordination, evaluation of risks and project implementation. In Kenya, public participation is enshrined in the supreme constitution of Kenya (2010). Parliamentary Acts on County Governments (2012) and Public Finance Management (2012) mandated all County Governments to collect the views of stakeholders and involve them in decision making in all developmental projects as part of stakeholder participation. Public Participation Act of 2018 reinforced the need for stakeholder participation.

Several studies have proved the importance of involving stakeholders in execution of various projects. In Rwanda, in an investigation by Kobusingye *et al* (2017), it was discovered that involvement of the stakeholders in execution of projects contributed hugely to outcome of the project (rate of 0.971). They studied the case of water, sanitation, and hygiene (WASH) projects using a descriptive survey method. Mugabo & Mulyungi (2018) undertook a similar study focusing on effects of involving stakeholders on success of project execution in Rwanda. The research, which used descriptive research method, found significant positive correlation between stakeholder engagement and project success (0.903 rate)

Wamugu and Ogolla (2017) found out that stakeholder participation affected positively as well as significantly the completion of Constituency Development Fund (CDF) projects. The research project focused on Mathira East Constituency, Kenya, and utilised descriptive research design. This is supported by Usadolo and Caldwell (2016) study undertaken on rural Nguni Cattle Project which used Participatory Rural Appraisal (PRA) for its operational focus. The study found that stakeholder participation led to mutual understanding among project parties as a result of collaborative relationships sustained throughout the project.

Participative resource mobilization through stakeholder involvement results in efficient project implementation. Ochieng and Sakwa (2018) found positive statistical correlation between participatory mobilization of resources and the execution of community owned water projects within Kisumu. Ndunda Paul & Mbura (2017) obtained similar results while studying how stakeholder activities affected the success of Machakos County's rural road projects. Both of these researches employed descriptive and correlational research designs.

Musyoki & Gakuu (2018) stated that stakeholders adversely affected project implementation, albeit in a negative manner if ignored. The study undertaken in Embu County using descriptive research design, recommended that county governments needed to work together and consult every stakeholder throughout the process of project identification, resourcing, planning, executing and monitoring & evaluation. This would serve to reduce conflicts between the project management and the stakeholders, and among the stakeholders. Ocharo and Kimutai (2018) found the same results. Their study majored on project management methods and their impact on the execution of power projects in Kenya. It employed explanatory survey research design. From the study, improving involvement from stakeholders results in good communication ensuring early notification of project challenges and avert project delays.

2.7 Theoretical Review

This research used the guidance of theories below:

2.7.1 Theory of Project Implementation

In mid-1990s, Fugate and Knapp had mastered the theory of project implementation. They explained that the one most essential criterion that differentiates profession from craft, is the guidance of theoretical aspects. According to Koskela and Howell (2002), today's project management theory tries to explain project management difficulties including recurrent project failures, lack of dedication to project management methodologies, and sluggishness in methodological renewal.

Implementation, according to Nutt (1983), is a set of procedures created by respective organizational representatives to organize the change process and achieve the required compliance. Project managers utilize the theory of project implementation to implement intended changes in companies by establishing environments conducive to change. They also use it to stay anchored because project implementation is ubiquitous. However, procedures in project execution have been difficult to define.

Pinto and Slevin (1987) state that successfully implementing a project is frequently difficult and complex, which is in line with project implementation theory. As a key to successful completion of a project, a project manager must focus their time and energy to human, technical and financial factors.

Theory of project implementation suggested that a number of determinants can have an impact on project implementation if they are not handled carefully. In this study, the specific factors that may determine successful implementation of road projects were chosen to include: financial issues, lack of involvement of stakeholders and residents, inadequate risk management and inappropriate or inadequate M&E which were wholesomely termed as project management practices. Therefore, theory of project implementation in this project was used to explain how the various project management practices impacted successful road project implementation in Garissa County.

2.7.2 Stakeholders' Theory

Stakeholders Theory serves to model and define stakeholders within an organization and to describe how to manage them as well as their interests (Donaldson and Preston, 1995 and Freeman, 1989). Harrison and Wicks (2013) explains that stakeholders' theory tried to deal with the notion of who and what counts within a project. According to the theory, therefore, the value of a project should not be narrowed to only focus on perceived economic returns but should include all that the stakeholders seek. In contrast to traditional perspective of an organization in which only the proprietors/owners are important, the stakeholder theory suggests that even other parties; local communities, funders, political organisations, government authorities, employees, and consumers are important as well. The goal of this approach is to aid managers in understanding and managing stakeholders strategically. Several studies have emphasized the necessity of stakeholder management. Despite its strategic management origins, this theory has been implemented in various sectors. The way it is applied is unique in that it employs many procedures and evaluation criteria (Harrison & Wicks, 2013).

The approach emphasizes the importance of a strong interaction between stakeholders and top management personnel. Managers should appreciate stakeholders' impact on project success. According to Bridoux & Stoelhorst (2014), stakeholder theory is defined by four key axioms. First, there exists a relationship between a project and its stakeholders, in which the stakeholders are influenced by decisions in the project. Secondly, the theory is concerned with the connection in terms of its nature as described with respect to the stakeholder's outcomes and processes. Thirdly, all stakeholders have intrinsic value, and no one interest group is presumed to be superior to the others. Finally, this approach focuses on management decisions. Stakeholder involvement is critical in road building project planning and implementation, that is, in informing and engaging

stakeholders. Stakeholders directly affected by planning ideas should be involved from the beginning (planning) to the end of a project. In all these processes, a clear communication strategy is required.

Bourne (2016) recommends that stakeholder circle methodology should be applied in management of stakeholders in order to improve implementation of projects. This methodology involves analysing each key stakeholder to understand their influence and expectations from the project. From this knowledge, the project managers then come up with appropriate procedures for engagement with stakeholder.

Stakeholder engagement improve implementation of projects and this is well explained in the stakeholder's theory. Therefore, this study utilised the theory to reinforce the findings that stakeholder participation led to successful implementation of road projects in Garissa County making it relevant to the project under study.

2.8 Conceptual Framework

This describes the blueprint or set of concepts that organizes research and directs scholars through their investigations (Kothari, 2004). This is the response of the researcher to the problem statement which serves to give the study direction. Conceptual framework can change or adapt a model that has been utilized in prior investigations. In its use, a researcher is able to indicate the direction of study and the relationship between the different constructs that the study investigates. In this research, relationship was between predictor variables of funds disbursement, risk management, M&E and stakeholder engagement, and execution of infrastructural road projects in Garissa (dependent variable). Conceptual framework used is represented in Figure 2-1 on the next page.

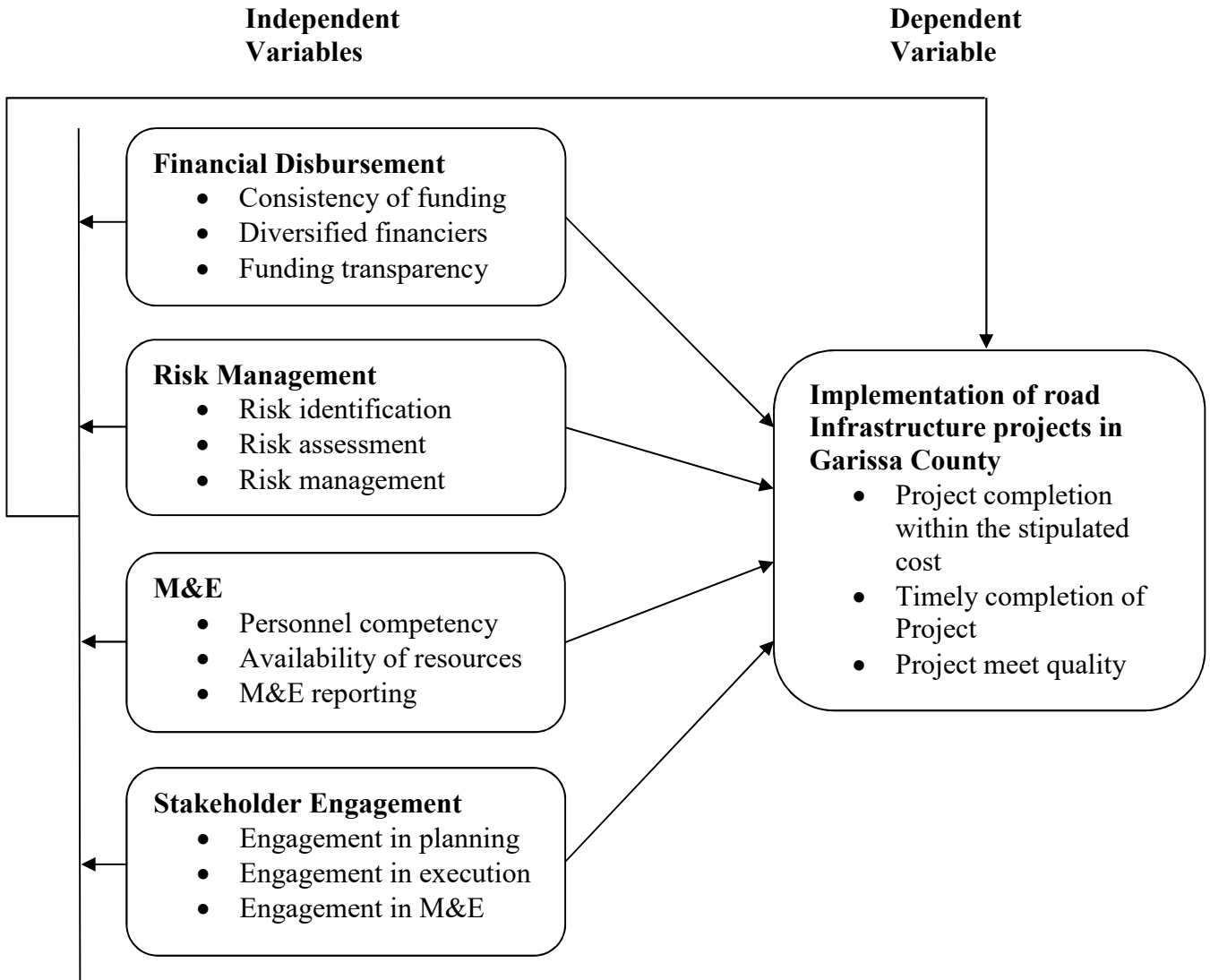


Figure 2-1: Conceptual Framework

2.9 Research Gap

The research gaps that were addressed by this study are explained in Table 2-1 on the next page.

Table 2-1: Knowledge Gap Table

Variable	Author	Focus of Study	Findings	Research Gap	Focus of Current Study
Financial Disbursement	Osman & Kimutai (2019)	Critical success factors in the implementation of road projects in Wajir County, Kenya	Mobilization of resources influences road projects implementation in the greatest way as compared to other factors.	The study focused on county road projects within Wajir County. Its results, thus, cannot represent all projects in different regions including Garissa.	To assess how financial disbursement practices affect implementation of road infrastructure projects in Garissa County
	Murithi <i>et al</i> (2017)	Factors affecting timely completion of public construction projects in Trans-Nzoia County	Financial problems and payments issues had a substantial impact on completion of publicly funded construction projects within agreed timelines. In addition, procurement of construction materials was delayed by lack of resources.	Main focus was on construction projects funded by the county government in Trans-Nzoia. The findings of the study, therefore, cannot be assumed to be the case for all projects in different regions including Garissa and funded by different financiers.	To assess how financial disbursement practices affect implementation of road infrastructure projects in Garissa County
	Kimemia (2015)	Determinants of projects delay in the construction industry in Kenya; The case of selected road projects implemented by Kenya National	Budget allocations suffered from long procedures, misallocation, and embezzlement by management and funds being slashed all the time resulting in compromise of	The study focused on KeNHA projects. This left out projects undertaken by other institutions e.g., KURA, KeRRA, KWS and county	To assess generally how financial disbursement practices by all road agencies affect implementation of road infrastructure projects in Garissa County

	Highways Authority in Kenya's Coast Region	the activities that they were intended for.	governments. Main focus was on Coastal Region Only.	
Adek (2016)	Determinants of successful projects implementation of infrastructure projects in devolved units; a case study of Mombasa County, Kenya	The allocation of county's resources had a substantial impact on project execution. The investigation discovered that the county government's funds for expert and the full implementation processes were insufficient, as were the salaries paid to county project staff.	The study focused on public construction projects in Mombasa County funded by the county government. The results of the investigation, therefore, cannot be assumed to be the case for all projects in different regions including Garissa and funded by different financiers.	To assess generally how financial disbursement practices by all road agencies affect implementation of road infrastructure projects in Garissa County
Wambui <i>et al</i> (2015)	Factors affecting completion of road construction projects in Nairobi City County: Case study of Kenya Urban Roads Authority (KURA)	Availability of funds, their adequacy, accessibility, money management and cost saving measures all impacted the road projects and their completion. For the road projects to be completed successfully, the report proposed that effective resource mobilization methodologies	The study focused on public construction projects in Nairobi funded by the county government. The results of this investigation, therefore, cannot be assumed to be the case for all projects in different regions including Garissa and funded by different financiers.	To assess generally how financial disbursement practices by all road agencies affect implementation of road infrastructure projects in Garissa County

			and capacity assessments be used.		
	Wafula (2017)	Factors influencing road projects performance in Kenya: A case of road contractors in Machakos County	Capital availability significantly contributed to road projects performance. Bureaucracy in fund disbursement process led to delays and inconsistencies in project implementation.	The study was limited to public construction projects in Machakos funded by the county government. The results of the study, therefore, cannot be assumed to be the case for all projects in different regions including Garissa and funded by different financiers.	To assess generally how financial disbursement practices on project funded by various road agencies affect implementation of road infrastructure projects in Garissa County
Risk Management	Njue <i>et al</i> (2019)	Risk management practices and performance of Jua-Kali Empowerment Programmes (JKEP) in Nairobi, Kenya	The conclusion from the study was that risk management methods positively impacted JKEP performance.	The study did not include road projects which are unique as compared to JKEP.	To study influence of risk management on implementation of road infrastructure projects
	Aduma and Kimutai (2018)	Project risk management strategies and project performance at the National Hospital Insurance Fund in Kenya	In hierarchy, risk prevention measures had the highest impact on performance of the project, followed by risk control, acceptance, and lastly risk transfer.	The study was only on risk control strategies as indicators for the study by placing comparison among them and their interaction with the independent variable. My	To assess the relationship between risk management in general and project implementation

			research studies the relationship between risk management in general and project performance.	
Wibowo <i>et al</i> (2018)	Risk Management in Indonesia Construction Project: A case study of a Toll Road Project	Every stakeholder had unique perception of risks based on their interest in the project.	The research was done in Indonesia which has different administrative environment as compared to Garissa, Kenya.	To assess the relationship between risk management and road project implementation in Garissa, Kenya
Matu <i>et al</i> (2020)	Stakeholder participation in project planning: Prerequisite to effective completion of urban road transport infrastructure projects in Kenya	Risk control approaches significantly influenced urban road construction projects completion in Kenya.	The study focused on urban roads in Kenya. Most of the roads in Garissa are rural roads.	To study effect of risk management on implementation of all roads (rural and urban) infrastructure projects
Ondara <i>et al</i> (2017)	Risk management strategies and performance of construction firms in selected counties in Kenya.	The research discovered that risks related to resources, and personnel and management strategies used to control the risks influenced firm's performance.	The study focused on construction firms and not on the projects.	To study effect of risk management on actual implementation of projects

	Zailani <i>et al</i> (2016)	The moderating effect of project risk mitigation strategies on the relationship between delay factors and construction project performance	Environmental issues, resource and management issues negatively affected construction projects' performance.	The investigation was undertaken in Indonesia which has different administrative environment as compared to Garissa, Kenya.	To assess the relationship between risk management and road project implementation in Garissa, Kenya
Monitoring and Evaluation	Wambua and James (2019)	Monitoring and evaluation practices and performance of county funded education projects in Makueni County, Kenya.	M&E was linked to 62.4% successful performance of the projects. The research, however, recommended further studies to understand other factors that accounted for the 37.6% influence on performance.	The study focused public construction projects in Makueni County and financed by the county government. The results of the study, therefore, cannot be assumed to be the case for all projects in different regions including Garissa and funded by different financiers.	To assess generally how M&E practices affect implementation of road infrastructure projects funded by various road agencies in Garissa County
	Wachira & James (2018)	Critical success factors in the implementation of community-based projects in Kiambu County, Kenya	M&E was critical to ensure successful execution of the projects.	The study was in Kiambu county. Its, therefore, cannot be assumed to be the case for all projects in different regions including Garissa. Also, the study was not on road projects.	To assess how M&E practices affect implementation of road infrastructure projects in Garissa County

Wanjala (2017)	Effect of monitoring techniques on project performance of Kenyan State Corporations	State corporations' staff achieved higher performance where monitoring best practices were employed.	The study did not cover the road sector.	To assess how M&E practices affect implementation of road infrastructure projects
Wandiri and James (2020).	Project Management and Performance of Rural Road Construction Projects in Machakos County, Kenya	Project M&E influenced project performance positively and significantly.	The study was in Machakos county. The results of the investigation, therefore, cannot be assumed to be the case for all projects in different regions including Garissa. Also, the study was not on road projects.	To assess how M&E practices affect implementation of road infrastructure projects in Garissa County
Maendo <i>et al</i> (2018)	Effect of project monitoring and evaluation on performance of road infrastructure projects constructed by local firms in Kenya	Monitoring was useful in keeping track of infrastructure projects' implementation. It also offered timely reports on status of project implementation, including input deliveries, work schedules, and expected outcomes. On evaluation, it was concluded that it is used to objectively assess current or finished projects in relation to their conception,	The study was undertaken around Lake Victoria basin which is highly urbanized in comparison to Garissa County.	To assess how M&E practices affect implementation of road infrastructure projects (both rural and urban) in Garissa County

			implementation, and impacts.		
Sialala (2016)	Influence of monitoring and evaluation integration on completion of feeder road projects: A case of Kajiado County in Kenya	Project completion was influenced positively by the quality of M&E integration and the punctuality in budget allocation to the M&E process. Timely M&E integration exposed mistakes in project implementation and provided avenues for project implementers to learn and improve. It also allowed participants in similar industries to gain knowledge experience of each other, allowing them to build on their expertise and knowledge.	The study was in Kajiado county. Its outcomes, therefore, cannot be assumed to be the case for all projects in different regions including Garissa and funded by different financiers. The study also studied feeder roads only while my research aims to study all types of roads within Garissa County.	To assess how M&E practices affect implementation of all road infrastructure projects in Garissa County	
Stakeholder Engagement	Kobusingye <i>et al</i> (2017), Improving success in public investment projects: Lessons from a Government Initiative in	Stakeholder engagement in execution of projects contributed strongly to project outcome (rate of 0.971).	The research was done in Rwanda which has different administrative environment as compared to Garissa, Kenya. The study was in the WASH sector that has different	To assess how stakeholder engagement affect implementation of road projects in Garissa, Kenya	

	Norway to improve quality at entry		dynamics as compared to road sector.	
Mugabo & Mulyungi (2018)	Effect of stakeholder engagement on project success in Rwanda; A Case of Gisenyi Youth New Vision Project	Significant positive relationship existed between stakeholder engagement and project success (0.903 rate).	The research was done in Rwanda which has different administrative environment as compared to Garissa, Kenya. The study was in the water sector that has different dynamics as compared to road sector.	To assess how stakeholder engagement affect implementation of road infrastructure projects in Garissa County
Wamugu and Ogolla (2017)	Role of stakeholders' participation on the performance of constituency development fund (CDF) projects in Mathira East constituency in Kenya	Stakeholder participation affected the performance of CDF projects positively and significantly.	The study was done on CDF projects within Mathira. Its outcomes, thus, cannot be assumed to be the case for all projects in different regions including Garissa and funded by different financiers.	To assess how stakeholder participation affect implementation of road projects
Usadolo and Caldwell (2016)	Stakeholder approach to community participation in a Rural Development Project	Stakeholder participation led to mutual understanding among project parties as a result of collaborative relationships sustained throughout the project.	The study focused on Nguni Cattle Project in particular. It lacked the credibility created by observing different projects.	To use different projects to assess how stakeholder participation affect implementation of projects

Ochieng and Sakwa (2018)	Impact of participatory resource mobilization in the implementation of community water projects on the well-being of beneficiaries" households in Kisumu County	There was positive statistical correlation between participatory mobilization of resources and the implementation water projects owned by the community within Kenya's Kisumu County.	The project was in the water sector. The results therefore cannot be assumed to be the case for road projects.	To assess how stakeholder participation affect implementation of road infrastructure projects
Ocharo and Kimutai (2018)	Project management practices and implementation of power projects in Kenya.	Improving participation of stakeholder's results in good communication ensuring detection of issue on time and averting project delays.	The research focused on Kenya Power projects that are different to road sector projects.	To assess how stakeholder participation affect implementation of road infrastructure projects
Musyoki & Gakuu (2018)	Institutional factors influencing implementation of infrastructure projects by county governments in Kenya: A case of Embu County, Kenya.	Stakeholders adversely affected project implementation, albeit in a negative manner if ignored. Therefore, governments needed to work together and consult every stakeholder throughout the process of identifying, resourcing, planning, executing, monitoring & evaluating projects. This would serve to	The investigation was undertaken out in Embu County. The results of the investigation, therefore, cannot be assumed to be the case for all projects in different regions including Garissa.	To assess how stakeholder participation affect implementation of projects in Garissa County

reduce conflicts between the project management and the stakeholders and also among the stakeholders.

2.10 Summary

This chapter reviews previous studies undertaken with respect to the four study objectives. The studies show how various project management practices affected the execution of projects around the globe. These practices include financial disbursement, project risk management, M&E, and stakeholder participation, which were considered as independent variables in this research. Implementation of infrastructural road projects was considered as the study dependent variable. The literature review was conducted starting from studies undertaken globally then narrowed down to the local area of study. The chapter also included scrutiny of relevant theories and conceptual framework.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

Under this section, methods used to undertake the investigation, including the instrument and approach to collection of data, data analysis as well as result presentation procedures are explained. The diagnostic tests that the research performed prior to running the regression model are also presented herein this chapter.

3.2 Research Design

Arrangement or setting for picking of raw data and later analysis in such a way that the research purpose is relevant while the research process is affordable is known as research design (Garg & Kothari, 2014). In this investigation, descriptive survey research method was employed. This design is used to characterize the current situation, including what individuals believe, what they are doing now, and so on (Neumann, 2013). The design was found to suitably address the what, how, when and where questions, that were the study's major questions.

3.3 Study Target Population

The set of all the items/individuals about which the research intends to draw conclusions is referred to as the population (Blumberg, Cooper & Schindler, 2008). Officials (engineers, inspectors, procurement officials, and site agents'/project managers) working with road agencies and on road projects within Garissa County as well as civic leaders, who acted as representatives of the county residents, were the focus of this research. KeNHA had 6 engineers, 8 inspectors and 2 procurement officials while KURA had 2 engineers, 6 inspectors and 1 procurement official in the North Eastern Region, based in Garissa. KeRRA had 1 engineer, 4 inspectors and 1 procurement official, while the county government had 2 engineers, 3 inspectors and 2 procurement officials dealing with road projects in the County. In addition, there were 24 ongoing road projects within the county under the various road agencies as follows: KENHA 5 projects, KURA 2 projects, KeRRA 7 projects and Garissa County Governments 10 projects. These projects had a contractor each with a site agent/project manager. A total of 100 civil leaders were also identified for the study. This resulted in a target population of 162 individuals who were potential participants in this research. As the considered observation unit, the study focused on this group.

Table 3-1: Study Target Population

Respondents Category	Population	Population in Percentage
KeNHA Officials	16	9.9
KURA Officials	9	5.6
KeRRA Officials	6	3.7
Garissa county government officials	7	4.3
Site Agents/Project managers	24	14.8
Civic leaders representing the residents	100	61.7
Total	162	100

Source: KeNHA (2022), KURA (2022), KeRRA (2022)

3.4 Sample Size and Sampling Procedure

3.4.1 Sample Size

As stated by Kothari and Garg (2014) study, sample size for research need to be of optimum size, not too large or small. It should also meet the efficiency, flexibility, representativeness, and reliability requirements.

Slovin's formula, given below, is normally used to establish the necessary research sample size:

$$n = N / (1 + N * (e^2))$$

Where:

n = the appropriate (representative) sample size

e = allowable margin of error (in this case, 0.05 which represents 95% confidence level)

N = Target population

From the calculation the resultant sample size was to be 115. However, the difference in sample size and the entire population was very small. Therefore, the **whole census** was used for the purpose of data collection.

3.4.2 Sampling Procedure

For this research, **no sampling** was done as the entire population was used for data collection.

3.5 Research Instruments

Research instrument, as stated by Parahoo (2014), is a tool for gathering information. This study involved collecting quantitative and qualitative primary data. As a result, the investigation employed a semi-structured questionnaire as the main tool to collect data. This is because questionnaire surveys allow respondents to give their own information about the topic matter, allowing for a more detailed response. The qualitative raw data was picked through open-ended questions whereas quantitative data was picked through closed-ended questions using a Likert scale. Five anchors of agree strongly, agree, neutral, disagree, and disagree strongly made up the Likert scale, which was an interval scale. Likert scales was an effective tools for assessing attitude, perception, values, and action (Upagade & Shende, 2012). This form of questionnaire allowed for consistency in the questions asked and statistical analysis of the data collected.

3.5.1 Piloting of Instruments

Before it was utilized for the real data gathering, the questionnaire was pre-tested. Pre-testing, according to Babin (2010), is the screening strategy which allows a researcher to administer a questionnaire to a small sample of individuals who shares similar traits to the anticipated respondents before the main exercise in order to receive feedback and make corrections. This strategy allows the researcher to reduce the number of incorrect replies or blanks in surveys caused by respondents' misreading the questions. The questionnaire was pretested in Tana River County, Kenya, under comparable conditions. 17 randomly selected respondents from various road agencies operating in Tana River County was used for the pilot study. This represented 10% of 162 target respondents. The pilot sample size was in line with several publications, which state that, for a pilot study, a sample representative of 10% is considered adequate. An example is Ismail, N., Kinchin, G., & Edwards, J. A. (2017). The study required testing both reliability and validity of the questionnaire.

3.5.2 Instrument Validity

Validity, as used in research, is used to mean how appropriately a study provides answers to research questions or how strong the research conclusions are (Sullivan, 2011). In this study, the questionnaire was evaluated to check its construct, concurrent and content validity. Construct validity was improved by use of stakeholder and project implementation theories to support the study. Concurrent validity was guaranteed by using the semi-structured questionnaire that has been used successful for numerous related researches in the past. Content validity was addressed using expert opinions in order make sure questions posed appropriately

3.5.3 Reliability of Instruments

According to Adejimi *et al* (2010), measurement reliability is commonly investigated through test–retest reliability approach. Cronbach Alpha, which uses the test-retest method, was used to calculate how dependable the proposed investigation was. According to Sullivan (2011) Cronbach Alpha is an internal consistency test used widely to measure correlation scores between answers for the same questions. The Cronbach's Alpha coefficient reflects how well a set of measurement items may be regarded as if they were all measuring the same latent variable (Cronbach, 1951). It is taken as the mean of all the possible split-half coefficients of reliability (Bryman, 2012). Cronbach Alpha Coefficients of 0.7 and above, as per Cronbach (1951) and Cooper and Schindler (2009), are acceptable indicators of reliability. Consequently, a 0.7 threshold was used in this investigation. In this research, reliability and consistency of the questionnaire was established using a pilot study in Tana River County which had comparable conditions to Garissa County. A test –retest was done during this pilot study and the answers of the test and retest compared using Cronbach Alpha measure of internal consistency explained above. Table 3-2 displays the summary of the test results.

Table 3-2: Test Results on Reliability

Variable	Cronbach's Alpha
Project implementation	0.85
Financial disbursement practices	0.80
Risk management practices	0.79
Monitoring and evaluation practices	0.94
Stakeholder participation practices	0.89

All the tested instruments had coefficient of alpha for all variables was above 0.7. It therefore meant that the instruments were stable and consistent in investigating the phenomenon.

3.6 Data Collection Methodology

Obtaining introductory letter issued by the University was the beginning of the data gathering process. The letter was used to secure permission from the various road authorities within Garissa County to undertake the research. The questionnaires were delivered via a drop-and-pick system that took almost three months to complete. The long time taken was because some of the respondents took too much time to complete due to the facts that the task was not in their work mandate nor their KPIs. Reminders had to be sent and calls made in order to have the questionnaires filled. Still, some respondents were implementing projects away from Garissa Town and it took time to locate them and have them fill the questionnaires. So, depending on how available the respondents were and how fast they responded to the questionnaires, filled questionnaires were taken back at various intervals.

3.7 Data Analysis Procedure

Data analysis, according to Smith (2015), is systematic organization, manipulation, processing, and arrangement of data to provide useful information. The questionnaire raw data in this investigation was quantitatively analysed using both the inferential and descriptive statistics. To capture features of various variables under study, descriptive statistics used included average, standard deviation (SD), percentages and frequencies. Pawelski (2016) defines descriptive analysis as statistical processes that employ numerical and graphical summaries to create an impression of collected data. Associations between variables were determined using inferential statistics as described by Pawelski (2016). Pearson correlation together with linear regression were used in this investigation. The research employed general multiple regression model below:

$$I = -\alpha + \beta_1 F + \beta_2 R + \beta_3 M + \beta_4 S + \varepsilon$$

Where;

I = Implementation of Infrastructure Road Projects

F = Financial Disbursement

R = Risk Management

M = Monitoring and Evaluation

S = Stakeholder Engagement

ε = Error term (unexplained variations in the model)

β_0 = constant term

$\beta_1, -\beta_4$ = Independent variable coefficients used to depict sensitivity of to the unit change in F, R, M and S respectively.

The study performed diagnostic tests to make sure that the normality assumption was met before undertaking multiple linear regression analysis. The normality test which was tested through Shapiro-Wilk test. Significance level of 5% was used to ascertain if the data was normally distributed. P-value was compared against the set 0.05 value. A p-value above 0.05 indicated normal distribution. Statistical software, SPSS version 23, was then used to analyse data.

To ascertain the significant influence of predictor variables to dependent variable, Analysis of Variance (ANOVA) was done and F-test value used. For an F Value with $p < 0.05$, it was ascertained that the particular predictor variables significantly predicted the study dependent variable variation.

3.7 Ethical Considerations

This study followed all ethical standards as established in the code of conduct for research. Before kick starting data collection, authorization was sort from the University and the National Commission for Science, Technology and Innovation (NACOSTI). Thereafter, permission had to be sort from participants of this study. During this step, the purpose of the study was

explained and all necessary information availed to the participants. The letter of introduction to data collection tools (Questionnaire) also highlighted this purpose. Confidentiality of collected data was ensured. There was no data sharing between respondents or with any other person, and the data has not been put into any other use apart from the intended academic purpose of this study. All the health and safety procedures as provided by the Ministry of Health in Kenya were followed. Special attention was given to Covid-19 protocol and guidelines in order to protect the respondents as well as the research assistants from infections.

3.8 Operationalization of Variables

Operational definitions of various study variables are given as Table 3-3 on the next page:

Table 3-3: Operational Definition of Variables

Research objectives	Variable	Indicators	Measurement scale	Tools for Data Collection	Type of data analysis	Tools of data analysis
To determine how financial disbursement approached affect the implementation of infrastructural road projects in Garissa	<u>Independent</u>	Consistency of funding	Interval	Semi-Structured Questionnaire	Descriptive Analysis	Mean
	Financial Disbursement	Diversified financiers Funding transparency	Ordinal			SD Frequencies Percentages Pearson's correlation Simple linear regression Analysis
To determine how risk control techniques affect the implementation of infrastructural projects in Garissa County, Kenya	<u>Independent</u>	Risk identification	Interval	Semi-Structured Questionnaire	Descriptive Analysis	Mean
	Risk Management	Risk assessment Risk management	Ordinal			SD Frequencies Percentages Pearson's correlation Simple linear regression Analysis

To determine how monitoring and evaluation approaches/techniques affect implementation of infrastructural road projects in Garissa County, Kenya	<u>Independent</u> Monitoring and Evaluation	M&E personnel competency Availability of resources M&E reporting	Interval Ordinal	Semi-Structured Questionnaire	Descriptive Analysis Inferential analysis	Mean SD Frequencies Percentages Pearson's correlation Simple linear regression Analysis
To determine how engaging stakeholders would affect the implementation of infrastructural road projects in Garissa	<u>Independent</u> Stakeholder Engagement	Engagement in planning Engagement in execution Engagement in M&E	Interval Ordinal	Semi-Structured Questionnaire	Descriptive Analysis Inferential analysis	Mean SD Frequencies Percentages Pearson's correlation Simple linear regression Analysis
To determine how project management methods and practices affect implementation of	<u>Dependent</u> Implementation of	Projects are completed within cost	Interval Ordinal	Semi-Structured Questionnaire	Descriptive Analysis	Mean SD Frequencies Percentages

infrastructural road projects in Garissa County, Kenya	infrastructure road projects	Projects are completed within time Projects meet quality specifications	Inferential analysis	Pearson's correlation Simple linear regression Analysis
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CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1 Introduction

Data analysis on project management techniques and the way they impact execution of road infrastructure projects in Garissa is presented in this chapter. Data were gathered from 162 respondents who made up the population. The demographic data of the respondents is first presented in this chapter, thereafter an analysis of the collected data is done. Quantitative data is given in tables. Qualitative data are given in prose.

4.2 Return Rate

Table 4-1 represents the frequency and proportion of returned versus unreturned Vis a Vis questionnaires.

Table 4-1: Questionnaire Response Rate

Item	Frequency	Frequency as Percentage
Completed questionnaires	135	83.3
Unreturned questionnaires	27	16.7
Total Response Rate	162	100

Form Table 4-1 above, 35 respondents returned the surveys with all necessary information, making up the 83.3% response rate. The 83.3% response rate was sufficient and representative for the study's questions. This is in agreement with Mugenda (2003) assertion that 50% or more response rate means sufficient, 60% is good, whereas 70% or more is exceptional.

4.3 Normality Test

To determine if the population from where sample data was taken is regularly distributed, normality tests were run purposely to ensure that the correct analysis methods were used, that is the correct correlation method (either Pearson Correlation or Spearman Correlation) and regression model (linear or ordinal).

Kolmogorov-Smirnov and Shapiro-Wilk Tests are two numerical methods typically employed to test for normality. Sample sizes between 30 and 2000 can use the Shapiro-Wilk test, whereas sample sizes over 2000 are recommended for the Kolmogorov-Smirnov test. The resultant statistics of the tests are expected to range from zero to one and with significance of 0.05 or

higher for the obtained information to be considered normally distributed (Razali & Wah, 2011). This study has a sample size of 135 that could be used for analysis, therefore, normality assessment was done using Shapiro-Wilk procedure. The normalcy test results are shown below.

Table 4-2: Normality Test

Variable	Shapiro-Wilk Test (W)		
	Statistics	degrees of freedom	Significance level
Implementation	0.984	135	0.109
Financial Disbursement	0.982	135	0.066
Risk Management	0.983	135	0.086
Monitoring And Evaluation	0.985	135	0.106
Stakeholder Participation	0.984	135	0.142

Table 4-2 indicates that the p-values were higher than the planned alpha value (0.05). As a result, the distribution of the data under investigation was typical. Consequently, Pearson Correlation and Linear Regression were chosen to derive inferential statistics.

4.4 Demographic Information of Respondents

Title, employment history, and project management experience were among the demographic information provided by the respondents.

4.4.1 Respondents Designation

According to the questionnaires, designations of respondents were as indicated in the:

Table 4-3:

Table 4-3: Designation of Respondents

	Frequency	Frequency as Percentage (%)
KeNHA Official	12	8.9
KURA Official	7	5.2
KeRRA Official	5	3.7
Garissa County Official	5	3.7
Site Agents/Project Managers	16	11.9
Community Leaders	90	66.7

	Frequency	Frequency as Percentage (%)
Total	135	100.0

Referencing :

Table 4-3, majority (66.7%) were community leaders, 11.9% were contractor’s superintending staff working within Garissa County, 8.9% were KeNHA officials, 5.2% were KURA Officials, 3.7% were Garissa County Officials while 3.7% were KeRRA Officials. This depicts that majority of the respondents were community leaders. This was regarded advantageous since community leaders would provide information from the perspective of customers and stakeholders without worrying about tarnishing the employer's reputation, consequently minimizing prejudice.

4.4.2 Respondents Work Experience

Work experience of respondents with their current organization was as represented in Table 4-4:

Table 4-4: Work Experience of Respondents

	Frequency	Frequency as Percentage (%)
Below 1 year	21	15.5
1 to 5 years	43	31.8
6 to 10 years	54	40.0
Above 10 years	17	12.5
Total	135	100

Evidently, majority of respondents (40%) had job experience from 6 to 10 years, 31.8% between 1 and 5 years, 15.5% less than a year, and 12.5% more than 10 years. Thus, majority had sufficient work experience and, as a result, knowledge about the study's topic.

4.4.3 Respondents' Project Management Experience

Results of respondents' project oversight experience are indicated in Table 4-5.

Table 4-5: Project Management Experience of Respondent

Project Management Experience	Frequency	Frequency as Percentage (%)
Below 1 year	14	10.3
1 to 5 years	48	35.5
6 to 10 years	54	40.0
Above 10 years	19	14.2
Total	135	100

According to the results, 40 percent of respondents had experience in managing projects for between six and ten years, 35.5% between one and five years, 14.2% more than ten years, and 10.3% less than one year. Therefore, majority of respondents had sufficient project management experience and could thus provide acceptable information regarding the study's issue.

4.5 Implementation of Road Infrastructure in Garissa County, Kenya

Results on execution of Infrastructure projects within the County of Garissa are presented in this section. Completion of road projects within budget, schedule, and quality specifications were indicators that projects were being implemented successfully.

4.5.1 Descriptive Analysis

Respondents did indicate, as requested, their degree of agreeing with provided question on execution of road developments within Garissa County. Their answers were subjected to five Likert scale, with disagree strongly = 1, disagree = 2, disagree to a moderate level = 3, agree = 4, and agree to a strong extent = 5. Outcomes are displayed below:

Table 4-6: Implementation of the Infrastructure Road Projects

Statement	Disagree Strongly	Disagree	Moderate	Agree	Agree Strongly	n	Mean	Std. Dev
I1 The road projects undertaken by your road agency in the county are completed within allocated time frame	6 (4.4%)	20 (14.8%)	68 (50.4%)	35 (25.9%)	6 (4.4%)	135	3.11	0.87
I2 Land acquisition and relocation of utilities are always done on time and do	2 (1.5%)	20 (14.8%)	51 (37.8%)	49 (36.3%)	13 (9.6%)	135	3.38	0.90

Statement	Disagree Strongly	Disagree	Moderate	Agree	Agree Strongly	n	Mean	Std. Dev
I3								
not lead to project delays								
The road projects undertaken by your road agency in the county are completed within allocated budget	4 (3%)	20 (14.8%)	45 (33.3%)	50 (37%)	16 (11.9%)	135	3.40	0.98
I4								
Variation of scope of works leading to upward cost appraisals are few for road infrastructure projects within the county	4 (3%)	18 (13.3%)	39 (28.9%)	60 (44.4%)	14 (10.4%)	135	3.46	0.95
I5								
Results of quality tests conducted on works were within specifications	0 (0%)	0 (0%)	25 (18.5%)	70 (51.9%)	40 (29.6%)	135	4.11	0.68
I6								
Minimum repairs are conducted on completed road sections	0 (0%)	1 (0.7%)	26 (19.3%)	71 (52.6%)	37 (27.4%)	135	4.07	0.70
Combined Mean and SD						135	3.59	0.93

The results showed that the combined mean standard deviation were 3.59 and 0.93. This gave a coefficient of variation of 0.26. This means that the distribution of findings were centred on the mean hence the variance was deemed stable.

The statement that road initiatives performed in Garissa County are successfully implemented was generally supported by the respondents. Respondents, in particular, agreed with the assertion that the findings of quality tests conducted demonstrated that activities were done in accordance with specifications (mean=4.11); minimum repairs were conducted on completed road sections (mean = 4.07); variation of scope of works leading to upward cost appraisals were few for road infrastructure projects within the county (mean=3.46); the road projects

undertaken by road agencies in the county were completed within allocated budget (mean=3.40); land acquisition and relocation of utilities were done on time and did not lead to project delays (mean=3.38); and the road projects undertaken by road agencies in the county were completed within allocated time frame (mean=3.11). This shows that the county government and road agencies' road projects in Garissa County are of acceptable quality and are finished on schedule and within the stipulated budget. Therefore, the projects undertaken within Garissa County were always successful.

4.5.2 Qualitative Information

4.5.2.1 The effective execution of road projects

Selected respondents indicated as requested the frequency of poorly implemented road projects within Garissa County (projects with cost overruns, fail to be completed on time, or do not meet quality specifications). Outcomes are displayed below:

Table 4-7: Frequency of Project Failure within Garissa County

	Frequency	Frequency as Percentage (%)
Never	75	55.6
Less often	35	25.9
Often	25	18.5
Total	135	100.0

According to 55.6% of the respondents, projects undertaken by Garissa County Government/ road agencies within Garissa County never failed, 25.9% indicated less often, while 18.5% indicated often. This depicts that projects undertaken by Garissa County Government/ road agencies within Garissa County never failed in terms of quality, cost and timelines

4.5.2.1 Obstacles to the effective completion of road infrastructure projects in Garissa

Respondents were instructed to list various obstacles experienced when trying to accomplish road projects in Garissa County within the specified time, cost, and quality. The obstacles given can be summarised as follows:

- a) Insecurity form Al-Shabaab and inter-clan conflicts
- b) Local politics
- c) Delay in procurement processes

d) Under-pricing by contractors leading to quality compromise

4.6 Financial Disbursement and Implementation of Infrastructural Road Projects in Garissa County

This section includes outcomes on financial disbursement and its impact on execution of Infrastructural road projects in Garissa. The indicators of financial disbursement were consistency of funding, diversified financiers and funding transparency.

4.6.1 Descriptive Analysis

Respondents indicated as requested their degree of agreement with statements on financial disbursement practices procedures on road projects within Garissa County. Their answers were subjected to five Likert scale, with disagree strongly = 1, disagree = 2, disagree to a moderate level = 3, agree = 4, and agree to a strong extent = 5. Results have been summarised below:

Table 4-8: Extent of Agreement on Financial Disbursement Practices

Statement	Disagree Strongly	Disagree	Moderate	Agree	Agree Strongly	n	Mean	Std. Dev
F1 All designs and cost estimates are always finalised before road infrastructure projects are approved for implementation	2 (1.5%)	6 (4.4%)	19 (14.1%)	71 (52.6%)	37 (27.4%)	135	4.00	0.85
F2 The County/National government always allocates sufficient funds before undertaking road infrastructure projects	0 (0%)	9 (6.7%)	61 (45.2%)	37 (27.4%)	28 (20.7%)	135	3.62	0.88
F3 The sources of project financing by the national/county government are diversified	1 (0.7%)	7 (5.2%)	43 (31.9%)	61 (45.2%)	23 (17%)	135	3.73	0.83
F4 There are flexible repayment schedules for borrowed loans financing projects	17 (12.6%)	54 (40%)	42 (31.1%)	22 (16.3%)	0 (0%)	135	2.51	0.91

Statement	Disagree Strongly	Disagree	Moderate	Agree	Agree Strongly	n	Mean	Std. Dev
F5 There is transparency in budgetary allocations towards road infrastructure projects with the information easily available for public scrutiny	3 (2.2%)	16 (11.9%)	43 (31.9%)	55 (40.7%)	18 (13.3%)	135	3.51	0.94
F6 There are no complain from contractors from late payments	12 (8.9%)	30 (22.2%)	44 (32.6%)	38 (28.1%)	11 (8.1%)	135	3.04	1.09
Combined Mean and SD						135	3.40	1.04

The combined mean and combined standard deviation were 3.4 and 1.04, in that order, according to the results. As a result, the standard deviation/mean had a coefficient of variation of 0.3. This means that the distribution of findings was centred on the mean hence the variance was deemed stable.

Generally the respondents agreed that financial disbursement practices for road projects undertaken in Garissa County were adequate (combined mean of 3.4). Particularly, they agreed to a great extent that designs and cost estimates are always finalised before road infrastructure projects are approved for implementation (mean=4.00), followed by the sources of project financing by the national/county government are diversified (mean=3.73), the county government allocates sufficient funds to road infrastructure projects (mean = 3.62), there is transparency in budgetary allocations towards road infrastructure projects with the information easily available for public scrutiny (mean=3.51), there were no complaints from contractors from late payments (mean=3.04) and there are flexible repayment schedules for borrowed loans financing projects to a moderate extent (mean=2.51).

4.6.2 Qualitative Information

The descriptive data analysed above was validated through responses given by the respondents on frequency of delays in projects due to late payments and financial challenges experienced during project implementations. The data collected is presented below:

4.6.2.1 Stalling of Infrastructure Road Projects as a Result of Delayed Payments

Respondents indicated as requested how frequent road projects undertaken by Garissa County Government/ road agencies within Garissa County stall due to delayed payments. Outcomes were as summarised below:

Table 4-9: Stalling of Infrastructure Road Projects due to Delayed Payments

	Frequency	Percentage (%)
Never	73	54.1
Less often	38	28.1
Often	24	17.8
Total	135	100.0

Referencing below:

Table 4-9, 54.1% of respondents said that the Garissa County Government/ road agencies within Garissa County never stall due to delayed payments, 28.1% indicated less often, while 17.8% indicated often. This depicts that road projects undertaken by Garissa County Government/ road agencies within Garissa County never stalled due to delayed payments.

4.6.2.2 Challenges Experienced Financially with Regards to Infrastructure Road Projects

Respondents were also asked to list any financial difficulties they had with road projects that the county government or road organizations had taken up in Garissa County. The financial challenges are summarised below:

- a) Lack of financial capacity from contractors to carry out large portions of the project before receiving payments from implementing agencies. This delayed the rate of execution of works. Most of the contractors depended on loans from banks with high interest rates in case of late repayments
- b) Front loading by contractors leading to high bills during the initial phases of projects that goes against budget allocations by the government
- c) Delays in payments especially when transitioning from one financial year to the other and from government to government
- d) Insufficient infrastructure budgets by government limiting number of projects undertaken.

4.6.3 Correlation Analysis

Using Pearson's correlation analysis, it was determined that cash disbursement processes and the execution of road infrastructure projects in Garissa were related. Table 4-10 gives the correlational statistics.

Table 4-10: Correlation between Financial Disbursement Practices and Implementation of Infrastructure Road Projects in Garissa

		Implementation of infrastructure road projects in Garissa	Financial disbursement practices
Implementation of infrastructure road projects in Garissa	Correlation (Pearson)	1	.787**
	Significance (2-tailed)		.00
	N	135	135
Financial disbursement practices	Correlation (Pearson)	.787**	1
	Significance (2-tailed)	.00	
	N	135	135

** . Correlation was significant at 0.05 level

The execution of infrastructural road projects within Garissa County had a 0.78 coefficient of correlation with financial distribution processes, with a significance level of $p=0.00 < 0.05$. This shows that the effective completion of road development projects in Garissa County is strongly positively related to money disbursement.

Since there is significant correlation between funding disbursement processes and execution of infrastructural projects in Garissa, null hypothesis for the first objective was rejected. The following alternate hypothesis was adopted: Implementation of road infrastructure projects in Garissa was influenced by funding distribution.

4.6.4 Regression Statistics

In order to comprehend the impact of financial disbursement procedures on execution of road infrastructure projects in Garissa, regression analysis was undertaken. Outcomes displayed in Table 4-11:

Table 4-11: Regression of Influence of Financial Disbursement on Implementation of Road Infrastructure Projects in Garissa

Model Summary									
Model	R	R ²	R ² (Adjusted)	Std. Estimate Error	Change Statistics				
					R ² Change	F Change	df1	df2	Sig. F Change
1	.787 ^a	.619	.616	.33278	.619	216.066	1	133	.000

ANOVA							
Model		Squares	Sum of Squares	df	Mean Square	F	Significance
1	Regression	23.928		1	23.928	216.066	.000 ^b
	Residual	14.729		133	.111		
	Total	38.657		134			

Coefficients^a						
Model		Unstandardized		Standardized	t	Significance
		B	Std. Error	Beta		
1	(Constant)	.795	.192		4.138	.000
	Financial disbursement practices	.821	.056	.787	14.699	.000

a. Dependent variable: Execution of road infrastructure projects in Garissa County

b. Predictors: (Constant), Financial disbursement practices

From Table 4-11 above, $R^2 = 0.619$. This means that, *ceteris paribus*, changes in financial disbursement practices predict 61.9% variation in execution of road projects within Garissa. From ANOVA, F-test gave an F Value of 216 for $p=0.000 < 0.05$. This means that financial disbursement practices are significant in prediction of successful execution of road e projects

within Garissa. The results of the regression coefficients explain that holding all other factors constant, execution of road infrastructure projects in Garissa would remain constant at 0.795 if the financial disbursement practices did not change and that unit variation in financial disbursement practices would result in a change of 0.821 in successful execution of infrastructural road projects in Garissa County.

4.7. Risk Management and Implementation of Infrastructure Road Projects in Garissa County

This section presents outcomes of risk control and how it affects execution of infrastructural road projects in Garissa County. Indicators of risk control were risk identification, risk assessment and risk management.

4.7.1. Descriptive Analysis

Respondents indicate as requested their agreement with risk management practices. Their responses were based on five Likert scale in which disagree strongly = 1, disagree = 2, moderate extent = 3, agree = 4 and agree strongly = 5. Outcomes have been provided in Table 4-12.

Table 4-12: Degree of Agreement with Risk Management Practices

Statement	Disagree Strongly	Disagree	Moderate	Agree	Agree Strongly	n	Mean	Std. Dev
R1 Project team lists adverse weather conditions and force majeure as a risk	1 (0.7%)	2 (1.5%)	44 (32.6%)	50 (37%)	38 (28.1%)	135	3.90	0.85
R2 The project team identifies delayed land acquisition and relocation of amenities as risks	2 (1.5%)	5 (3.7%)	42 (31.1%)	53 (39.3%)	33 (24.4%)	135	3.81	0.90
R3 The project team estimates the probability of risk occurrence and reoccurrence before commencing project	15 (11.1%)	33 (24.4%)	59 (43.7%)	23 (17%)	5 (3.7%)	135	2.78	0.98

Statement	Disagree Strongly	Disagree	Moderate	Agree	Agree Strongly	n	Mean	Std. Dev
R4 The project team establishes the impact of risks	26 (19.3%)	35 (25.9%)	52 (38.5%)	19 (14.1%)	3 (2.2%)	135	2.54	1.02
R5 The road agency contracts contractors and engineers to implement road infrastructure projects as a way of transferring risks to other parties	0 (0%)	7 (5.2%)	33 (24.4%)	50 (37%)	45 (33.3%)	135	3.99	0.89
R6 The project implementation team holds regular meetings aimed at risk management	0 (0%)	12 (8.9%)	50 (37%)	52 (38.5%)	21 (15.6%)	135	3.61	0.85
Combined Mean and SD						135	3.44	1.08

Most of respondents agreed that the road agency contracts contractors and engineers to implement road infrastructure projects as a way of transferring risks to other parties (mean=3.99), followed by the project team lists adverse weather conditions and force majeure as a risk (mean=3.90), the project team identifies delayed land acquisition and relocation of amenities as risks (mean=3.81), the project implementation team holds regular meetings aimed at risk management (mean=3.61), the project team estimates the probability of risk occurrence and reoccurrence before commencing the project (mean=2.78), and the project team establishes the impact of risks (mean=2.54). This depicted that project implementation team establishes risks as well as estimates probability of risk occurrence and reoccurrence before commencing the project. The team also manages risks by holding regular meetings and transferring risks.

The findings had a combined mean and combined standard deviation as 3.44 and 1.08 in that order. This gave a coefficient of variation of 0.31. This means that the distribution of findings was centred on the mean hence the variance was deemed stable. The combined mean, 3.44, means that generally respondents concurred that risk management practices were employed on road projects within Garissa County

4.7.2. Qualitative Information

4.7.2.1. Necessity of Risk Management Plan

Respondents indicated as requested whether they thought it is necessary to have a risk management plan for road infrastructure projects undertaken in Garissa County and explain their answers. Outcomes displayed in the below table.

Table 4-13: Necessity of Risk Management Plan for Infrastructure Road Projects in Garissa County

	Frequency	Percentage (%)
Yes	135	100.0
No	0	0.0
Total	135	100

From the above table, the interviewees agreed that there is need for risk management plan for road infrastructure projects undertaken within Garissa County. The reasons the respondents gave could be summarised as follows:

- a) To reduce likelihood of risk occurrence hence increase probability of project success
- b) To avoid loss of time as a result of risk occurrence
- c) To avoid cost overruns
- d) To avoid quality non-conformance due to risks

This depicts that there is need for comprehensive risk management plan for road projects implemented within Garissa County to promote project success.

4.7.2.2 Project Failure due to Unidentified Risks

The respondents were requested to indicate how frequent projects undertaken by Garissa County Government/ road agencies within Garissa County fail due to risks not. The results have been given in Table 4-14.

Table 4-14: Project Failure due to Unidentified Risks for Road Projects in Garissa County

	Frequency	Percentage (%)
Never	88	65.2
Less often	28	20.7
Often	19	14.1
Total	135	100.0

65.2% of respondents were in agreement that projects undertaken by Garissa County Government/ road agencies within Garissa County never failed due to risks not identified, 20.7% indicated less often, while 14.1% indicated often. This depicts that project undertaken by Garissa County Government/ road agencies within Garissa County never fail due to risks not identified.

4.7.3 Correlation Analysis

Relationship existing between risk control and implementation of infrastructural road projects within Garissa was established by means of Pearson’s correlation analysis. Table 4-15 gives the correlational statistics.

Table 4-15: Correlation between Risk Management Practices and Implementation of Road Infrastructure Projects in Garissa County

		Implementation of road infrastructure projects in Garissa	
		Risk management practices	
Implementation of road infrastructure projects in Garissa	Correlation (Pearson)	1	.691**
	Significance (2-tailed)		.000
	n	135	135
	Correlation (Pearson)	.691**	1
	Significance (2-tailed)	.000	

Risk management practices	n	135	135
----------------------------------	---	-----	-----

** . Correlation was significant at the 0.05 level (2-tailed).

Referencing Table 4-15, risk management had correlation coefficient of 0.691 for $p=0.00<0.05$. Therefore, risk management has medium positive correlation with successful execution of infrastructural road projects in Garissa County.

Therefore, the null hypothesis, for the second objective under investigation, which stated that no significant correlation existed between risk control methods and execution of projects in Garissa was rejected. The alternative hypothesis was thus adopted: risk management influenced implementation of infrastructural road projects within Garissa County.

4.7.4 Regression Statistics

Analysis was done to understand impact of risk control approaches on the implementation of road infrastructure projects within Garissa. Outcomes have been given under Table 4-16.

Table 4-16: Regression of Influence of Risk Management Practices on Implementation of Road Infrastructure Projects in Garissa County

Model Summary									
Model	R	R ²	R ² Adjusted	Estimate Std. Error	Change Statistics				
					R ² Change	F- Change	df1	df2	Sig. F- Change
1	.691a	.477	.474	.38970	.477	121.543	1	133	.000

a. Predictors: (Constant), Risk management practices

Enova						
Model		Squares' sum	df	Mean Square	F	Significance
1	Regression	18.459	1	18.459	121.543	.000b
	Residual	20.199	133	.152		
	Total	38.657	134			

Coefficients^a					
Model		Unstandardized	Standardized	t	Significance

	B	Std. Error	Beta		
(Constant)	1.024	.235		4.360	.000
1 Risk management practices	.746	.068	.691	11.025	.000

a. Dependent Variable: Execution of road infrastructure projects in Garissa County

b. Predictors: (Constant), Risk control practices

From Table 4-16, $R^2 = 0.477$. This means that, *ceteris paribus*, changes in risk management practices predict 47.7% variation with regards to road projects implementation within Garissa. F-test from ANOVA gave an F Value of 121 for $p=0.000 < 0.05$. Risk control, therefore, was significant in predicting successful road infrastructure projects execution in Garissa County. The regression coefficients explain that holding all other factors constant, Execution of Road Infrastructure Projects in Garissa County would remain constant at 1.024 if the risk management practices did not change and that unit change of risk management practices would impact a change of 0.746 in successful carrying out of road infrastructure projects in Garissa.

4.8. M&E and Implementation of Infrastructural Road Projects in Garissa County

Outcomes on M&E and how it influences execution of road infrastructure projects in Garissa are given under this section. The indicators studied were M&E personnel competency, availability of resources for M&E and M&E reporting.

4.8.1. Descriptive Analysis

Respondents indicated as requested their agreement with statements about M&E practices. Outcomes displayed in Table 4-17:

Table 4-17: Agreement with M&E Practices

Statement	Disagree Strongly	Disagree	Moderate	Agree	Agree Strongly	n	Mean	Std. Dev
M1 Road agency recruits qualified M&E personnel through a competitive staffing process	4 (3%)	5 (3.7%)	41 (30.4%)	56 (41.5%)	29 (21.5%)	135	3.75	0.93
M2 The road agency conducts adequate capacity building to the M & E team for the road projects	18 (13.3%)	51 (37.8%)	49 (36.3%)	17 (12.6%)	0 (0%)	135	2.48	0.88
M3 There exist appropriate measuring tools and techniques for the M & E process which are always used	2 (1.5%)	5 (3.7%)	44 (32.6%)	45 (33.3%)	39 (28.9%)	135	3.84	0.93
M4 Qualified consultants are recruited to spearhead the M & E process in regard to road projects	10 (7.4%)	42 (31.1%)	42 (31.1%)	41 (30.4%)	0 (0%)	135	2.84	0.94
M5 M&E reporting is carried out in the project regularly	0 (0%)	1 (0.7%)	42 (31.1%)	63 (46.7%)	29 (21.5%)	135	3.89	0.74
M6 M&E recommendations are incorporated into the project for implementation	3 (2.2%)	10 (7.4%)	49 (36.3%)	56 (41.5%)	17 (12.6%)	135	3.55	0.88
Combined Mean and SD						135	3.39	1.04

Respondents agreed that M&E reporting is carried out in projects regularly (mean=3.89); followed by existing appropriate measuring tools and techniques for the M & E process which

are always used (mean=3.84); the road agencies recruits qualified M&E personnel through a competitive staffing process (mean=3.75); M&E recommendations are incorporated into the project for implementation (mean=3.55); and qualified consultants are recruited to spearhead the M & E process in regard to road projects (mean=2.84). However, they disagreed that road agencies conduct adequate capacity building for the M & E teams (mean=2.48). Generally, this depicts that the road agencies had good M&E systems which were well resourced and whose findings were incorporated into the projects for implementation (Combined mean of 3.39).

The findings had a combined mean of 3.39 and combined standard deviation as 1.04. This gave a coefficient of variation of 0.31. This means that the distribution of findings was centred on the mean hence the variance was deemed stable.

4.8.2. Qualitative Information

4.8.2.1. Influence of M&E on Road Project Success

Respondents were required to outline which ways M&E influence success of road infrastructure projects with Garissa County. The findings are summarised below:

- a) M&E helps to track project implementation. This way, challenges faced during implementation are identified and mitigated in time leading to successful project execution in terms of time, quality and cost
- b) Lessons learnt from previous projects can be incorporated into current projects therefore ensuring project success

4.8.2.2. Effectiveness of Monitoring and Evaluation Practices

Interviewees were requested to indicate how effective they thought the current monitoring and evaluation practices established by Garissa County Government/ road agencies within Garissa were. The resultant responses have been provided in Table 4-18.

Table 4-18: Effectiveness of M&E Practices in Infrastructural Road Projects in Garissa County

	Frequency	Percentage (%)
Not Effective	14	10.4
Least Effective	16	11.9
Effective	60	44.4
Very Effective	45	33.3
Total	135	100.0

Most respondents, 44.4%, indicated that the current monitoring and evaluation practices established by Garissa County Government/ road agencies within Garissa were effective, 33.3% indicated that the current monitoring and evaluation practices established by Garissa County Government/ road agencies within Garissa County were very effective, 11.9% indicated that the current monitoring and evaluation practices established by Garissa County Government/ road agencies within Garissa County were least effective while 10.4% indicated that the current monitoring and evaluation practices established by Garissa County Government/ road agencies within Garissa County were not effective. This depicts that the current monitoring and evaluation practices established by Garissa County Government/ road agencies within Garissa County were effective.

4.8.3 Correlation Analysis

Relationship between M&E methods and execution of road infrastructure projects within Garissa was established by means of Pearson's correlation analysis. Table 4-19 gives the correlational statistics.

Table 4-19: Correlation between M&E Practices and Implementation of Road Infrastructure Projects in Garissa County

		Implementation of road infrastructure projects in Garissa	
			M&E practices
Implementation of road infrastructure projects in Garissa	Correlation (Pearson)	1	.825**
	Significance (2-tailed)		.000
	n	135	135
M&E practices	Correlation (Pearson)	.825**	1
	Significance (2-tailed)	.000	
	n	135	135

** . Correlation was significant at 0.05 level (2-tailed).

Referencing Table 4-19, coefficient of correlation was 0.825 for $p=0.00 < 0.05$. This depicts a significant relationship existing between M&E and successful carrying out of infrastructural road projects in Garissa.

Therefore, the null hypothesis for the third objective, stating a no significant correlation exists between M&E methods and implementation of road infrastructural projects within Garissa was rejected. The alternative hypothesis was adopted: M&E influenced implementation of road infrastructure projects within Garissa.

4.8.4 Regression Statistics

Analysis conducted to understand the existing association between M&E practices on road projects execution within Garissa gave the following results:

Table 4-20: Regression of Influence of M&E Methods on Implementation of Road Infrastructure Projects in Garissa County

Model Summary									
Model	R	R ²	R ² (Adjusted)	Estimate Std. Error	Change Statistics				
					R ² Change	F Change	df1	df2	Sig. F Change
1	.825a	.681	.679	.30433	.681	284.380	1	133	.000

a. Predictors: (Constant), Monitoring and evaluation practices

Enova						
Model		Squares' sum	df	Mean Square	F	Significance
1	Regression	26.339	1	26.339	284.380	.000b
	Residual	12.318	133	.093		
	Total	38.657	134			

Coefficients^a							
Model		Coefficients (Unstandardized)		Coefficients (Standardized)		t	Significance
		B	Std. Error	Beta			
	(Constant)	.733	.171			4.277	.000
1	Monitoring and evaluation practices	.842	.050	.825		16.864	.000

a. Dependent Variable: Execution of road infrastructure projects in Garissa County

b. Predictors: (Constant), Monitoring and evaluation practices

From Table 4-20, $R^2 = 0.679$. This means that, *ceteris paribus*, changes in M&E practices predict 67.9% variation in execution of road construction projects within Garissa County. From ANOVA Statistics, F-test gave an F Value of 284 for $p=0.000 < 0.05$. This means that M&E practices were significant in predicting successful execution of road infrastructure projects in Garissa. The regression coefficients explain that holding all other factors constant, execution of road infrastructure projects in Garissa County would remain constant at 0.733 if the M&E practices did not change and that unit change of risk management practices would impact a change of 0.842 in the successful carrying out of road infrastructure projects within Garissa County.

4.9. Stakeholder Engagement and Implementation of Infrastructural Road Projects in Garissa

Findings on stakeholder engagement are presented in this section. The indicators under study for stakeholder engagement practices were stakeholder engagement in planning, in project execution, and in M&E.

4.9.1. Descriptive Analysis

Respondents indicated as requested their agreement with statements about stakeholder engagement practices. The analyses provided in Table 4-21.

Table 4-21: Extent of Agreement on Stakeholder Engagement Practices

Statement	Disagree Strongly	Disagree	Moderate	Agree	Agree Strongly	N	Mean	Std. Dev
S1 Stakeholders get involved in budgeting for road infrastructure projects	22 (16.3%)	35 (25.9%)	35 (25.9%)	36 (26.7%)	7 (5.2%)	135	2.79	1.16
S2 Stakeholders get involved in preparation of implementation schedules of road infrastructure projects	16 (11.9%)	38 (28.1%)	43 (31.9%)	34 (25.2%)	4 (3%)	135	2.79	1.04
S3 Stakeholders participate in pre-construction meetings	1 (0.7%)	25 (18.5%)	39 (28.9%)	33 (24.4%)	37 (27.4%)	135	3.59	1.10
S4 Stakeholders follow all construction activities to make sure that their interests are taken care off	2 (1.5%)	15 (11.1%)	36 (26.7%)	59 (43.7%)	23 (17%)	135	3.64	0.94
S5 Project implementation team seeks and receives feedback on quality of work from other stakeholders	0 (0%)	4 (3%)	67 (49.6%)	47 (34.8%)	17 (12.6%)	135	3.57	0.75
S6 Community responses were taken into consideration during	0 (0%)	4 (3%)	32 (23.7%)	68 (50.4%)	31 (23%)	135	3.93	0.76

Statement	Disagree Strongly	Disagree	Moderate	Agree	Agree Strongly	N	Mean	Std. Dev
the monthly progress meetings								
Combined Mean and SD						135	3.39	1.06

Respondents agreed that Community responses were taken into consideration during the monthly progress meetings (mean=3.93), followed by stakeholders stay in touch with all construction procedures to make sure that their interests are looked upon (mean=3.64), stakeholders participate in pre-construction meetings (mean=3.59), the project implementation team seeks and receives feedback on quality of work from other stakeholders (mean=3.57), Stakeholders are involved in budgeting for road infrastructure projects (mean=2.79) and stakeholders are involved in preparation of implementation schedules of road infrastructure projects (mean=2.79). This depicts that there is significant involvement of various stakeholders in road projects within Garissa County (combined mean =3.39).

The findings had combined mean of 3.39 and combined standard deviation as 1.06. This gave a coefficient of variation of 0.31. This means that the distribution of findings was centred on the mean hence the variance was deemed stable.

4.9.2. Qualitative Information

4.9.2.1 Stakeholder Engagement and Success of Road Projects

Respondents indicated as requested whether stakeholder involvement in execution of road projects within Garissa County can contribute to project success and explain their answers. 100% believed that stakeholder involvement lead to project success. The reasons given for the answer are summarised below:

- a) Stakeholder involvement eliminates community resistance, build ownership of the project and create a transparency of project information
- b) Stakeholders provide skills, knowledge and resources requisite for project's execution and they impact opinion of public on the project.
- c) Stakeholders' involvement aid in management of expectations of the different people involved in the project implementation.

4.9.2.1. Effectiveness of Current Stakeholder Engagement Policy

Respondents were asked to indicate how effective the current stakeholder engagement policy was in the projects undertaken by Garissa County Government/ road agencies within Garissa County. Outcomes are as displayed in Table 4-22.

Table 4-22: Effectiveness of Monitoring and Evaluation Practices

	Frequency	Percentage (%)
Not Effective	16	11.8
Least Effective	19	14.1
Effective	58	43.0
Very Effective	42	31.1
Total	135	100.0%

Majority (43.0%) indicated that the current stakeholder engagement policy in the projects undertaken by Garissa County Government/ road agencies within Garissa County were effective, 31.1% indicated that the current stakeholder engagement policy in the projects undertaken by Garissa County Government/ road agencies within Garissa County were very effective, 14.1% indicated that the current stakeholder engagement policy in the projects undertaken by Garissa County Government/ road agencies within Garissa County were least effective while 11.8% indicated that the current stakeholder engagement policy in the projects undertaken by Garissa County Government/ road agencies within Garissa County were not effective. This means that Garissa County Government/ road agencies within Garissa County employed effective stakeholder engagement policies.

4.9.3 Correlation Analysis

Correlation existing between participation of stakeholders and road projects execution within Garissa was established by means of Pearson's correlation analysis.

Table 4-23 gives the correlational statistics.

Table 4-23: Correlation between Stakeholder Engagement Practices and Implementation of Infrastructural Road Projects in Garissa County

		Implementation of road infrastructure projects in Garissa	Stakeholder engagement practices
Implementation of road infrastructure projects in Garissa	Correlation (Pearson)	1	.772**
	Significance (2-tailed)		.000
	n	135	135
Stakeholder engagement practices	Correlation (Pearson)	.772**	1
	Significance (2-tailed)	.000	
	n	135	135

** . Correlation was significant at 0.05 level (2-tailed).

Coefficient of correlation between stakeholder engagement practices and execution of projects in Garissa was 0.772 for $p=0.00 < 0.05$. This depicts that engagement of stakeholders has strong positive relationship with successful execution of road infrastructure projects within Garissa County.

Therefore the null hypothesis for the forth objective which stated that no significant correlation existed between stakeholder engagement practices and implementation of road projects within Garissa was rejected. The alternative hypothesis was adopted: stakeholder engagement practices influenced implementation of road infrastructure projects in Garissa County.

4.9.4 Regression Statistics

Analysis was undertaken to understand how stakeholder engagement influenced execution of infrastructural road infrastructural projects in Garissa County. Resultant findings are given as

Table 4-24.

Table 4-24: Regression of Influence of Stakeholder Engagement Practices and Implementation of Infrastructural Road Projects in Garissa County

Model Summary									
Model	R	R ²	R ² (Adjusted)	Estimate Std. Error	Change Statistics				
					R ² Change	F Change	df1	df2	Sig. F Change
1	.772a	.596	.593	.34285	.596	195.878	1	133	.000

ANOVA							
Model		Squares	sum	df	Mean Square	F	Significance
1	Regression	23.024		1	23.024	195.878	.000b
	Residual	15.633		133	.118		
	Total	38.657		134			

Coefficients^a						
Model		Unstandardized		Standardized	T	Significance
		B	Std. Error	Beta		
1	(Constant)	1.062	.183		5.807	.000
	Stakeholder engagement practices	.746	.053	.772	13.996	.000

a. Dependent Variable: Execution of Road Infrastructure Projects in Garissa County

b. Predictors: (Constant), Stakeholder Engagement Practices

From

Table 4-24, $R^2 = 0.596$. This means that, *ceteris paribus*, changes in stakeholder engagement practices predict 59.6% variation in implementation of infrastructural road projects in Garissa. From ANOVA, F Value was 195 for $p=0.000 < 0.05$. That means that participation of stakeholder was significant in predicting successful execution of road infrastructure projects in Garissa. The regression coefficients explain that holding all other factors constant, carrying out road infrastructure projects in Garissa County would remain constant at 1.062 if stakeholder engagement did not change and that unit change in risk management practices would result in an unstandardized change of 0.746 in successful execution of infrastructural road projects in Garissa County.

4.10. Combined Project Management Practices and Implementation of Road Infrastructure Projects in Garissa

4.10.1 Correlation Analysis

Pearson’s product moment technique was used in assessing existing relationship between Project Management Techniques and execution of road infrastructural projects within Garissa. Outcomes have been summarised in the below table.

Table 4-25: Correlation between project Control methods and Implementation of road infrastructure projects in Garissa County, Kenya

		Implementa tion of infrastruc tural road projects	Financial Disburse ment	Risk Managem ent	Monitorin g and Evaluatio n	Stakehold er Engageme nt
Implementati on of infrastructur al road projects	Correlation (Pearson) Significance (2-tailed) n	1 135				
Financial Disbursement	Correlation (Pearson) Significance (2-tailed)		.787** 1 .000			

		Implemen tation of infrastruc tural road projects	Financial Disburse ment	Risk Managem ent	Monitorin g and Evaluatio n	Stakehold er Engageme nt
	n	135	135			
Risk Management	Correlation (Pearson)	.691**	.534**	1		
	Significance (2-tailed)	.000	.000			
	n	135	135	135		
Monitoring and Evaluation	Correlation (Pearson)	.825**	.614**	.562**	1	
	Significance (2-tailed)	.000	.000	.000		
	n	135	135	135	135	
Stakeholder Engagement	Correlation (Pearson)	.772**	.587**	.518**	.697**	1
	Significance (2-tailed)	.000	.000	.000	.000	
	n	135	135	135	135	135

** . Correlation was significant at 0.05 level (2-tailed).

Referencing the above analysis, there is a significant positive relationships existing between predictor variables and the study dependent variable. Predictor variable with the highest relationship to the dependent variable was monitoring and evaluation practices ($r = 0.825$), followed by financial disbursement practices ($r = 0.787$), stakeholder engagement practices ($r = 0.772$) and lastly financial disbursement ($r = 0.691$). All correlation coefficients were significant at $p\text{-value} < 0.05$.

4.10.2 Regression Statistics

This study employed multiple linear regression to investigate how project control methods (that is the combined predictor variables of financial disbursement, risk management, M&E, and

stakeholder participation) affected execution of road infrastructural projects in Garissa. The analysis results are displayed below:

Table 4-26: Regression of Influence of Project Management Practices on Implementation of Road Infrastructure Projects in Garissa

Model Summary									
Model	R	R ²	Adjusted R ²	Std. Error of the Estimate	Change Statistics				
					R ² Change	F Change	df1	df2	Sig. F Change
1	.930a	.864	.860	.20087	.864	207.018	4	130	.000

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	33.412	4	8.353	207.018	.000b
	Residual	5.245	130	.040		
	Total	38.657	134			

Coefficients^a						
Model		Unstandardized		Standardized	t	Sig.
		B	Std. Error	Beta		
	(Constant)	-.288	.139		-2.068	.041
1	Financial disbursement practices	.344	.046	.330	7.507	.000
	Risk management practices	.214	.044	.198	4.816	.000
	Monitoring and evaluation practices	.357	.051	.350	7.068	.000
	Stakeholder engagement practices	.223	.046	.231	4.866	.000

a. Dependent Variable: Execution of road infrastructure projects in Garissa

b. Predictors: (Constant), financial disbursement practices, risk control approaches, monitoring and evaluation practices, and stakeholder engagement practices

:

Table 4-26, $R^2=0.864$. That is, 86.4% disparity in execution of road infrastructural projects in Garissa is explained by the predictor variable (project management practices) in the model. The 13.6% unexplained difference is as a result of determinants not represented in the regression model.

From ANOVA Statistics, F was 207, meaning a significance of 0. This was less than 0.05 (α -value). Therefore, the model is statistically significant in explaining relationship existing between project control approaches and execution of infrastructural road projects in Garissa.

Taking the coefficients in :

Table 4-26, the regression equation $I = -\alpha + \beta_1F + \beta_2R + \beta_3M + \beta_4S + \varepsilon$, given in Chapter 3 of this project report, becomes:

$$I = -0.288 + 0.334F + 0.214R + 0.357M + 0.223S + \varepsilon$$

From the equation, taking the independent variables (financial disbursement, risk management, M&E, and stakeholder engagement) to be constant at zero, execution of infrastructural road projects in Garissa would be -2.88. Besides, findings of analysis showed that unit positive variation in financial disbursement would result in a 0.334 positive change in implementation of road infrastructural projects in Garissa, unit positive variation in risk control would cause 0.214 positive variation in execution of infrastructural road projects within Garissa, unit positive variation in M&E would result in a 0.357 increase in execution of road infrastructural projects in Garissa, and unit change in stakeholder participation would cause 0.223 variation in implementation of infrastructural road projects within Garissa County when the factors were operating together. This therefore, means that monitoring & evaluation contributes most to successful execution of infrastructural road projects in Garissa, then financial disbursement practices, risk management and lastly stakeholder engagement. At 5% level of significance, financial disbursement, risk control, M&E and participation of stakeholders were all significant in predicting infrastructural road projects execution in Garissa County.

4.11 Discussion of Findings

4.11.1 Implementation of Road Infrastructure Projects in Garissa County

Referencing this study, projects within Garissa County were successfully implemented. They were completed within the allocated time frame with necessary land acquisition and relocation of utilities always done on time. They were also completed within allocated budget with few variations and passed all requisite quality tests.

4.11.2 Financial Disbursement Practices and Implementation of Road Infrastructure Projects in Garissa County

This study discovered that finances for road projects undertaken by Garissa County Government/ road agencies within Garissa County were planned on time, got from diversified sources with flexible payment schedules, were open to public audits and payments to contractors were done on time. The study further discovered that success of road projects undertaken by Garissa County Government/ road agencies within Garissa County depended on the timely financial allocations. The findings corroborated earlier studies by Osman & Kimutai

(2019), Murithi *et al* (2017), Adek (2016) Wambui et al (2015) and Wafula (2017) as discussed under chapter two of this project report.

4.11.3 Risk Management Practices and Implementation of Road Infrastructure Projects in Garissa County

It was found that risk identification, assessment and planning for mitigation are conducted by Garissa County Government/ road agencies within Garissa County before implementing road infrastructure projects. This research project's outcomes proves that existing risk control approaches were effective. It noted that successful projects undertaken by Garissa County Government/ road agencies within Garissa County is attributable to the good risk management/control practices. This was in line with previous studies on relationship that exists between risk management and successful completion of projects as discussed in chapter two of this report. This studies include Matu, J.M *et al* (2020) and Ondara et al (2017) among others.

4.11.4 M&E Practices and Implementation of Road Infrastructure Projects in Garissa County

This study found that there is consistent M&E on road projects undertaken by Garissa County Government/road agencies within Garissa County which are carried out by qualified personnel and consultants and that the M&E recommendations are incorporated into the projects for implementation. However, the study found inadequate capacity building for M&E team. Still, the study discovered that current M&E practices established by Garissa County Government/ road agencies within Garissa County were effective and led to project success. This agreed with previous studies undertaken by Wachira & James (2018), Wandiri and James (2020), Maendo et al 2018) and Sialala (2016) as discussed under chapter two of this report.

4.11.5 Stakeholder Engagement Practices and Implementation of Road Infrastructure Projects in Garissa County

This investigation discovered existing stakeholder engagement; that is in planning, budgeting and execution of road projects with their views being taken into consideration. This study also found the good stakeholder engagement practices had positive influence on the success of infrastructure road projects within Garissa County. Kobusingye *et al* (2017), Mugabo & Mulyungi (2018), Wamugu and Ogolla (2017), Usadolo and Caldwell (2016), Ochieng and Sakwa (2018) and Ocharo and Kimutai (2018) all agree with these findings that involvement of stakeholders in projects contributed hugely to the projects' success stories.

CHAPTER FIVE

SUMMARY OF THE FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1. Introduction

Summary of results, conclusion and recommendations of this study are presented in this chapter.

5.2. Summary of Findings

5.2.1 Implementation of Road Infrastructure Projects in Garissa County

The descriptive statistics in this study gave combined mean of 3.59 for successful project implementation in Garissa County. This depicts that the road projects undertaken by road agency in the county are of acceptable quality, are completed within the allocated budget and within the planned timeframe. Therefore, the projects undertaken within Garissa County were successful. This was supported by qualitative analysis whose findings were that a majority of respondents, 55.6%, indicated that projects undertaken by Garissa County Government/ road agencies within Garissa County never failed. However, the respondent identified some challenges encountered during implementation of the projects which could hinder their successful completion. These included: insecurity from Al-Shabaab and inter-klan conflicts; local politics; delay in procurement processes; and under-pricing by contractors leading to quality compromise

5.2.2 Financial Disbursement Practices and Implementation of Road Infrastructure Projects in Garissa County

From the descriptive statistics in this study, most respondents agreed that appropriate financial disbursement practices were employed on road projects undertaken by Garissa County Government/ road agencies within Garissa County (Combined mean =3.4). Besides, the study found that financial disbursement has strong positive relationship with successful execution of road infrastructure projects in Garissa County. Correlation coefficient was $r = 0.787$ for $p = 0.00 < 0.05$.

These findings were supported by qualitative analysis where 54% of respondents indicated that road projects undertaken by Garissa County Government/ road agencies within Garissa County never stall due to delayed payments. However, some financial challenges were still experienced which included: lack of financial capacity from contractors to carry out large portions of the project before receiving payments from implementing agencies leading to delayed rate of execution of works as most of the contractors depended on loans from banks with high interest

rates in case of late repayments; front loading by contractors leading to high bills during the initial phases of projects that goes against budget allocations by the government; delays in payments especially when transitioning from one financial year to the other and from government to government; and insufficient infrastructure budgets by government limiting number of projects undertaken.

5.2.3 Risk Control and Implementation of Road Infrastructure Projects in Garissa County

From the descriptive statistics in this study the combined mean of risk control techniques came to 3.44 showing that majority of the interviewees concurred that appropriate risk management procedures were employed on road projects undertaken by Garissa County Government/ road agencies within Garissa County. This study also found that management of risks has a positive relationship with successful carrying out of road projects in Garissa ($r=0.691$ for $p=0.00<0.05$). These findings were supported by qualitative analysis where 100% of respondents indicated that is always need for comprehensive risk management plan for successful execution of road infrastructure projects within Garissa County.

5.2.4 M&E and Implementation of Road Infrastructure Projects in Garissa County

From this study, most respondents agreed that appropriate M&E practices were employed on road projects undertaken by Garissa County Government/ road agencies within Garissa County (combined mean=3.39). The study also found that M&E has strong positive relationship with successful execution of road infrastructure projects within Garissa County (correlation coefficient of $r =0.825$ for $p=0.00<0.05$).

These results were supported by qualitative analysis where respondents indicated that they believed M&E helps in successful implementation projects. They indicated that M&E aids in identifying and mitigating problems within a project in time leading to execution of projects within the stipulated time, cost and quality. Also lessons learnt from previous projects through M&E can be incorporated into current project therefore ensuring project success.

5.2.5 Stakeholder Engagement and Implementation of Road Infrastructure Projects in Garissa County

From the descriptive statistics in this study the combined mean of financial disbursement practices was 3.39 showing that most respondents agreed that there were appropriate stakeholder engagement practices employed on road projects undertaken by Garissa County Government/ road agencies within Garissa County. The study also found that stakeholder

engagement practices have strong positive correlation with successful implementation of infrastructural road projects within Garissa County. The coefficient of correlation was $r=0.772$ for $p=0.00<0.05$. These findings were supported by qualitative analysis where 100% of respondents indicated that stakeholder involvement would in turn results to successful execution of Projects.

5.3. Study Conclusions

Objective number one of this study was to determine how financial disbursement practices by road agencies affect implementation of road infrastructure projects in Garissa County, Kenya. The study found that financial disbursement has a strong positive relationship with successful execution of infrastructural road projects in Garissa County.

The second objective was to determine how risk management practices by road agencies affect implementation of road infrastructure projects in Garissa County, Kenya. The outcome revealed risk control as having a positive relationship with execution of infrastructural road projects in Garissa.

The third objective was to iii. To determine how monitoring and evaluation practices by road agencies affect implementation of road infrastructure projects in Garissa County, Kenya. It was proved that monitoring & evaluation has a strong positive relationship with execution of road infrastructure projects in Garissa.

The fourth objective was to determine how stakeholder engagement practices by road agencies affect implementation of road infrastructure projects in Garissa County, Kenya. This study found that stakeholder engagement has a strong positive relationship with execution of infrastructural projects within Garissa.

The overall goal of this study was to determine how project management methods and practices affect implementation of road projects in Garissa County, Kenya. This study found that project management techniques influenced proper execution of road infrastructure projects in Garissa.

5.4. Recommendations of Study

This study and its resultant findings lead to the following recommendations:

5.4.1 Recommendations for Practice

This study recommends the following with regards to practice: that stakeholder be involved more in planning and budgeting for road infrastructure projects; that more qualified consultants

be used to spearhead the M & E process; and that risk analysis be done adequately with regards to estimating the probability of risk occurrence and reoccurrence and impact of risks before commencing projects.

5.4.2 Policy Recommendations

Recommends to policy makers are: that the government can develop a policy of engagement to form an MoU with certain banks to lend money to contactors at a subsidized rates in order to reduce interests to contractors in case of late payments; that the Kenya Public Procurement and Disposal Act (2015) be amended to include clauses that hinder underquoting and front loading; that the government can develop a policy that allows and regulates borrowing and repayment of funds by road agencies in order to create more sources of finance for road projects; and that the project implementers/ road agencies develop a comprehensive capacity building plan for the M & E team as the current practice is not adequate.

5.5. Suggestions for Further Research

This study was on project control approaches and how they impact execution of road infrastructure projects within Garissa Region. Therefore it is suggested that future researchers can validate the results of this study by conducting similar studies in other geographical regions. This would serve to understand whether the conclusions are viable in various locations or only in Garissa County.

This study recommends study on how insecurity, local politics, delay in procurement processes and under-pricing by contractors affect implementation of road projects.

This study further recommends study of the moderating influence of government policies on successful implementation road projects.

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APPENDICES

Appendix I: Letter of Transmittal

Gibson Gicebe Maina

University of Nairobi

Department of Management Science and Project Planning

P.O. Box 48413-00100

Nairobi

Dear Respondent

I am currently undertaking a Master of Arts Degree in Project Planning and Management at the University of Nairobi. As a partial fulfilment of the requirements for the award of the aforementioned degree, I am conducting research on the **Influence of Project Management Practices on Implementation of Road Infrastructural Projects in Garissa County, Kenya**. The study aims to investigate how financial disbursement, project risk management, monitoring and evaluation, and stakeholder participation impact implementation of infrastructural road projects in Garissa County, Kenya. You are hereby invited to be a participant in this study, having been identified as a potential respondent due to your role as a key implementer of road projects within Garissa County. Therefore, vide this letter, I humbly request for your help in the research by filling, as accurately as possible, the attached questionnaire using your own judgements on each question. Please note that there are no wrong answers. All information provided by you in this study will be treated with absolute confidentiality. It will only be used within the contexts of this research.

Gratitude for the time taken on filling in the questionnaire. Your assistance is highly appreciated.

Yours Faithfully

Gibson Gicebe Maina

Appendix II: Questionnaire

Kindly, and as honestly as possible, provide answer to the following questions. The information availed will be treated with confidentiality and only used within the confines of this research. Please don't indicate your name anywhere on this questionnaire.

Section A: Demographic Information

- 1) Kindly indicate your designation category?
 - a) KeNHA Official
 - b) KURA Official
 - c) KeRRA Official
 - d) Garissa County Official
 - e) Community Leader

- 2) What is your work experience with the current organization?
 - a) Below 1 year
 - b) 1 to 5 years
 - c) 6 to 10 years
 - d) Above 10 years

- 3) Kindly indicate your experience in Project Management?
 - a) Below 1 year
 - b) 1 to 5 years
 - c) 6 to 10 years
 - d) Above 10 years

Part B: Implementation of the Infrastructure Road Projects

1. Kindly indicate your opinion about the execution of infrastructural road projects in Garissa County. Indicate by the use of a tick (√) on a 1-5 scale (1 = Disagree Strongly; 2 = Disagree; 3 = Neutral; 4 = Agree; 5 = Agree Strongly).

Statement		Response				
		1	2	3	4	5
I1	The road projects undertaken by your road agency in the county are completed within allocated time frame					
I2	Land acquisition and relocation of utilities are always done on time and do not lead to project delays					
I3	The road projects undertaken by your road agency in the county are completed within allocated budget					
I4	Variation of scope of works leading to upward cost appraisals are few for road infrastructure projects					
I5	Results of quality tests conducted on works are often within specifications					
I6	Minimum repairs are conducted on completed road sections					

2. How frequent do you encounter roads projects that can be rated as poorly implemented within Garissa County (projects with cost overruns, fail to be completed on time, or do not meet quality specifications)?

Never

Less often

Often

3. What challenges have you encountered that make road projects undertaken in Garissa County difficult to complete within the set time, cost and quality?

.....
.....

Part C: Financial Disbursement

1. The statements below relate to financial disbursement practices for projects undertaken within Garissa County. Kindly mark using a tick (√) to show your opinion on the statements (1 = Disagree Strongly; 2 = Disagree; 3 = Neutral; 4 = Agree; 5 = Agree Strongly).

Statement		Response				
		1	2	3	4	5
C1	All designs and cost estimates are always finalised before road infrastructure projects are approved for implementation					
C2	The County/National government always allocates sufficient funds before undertaking road infrastructure projects					
C3	The sources of project financing by the national/county government are diversified					
C4	There are flexible repayment schedules for borrowed loans that finance road projects					
C5	There is transparency in budgetary allocations towards road infrastructure projects with the information easily available for public scrutiny					
C6	There are no complain from contractors from late payments					

2. How frequent do road projects undertaken by Garissa County Government/ road agencies within Garissa County stall due to delayed payments?

- Never
- Less often
- Often

3. What challenges are experienced financially in regard to road projects undertaken by road agencies/county government within Garissa County?

.....

.....

Part D: Risk Management

1. The statements below relate to risk management practices for projects undertaken within Garissa County. Kindly mark using a tick (√) to show your opinion on the statements (1 = Disagree Strongly; 2 = Disagree; 3 = Neutral; 4 = Agree; 5 = Agree Strongly).

Statement		Response				
		1	2	3	4	5
D1	The project team lists adverse weather conditions and force majeure as risks					
D2	The project team identifies delayed land acquisition and relocation of amenities as risks					
D3	The project team estimates the probability of risk occurrence and reoccurrence before commencing the project					
D4	The project team establishes the impact of risks					
D5	The road agency contracts contractors and engineers to implement road infrastructure projects as a way of transferring risks to other parties					
D6	The project implementation team holds regular meetings aimed at risk management					

2. Do you think it is necessary to have a risk management plan for road infrastructure projects undertaken in Garissa County?

Yes

No

Please explain your answer

.....
.....

3. How frequent are projects undertaken by Garissa County Government/ road agencies within Garissa County fail due to risks not identified during planning?

Never

Less often

Often

Part E: Monitoring and Evaluation

1. The statements below relate to monitoring and evaluation practices for projects undertaken within Garissa County. Kindly mark using a tick (√) to show your opinion on the statements 1 = Disagree Strongly; 2 = Disagree; 3 = Neutral; 4 = Agree; 5 = Agree Strongly).

Statement		Response				
		1	2	3	4	5
E1	The road agency recruits qualified M&E personnel through a competitive staffing process					
E2	The road agency conducts adequate training building to the M & E team for the road projects					
E3	There exists appropriate measuring tools and techniques for the M & E process which are always used					
E4	There is a budget allocated specifically for M&E					
E5	M&E reporting is carried out in the project regularly					
E6	M&E recommendations are incorporated into the project for implementation					

2. In which way do you think M&E can influence success of road infrastructure projects with Garissa County?

.....

3. How effective are the current M & E practices established by Garissa County Government/ road agencies within Garissa County for road projects?

Not Effective

[]

Least Effective	[]
Effective	[]
Very Effective	[]

Part F: Stakeholder Engagement

1. The statements below relate to stakeholder engagement practices. Kindly mark using a tick (√) to show your opinion on the statements (1 = Disagree Strongly; 2 = Disagree; 3 = Neutral; 4 = Agree; 5 = Agree Strongly).

Statement		Response				
		1	2	3	4	5
S1	Stakeholders get involved in budgeting for projects					
S2	Stakeholders get involved in preparation of implementation schedules for projects					
S3	Stakeholders participate in pre-construction meetings					
S4	Stakeholders follow construction activities to make sure that their interests are taken care off					
S5	The project implementation team seeks and receives feedback on quality of work from other stakeholders					
S6	Community responses were taken into consideration during the project progress meetings					

2. Do you think stakeholder involvement in implementation of road projects in Garissa County can contribute to project success?

Yes

No

Please explain your answer

.....
.....

3. How effective is the current stakeholder engagement policy in the projects undertaken by Garissa County Government/ road agencies within Garissa County?

Not Effective


Least Effective


Effective

Very Effective

THANK YOU!


Appendix III: NACOSTI Authorization


REPUBLIC OF KENYA


**NATIONAL COMMISSION FOR
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