

**PROJECT MANAGEMENT PRACTICES AND
PERFORMANCE OF THE NATIONAL AGRICULTURAL
AND RURAL INCLUSIVE GROWTH PROGRAM IN
KENYA**

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the Degree of Doctor of Philosophy in Project Management of the
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DECLARATION

This thesis is my original work and has not been presented for a degree in any other University.

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DEDICATION

This work is dedicated to my parents, Isaac and Jackline; my spouse, Lindy Kitongo; and my children, Ryan Wenga, Sabastian Wenga, Eulya Wenga, and Scholastica Wenga, for their continued support and understanding throughout my studies. I also dedicate this work to my siblings, whose encouragement and love have been invaluable along the way.

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ABBREVIATIONS AND ACRONYMS

AIPM	Australian Institute of Project Management
APM	Application Performance Management
CBP	Community-Based Projects
CDF	Constituency Development Fund
CG	County Government
GoK	Government of Kenya
IAPP	International Association for Project Management Practices
KeNHA	Kenya National Highways Authority
MIS	Management Information System
MoALF&I	Ministry of Agriculture, Livestock, Fisheries and Irrigation
NARIGP	National Agricultural and Rural Inclusive Growth Project
NGOs	Non-Governmental Organizations
PBP	Public-Based Projects
PMBOK	Project Management Body of Knowledge
PMC(s)	Project Management Committees
PMIS	Project Management Information Systems
PMP	Project Management Practices
PRINCE2	Projects in controlled environments

RBV	Resource-Based View
RAT	Resource Allocation Theory
SDCD	State Department for Crop Development
SPSS	Statistical Package for Social Sciences
TANGO	Technical Assistance to Non-Governmental Organizations
WB	World Bank

DEFINITION OF OPERATIONAL TERMS

Project Management Information Systems (PMIS) Refers to integrated digital systems used to collect, process, store, and disseminate project information to support planning, monitoring, decision-making, and reporting. PMIS enhances coordination, transparency, and real-time performance tracking in project environments (Project Management Institute [PMI], 2021; Marnewick, 2020).

Project Management Practices Refers to the structured application of knowledge, skills, tools, and techniques including planning, stakeholder engagement, resource allocation, and monitoring to achieve project objectives effectively and efficiently (PMI, 2021; Turner & Müller, 2020)

Project Monitoring Refers to the continuous tracking, review, and reporting of project progress against planned objectives, timelines, and performance indicators to ensure timely corrective action (World Bank, 2023; UNDP, 2020).

Project Performance Refers to the extent to which a project achieves its intended objectives in terms of efficiency, effectiveness, sustainability, stakeholder satisfaction, and impact on beneficiaries (OECD, 2019; PMI, 2021).

Project Planning Refers to the systematic process of defining project objectives, scope, timelines, cost estimates, risks, and resource requirements to guide project implementation. It includes scheduling, budgeting, risk identification, and stakeholder mapping (Kerzner, 2022; PMI, 2021).

Resource Mobilization Refers to the process of identifying, acquiring, allocating, and utilizing financial, human, and material resources required for project implementation and sustainability (UNDP, 2020; Chaplowe & Cousins, 2016).

Stakeholder Participation Refers to the active involvement of individuals, groups, or organizations affected by or interested in a project in decision-making, planning, implementation, and evaluation processes (World Bank, 2020; OECD, 2019).

ABSTRACT

County government projects have been a challenge in Kenya although they play a significant role in promoting social services and economic development. The National Agricultural and Rural Inclusive Growth Programme (NARIGP) has a low percentage of completed projects with many abandoned due to poor project management practices. The study was designed to assess the influence of project management practices on the performance of NARIGP in Kenya. Specifically, this study examined the effect of stakeholder participation, project planning, project resource mobilization, and project monitoring on the project performance of NARIGP while evaluating the moderating role of Project Management Information System (PMIS). An explanatory research design was used to carry out the study covering a stratified sample of 146 respondents selected from a target population of 229. Data was for the study collected through semi structured questionnaires that were administered using Google forms. Descriptive and inferential statistics were used to analyze the quantitative data after coding and entering them in Statistical Package for the Social Sciences (SPSS version 27). Additionally, the qualitative data were analyzed thematically. The study established that stakeholder participation, project planning, project resource mobilization, and project monitoring significantly influenced project performance. The study also established that PMIS significantly moderated the relationship between project management practices and project performance except for project planning. The study concluded that effective project management practices had a positive effect on the performance of NARIGP. The study recommended that county governments should invest more in stakeholder participation, project planning, project monitoring, and use PMIS to increase the efficiency of project resource mobilization and overall performance of the NARIGP projects.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The National Agricultural and Rural Inclusive Growth Project (NARIGP) is a Government of Kenya (GoK) led value chain development and community-based initiative led by the Ministry of Agriculture, Livestock, Fisheries and Irrigation (MoALF&I) State Department for Crop Development, and administered by the World Bank. The project was approved by the World Bank Development Board in August 2016 and commenced its implementation in July 2017, with a proposed five-year implementation period. The project's objective is to increase the productivity and profitability of the targeted rural communities in the identified counties while building their capacity to respond to eligible shocks and emergencies through rapid needs assessment (World Bank, 2017; World Bank, 2023).

NARIGP is being implemented in 21 counties and works to build rural livelihoods through community-driven and value chain development approaches. It consists of four components, namely: community-driven development; strengthening of producer organizations and value chains; county community-driven development; and project coordination, management, and information communication technology (ICT) (Government of Kenya, 2021; World Bank, 2023). The project promotes smallholder farmers' market access through enhanced productivity and strengthening county institutions' capacities.

Project management is increasingly viewed as critical to the success of any development, especially in the public and private sectors. Organizations are constantly challenged to find cost-effective ways of managing their projects while attaining their strategic goals. Most projects face a myriad of challenges in execution and are not completed within the anticipated time or budget (Turner & Müller, 2020). Modern project management (MPM) literature presents project management as a complex process requiring leadership, stakeholder management, and control to achieve strategic

objectives. For example, project success necessitates the formulation and implementation of project control systems that help managers understand relationships between project scope, time, cost, and outcomes (Kerzner, 2022). Modern project management requires a combination of people, process, and technology competencies for the successful execution and completion of projects (PMI, 2021). Projects are characterized by integration of process, and procedures and are usually temporary in nature, existing to create a product, service, or result (PMI, 2021). Another critical aspect of managing projects in the modern era is appreciating the need to develop effective life cycle management frameworks.

The history of project management can be dated back to the early 1900s when the Gantt chart was developed by Henry Gantt. However, the discipline is still considered a young professional field as it has undergone significant developmental changes throughout its brief history (Ika & Munro, 2022). The impetus for structured project management came up with the Manhattan Engineering project, where systematic project management and control methods were utilized to achieve success in executing the project (Ika & Munro, 2022). Currently, project management is guided by professional standards such as the Project Management Body of Knowledge (PMBOK®), Project Management Institute's (PMI) Standards, and PRINCE2 among others. Although the various project management methodologies promote systematic project management, the literature is unanimous that there is no one-size-fits-all approach to project management due to differences in the nature of projects, environments, cultures, and other factors (Flyvbjerg, 2021; Axelos, 2017).

The project management discipline is founded on various theories, including systems theory and contingency theory, among others. Systems theory views a project as a management system comprised of interacting elements, and thus project management should be undertaken by focusing on the system's feedback mechanism and control systems (Kerzner, 2022). On the other hand, contingency theory takes a systems view of project management and states that there is a need to consider situational variables when managing projects (Turner & Müller, 2020). Projects are implemented following a clearly defined project life cycle or a modified version depending on the project's nature and its organizational environment. The PMBOK® Guide categorizes project

management processes into five process groups, namely; project initiation, planning, execution, monitoring and controlling, and closing (PMI, 2021). The process groups provide a framework for dividing and managing projects based on their scope and complexity which aids project management, especially for large and complex projects.

Projects such as NARIGP have a clearly defined start and end time and usually consume a lot of resources when compared to regular operations. As such, project management is critical to ensure that there are adequate resources available to execute the project, and that the project does not exceed its time or budget constraints (Turner & Müller, 2020). Project management assists in monitoring changes that take place during a project's implementation, thereby facilitating timely decision-making to keep the project on track. Project management processes are critical to the success of development projects as evidenced by the World Bank's assertion that effective project management and implementation processes are key to achieving development gains and enhancing accountability at all levels of project implementation (2023). In addition, the United Nations Development Program (UNDP) views project management as a critical component that needs to be emphasized when implementing capital projects to achieve development outcomes.

In the context of county-led or -owned development projects, project management is viewed as a critical tool for promoting participatory governance, especially when implementing community-driven development projects such as NARIGP (World Bank, 2023). County governments are the closest level of governance to the people and, therefore, it is only logical that they are the most effective in implementing development initiatives. As such, county governments should be guided by sound project management principles to enhance effective and efficient implementation of their development agenda (Government of Kenya, 2021; World Bank, 2023).

The implementation of county development projects in Kenya has faced several challenges, including limited capacity in project management, which has had negative implications on project execution and outcomes. Most counties have limited technical skills in implementing development projects which has resulted in poor project designs and implementation (Government of Kenya, 2021; Flyvbjerg, 2021). In addition, there

is a lack of robust systems to monitor and evaluate the performance of development projects, resulting in low accountability and poor sustainability (World Bank, 2023). There are also challenges with regard to the timing of disbursement of funds to implement development projects. The donor's slow-release funds create significant challenges in the timely execution of development projects (Flyvbjerg, 2021). For instance, the NARIGP project requires a high level of technical capacity, but most of the counties lack the necessary skills, leading to poor execution of the project. Furthermore, the project covers a wide geographical area with several implementing entities and diverse stakeholders which complicates the implementation process (World Bank, 2023).

Another challenge facing development projects, especially in the agriculture sector, in Kenya is climate change. Climate change has adverse effects on the yields, production, and productivity of the majority of food crops and livestock. Consequently, climate change is a major risk factor that should be considered when designing and executing agricultural development projects (Kerzner, 2022).

Monitoring and Evaluation (M&E) is one of the key aspects of project management that must be considered when executing any project, including the NARIGP program. M&E provides vital information on whether a project is achieving its intended purpose and objectives. Technology has transformed the way projects are being implemented, and currently, most project management activities are being done using digital technologies. Various Information and Communication Technology (ICT) platforms have been utilized in the execution of the NARIGP project. ICT has played a significant role in promoting accountability and transparency in the execution of the NARIGP program at various levels, including the national, county, and local levels (World Bank, 2023). Generally, the use of ICT in project implementation promotes transparency and integrity and reduces the time required for report generations and other related activities.

The NARIGP project promotes participatory community development to achieve sustainable growth and development. Communities should be actively involved in all stages of a community-based initiative including designing, implementing, and

evaluating the intervention. In other words, community participation should start with establishing a shared vision between the implementing agency and the community (Government of Kenya, 2021). The theory behind community participation suggests that project intervention should be based on a community's strengths, values, and needs for it to be effective (Harrison, 2022). The county government plays a critical role in encouraging community participation because it is the closest political entity to the people and appreciates their needs and aspirations. For example, the county government has the capacity to influence how community members can participate in the execution of the NARIGP project in a way that promotes sustainability and accountability.

1.1.1 Global Perspective of Project Management Practices

In the United States, project management practices in the construction industry relate to the essential features of the project that must be maintained for the project to be effective and successful (Taghinezhad et al., 2021). Project management is defined by Ohara (2015) as a professional's capacity to provide a project item that accomplishes a strategic goal by planning a committed project team and effectively managing suitable managerial and technical methods and techniques while also establishing the most effective and efficient performance routes.

Ling et al., (2018) developed a model of optimum project management practices for Chinese universities and industry partners. The European Commission created the Project Management Methodology Handbook, a simplified approach that can be used for any project (European Commission, 2016). In Germany, Fernandes et al. (2015a) posited that project management serves as a bridge between implementation and operation and the methods of stakeholder participation, as well as their need to incorporate project requirements and process flows from several interdependent projects that deliver an integrated product, service, or capability.

In Germany and Iran, project management principles include informing, consulting, collaborating, and engaging the public through various approaches, such as conducting elections or organizing civil society activities that solicit public opinion at all stages of policy-making. Nevertheless, the public bureaucratic culture discourages public

engagement. Instead, it depends on traditional means of information sharing, such as public hearings, which are often one-sided and do not aim to discover answers (Miller, 2020). This method guarantees that the government is responsive to public demands while increasing the legitimacy of government choices and institutions. Moreover, project management methods foster patriotism and trust in public institutions, raising social inclusion and social capital (Marle & Vidal, 2016).

The use of public-based techniques in development is quickly expanding, with the World Bank boosting loans for public-driven development initiatives in 2003. Project management approaches are frequently seen as a successful means of achieving favorable project results and performance, as evidenced by both subjective and empirical data (Kenley & Harfield, 2015). Although development aid is often transient and initiatives have fixed durations, the goal is for the influence to be long-lasting. As a result, it is critical to put in place the required processes for keeping up and maintaining initiatives after the financing term expires, which is usually between five and ten years. It might include establishing a public management agency to supervise the construction or obtaining extra public funds (Marle & Vidal, 2016).

According to Kerzner (2015) optimal project management methods may increase corporate value, improve benefits realization, and improve benefits management operations. According to Badewi (2016), project management methods are critical for success. Effective project management strategies can increase the chance of project success (Thomas & Mullaly, 2018). Nonetheless, businesses must assess the relevance of each practice, as its influence may differ between enterprises. To effectively execute project management practices, tools and processes must be tailored to the unique environment of the company (Tereso et al., 2019)

1.1.2 Regional Perspective of Project Management Practices

Like global trends, African governments and regional organizations are looking for ways to incorporate environmental governance ideas into national legislation and regional activities. Residents frequently understand the reasons and potential remedies for deforestation and soil erosion and how to employ plants with unique qualities and safeguard their crops from animal damage (Marle & Vidal, 2016). These knowledge,

skills, and resources may be used to improve the efficacy of government programs by using project management principles. Additionally, when individuals can analyze issues, resources, and opportunities, they gain knowledge and become more aware of the elements that influence their lives.

Thus, project management approaches generate a better feeling of accountability among individuals and place government agencies under obligation to act more publicly and effectively manage environmental challenges. Considering the rising usage of project management approaches in decision-making across Africa, boosting women's and youth's access to decision-making processes is critical (Kenley & Harfield, 2015). Project management approaches in environmental reporting in nations such as Lesotho, Malawi, South Africa, and Zimbabwe demonstrate how all stakeholders may be included in decision-making. The African Charter for Public Participation in Development and Transformation also indicates a tendency toward project management approaches (Kostalova, Tetreanova & Svedik, 2015).

A project management approach aggressively solicits and encourages input from individuals who may be affected or interested in a decision. The core premise of project management practices states that individuals whom a choice to have impact to be able to participate in the decision-making process. Project management techniques anticipate that public feedback to impact on the final selection (Kenley & Harfield, 2015). Practices in project management are an integral component of democratic government and a human-centered approach. Project management approaches may be pushed as part of a people-first attitude, questioning the concept that more is better and the logic of centralized hierarchies. Conversely, they contend that many heads are better than one and that project management approaches may support effective and long-term transformation.

Project management practices aim to increase transparency, create government transparency, and promote ownership over development choices, programs, and projects. By adopting project management principles, the public is urged to engage more actively in decision-making procedures that impact their local community. This technique also improves public understanding of the government's workings and allows

individuals to participate in governmental decision-making. Generally, project management approaches enable the general people to have a more significant say in and involvement in projects and programs for development (Marle & Vidal, 2016).

TANGO International study done in 2008 found that project performance is improving significantly, but there is an unfortunate trend with post-performance sustainability, as fewer initiatives are being sustained (Kenley & Harfield, 2015). The World Bank's Operational Evaluation Department performed the initial analysis of project performance and discovered that only nine of the twenty-seven agriculture programs reviewed were rated as maintained eight as doubtful, and ten as not sustained (Marle & Vidal, 2016). Similarly, nine of the seventeen education programs evaluated by the same research and a subsequent World Bank study were assessed as likely to be sustained, five as questionable, and three as unlikely to be sustained. Under the apartheid administration, South Africa had a highly centralized local government structure that attempted to increase the regime's success and dominance, denying the South African population the ability to participate in strategic decisions (Kostalova et al., 2015).

The British administration in Uganda employed an indirect rule approach throughout the colonial era, establishing a fusion administrative structure that minimized public contact. Nevertheless, with the present drive for agricultural decentralization, Uganda is currently among the Third World nations under pressure to implement devolution and promote public engagement in public affairs to ensure open and responsible democratic administration (Kenley & Harfield, 2015).

The International Association for Project Management Practices (IAPP) in 2000 underlined the significance of public engagement in choices that affect their life. It implies that stakeholders should have some influence and control over development activities and the resources and options that affect them. The typical top-down decision-making model is often seen as inefficient for attaining long-term growth. Sadly, many developing nations rely on non-participatory decision-making systems, frequently disconnecting rural populations from resources they should manage and profit from. Several examples of public-based natural resource management systems in Southern Africa and public-based wildlife management in Tanzania show how effective

initiatives are handled with the public's best interests in mind (Pamela et al., 2013).

1.1.3 Local Perspective of Project Management Practices

Maina (2013) states that including stakeholders in development projects is critical. Although more straightforward decisions and extreme circumstances may not require their participation, complicated issues with substantial consequences do. When this participation is proactive rather than reactive, it has the potential to avert future problems. Nevertheless, Karanja (2014) contends that project management procedures are necessary to uncover local knowledge that may have gone unnoticed and expedite attempts to obtain acceptability. Participation of the public in revival planning helps them better understand the process and support initiatives in which they have a say, resulting in sustainability. Project management approaches also give the public a place to stay informed and take actions impacting their community (Pamela et al., 2013).

Meaningful Project management practices are beneficial in several ways, from improving information flow, public understanding government projects, public advocacy, fostering collaboration, and minimizing conflicts to promoting environmental justice (Karanja, 2014). According to Karanja (2014), a project is deemed sustainable if the public or beneficiaries can continue to generate good outcomes without relying on external development partners for as long as the challenge they confront remains. The top-down method formerly asserted that people lacked the skills and expertise to choose what was appropriate. Hence, they could not select their developmental goals, assess them, and determine the essential requirements.

According to Kostalova et al., (2015), the top-down strategy used by most governments and development organizations has hampered the execution of development programs in developing nations. This strategy prohibited the population from owning the projects, resulting in ongoing suffering as development professionals labored on their behalf. Several public development projects, including dams, bridges, schools, and health facilities, have failed due to the top-down methodological approach. Development project management strategies are intended to solve the inadequacies of the top-down approach to public development. According to Karanja (2014), Article 1 of the Kenyan Constitution 2010 (GK, 2010) declares that all agricultural operations in Kenya belong

to the people. The people exercise their sovereignty either directly or indirectly through their chosen representatives. The Constitution also created a decentralized governance structure to encourage resource devolution, agriculture, and local representation. As a result, 47 counties were established where the people could participate in government. As a result, project management methods became a national value and a concept of public service, as defined in Constitutional Articles 10(2a) and 232(1).

The County Government Act (GK, 2012a), the Public Financial Management Act, and the Urban Areas and Cities Act have all underlined the necessity of project management approaches in the devolved government system. These Acts compel the application of project management principles in the development of new laws, the formulation of budget priorities, the assessment of the performance of the public sector and expenditures, and the resolution of complaints. County governments are also in charge of informing the public about project management practices, developing structures and criteria for procedures for project management, and presenting an annual report.

According to Karanja (2014), project management techniques in Kenya's decentralized government have been hampered by insufficient political backing and low levels of civic education. But there is a success story in Makueni County with efficient project management procedures. The County has adopted a theory in which the public is active in selecting development priorities at the grassroots level and participates in prioritizing, planning, and determining the final expenditures for designated projects. According to Kostalova et al., (2015), the County allows the public to be involved in the complete execution of these initiatives. Notwithstanding hurdles, other county administrations have acknowledged the effectiveness of Makueni County's project management procedures. The 2002-2008 National Development Plan emphasizes the necessity of monitoring and assessing policies, initiatives, and projects to ensure they are implemented effectively and efficiently. The public is urged to develop action plans and monitor projects through public committees. Kenya Vision 2030 has chosen flagship projects in various areas, including health, to be developed over five years to encourage long-term growth. Projects are viewed as crucial for fostering growth in the health sector. With the adoption of a new constitution in 2010, most of the services were decentralized to 47 counties to bring decision-making closer to citizens and

enhance service delivery. Development requires efficient management of projects (Karanja, 2014).

1.1.4 Performance of NARIGP

Growing the agricultural sector is crucial for reducing poverty and promoting economic development. Nyoro (2019) notes that the only way to reduce poverty sustainably is to promote economic development and progress. Therefore, it is improbable that industrial expansion to be sustained absent substantial domestic demand, which fundamentally necessitates boosting rural residents' wages. Despite its significance, both the absolute and relative levels of domestic and foreign aid have decreased in support for agriculture. Agriculture accounted for around 11.2 percent of all government spending in the 1980s but only 4.7 percent in 2001 (Nyoro, 2019; Ndungu, 2018). As a result, conventional exports and staples have grown more slowly, and poverty has increased, making it more challenging to fight hunger and poverty. Ratnawati (2020) suggests prioritizing the policies that increase the incomes of rural families through targeted development strategies on crops, livestock, fisheries, irrigation, and farmer institutions is necessary to accomplish growth with equality and eliminate poverty. Over the past three decades since independence, Kenya's economy has slowly fallen due to this and other issues. (Mitullah et al., 2017), based on two case studies, determine that while elite interests in particular sub-sectors have varied in tandem with national (and to a large extent local) politics, some sub-sectors and regions have experienced more interests and benefits than others. Political settlements in the agriculture sector have remained relatively constant, with a general agreement on how the sector be developed and the general policies. The effects on employment have also been very different in these two value chains. Second, sector-specific agreements impact job creation more than regime-based agreements. The authors discovered that liberal politics are not inherently opposed to job creation, and political arrangements in the public sector do not always advance agreements in the private sector.

It is against this background that the significant objectives of NARIGP have to be the point of focus, especially its objective roles in enhancing agricultural productivity, increasing market access, enhancing rural infrastructure, strengthening farmer

organizations, promoting rural entrepreneurship and job creation, enhancing access to financial services; strengthening institutional capacity; strengthening agricultural institutions; enhancing resilience and climate change adaption; promoting inclusive growth; promoting value chain development; enhancing access to markets; and finally, the role in promoting inclusive and sustainable growth. Therefore, this study focused on project management practices and the performance of national agricultural and rural inclusive growth program in Kenya.

1.2 Statement of the Problem

Project management practice effectiveness plays a key role in ensuring the effectiveness of public services in Kenya. This is because the country's devolved government system and the Public Finance Management Act 2012 encourage and demand accountability, transparency, citizen participation, and effective use of public resources for project realization (Republic of Kenya, 2010; Government of Kenya, 2012). Despite the presence of these legal frameworks, it is reported that there are still inefficiencies in public project delivery in Kenya.

According to the World Bank (2025), nearly half of Kenya's public projects, at 47%, are implemented below standard, with the country currently recording a huge deficit of 5.9% of gross domestic product (GDP) and a debt of 68% of GDP, affecting project financing and causing delays and defaults in the delivery of public projects (World Bank, 2025). On the other hand, the Project Management Institute (2025) reports that the country loses more than 600 billion Kenyan shillings yearly due to the slow pace and poor execution of public projects, which can be traced back to a lack of appropriate planning, management, and control practices.

At the county level, it is reported that some counties have less than 10% absorption capacity of their development budget, indicating that some counties are poorly placed to implement the proposed projects (Controller of Budget, 2024). Various studies on project management practices have also shown that in Kenya, there are poor water and infrastructure development projects with weak stakeholder participation, planning, resource mobilisation, and project appraisal processes (Minyiri & Muchelule, 2018; Ong'era & Musili, 2019). According to the Project Management Institute (2021),

achieving project management success requires the implementation of project management practices such as stakeholder participation, planning, resource mobilization, and monitoring to enhance project performance. However, in Kenya, these practices have not been implemented to their full potential, affecting project performance.

Moreover, there is poor stakeholder involvement in public project delivery, which has negative implications for ownership, accountability, and project outcome sustainability (Singh et al., 2017; Jack et al., 2016). The use of Project Management Information System (PMIS) in project management practice is considered key to achieving project management success. This is because it promotes effective use of information for project planning, control, and decision-making, as well as enhancing project coordination and transparency (PMI, 2021). Although there are indications of increased digitization of public service delivery in Kenya, there is a need to fill the research gap on the relationship between project management practices and project performance, with PMIS as a moderator, in the context of devolved government systems. It is against this background that this study sought to establish the effect of project management practices on the project performance of the National Agricultural and Rural Inclusive Growth Project (NARIGP) in Kenya, with PMIS as a moderator.

1.3 Objectives of the Study

These are clear, concise statements that describe what a research project aims to achieve. They guide the entire research process by specifying the direction, scope, and focus of the study.

1.3.1 General Objective

The general objective of the study was to establish the influence of project management practices on the performance of the national agricultural and rural inclusive growth program in Kenya.

1.3.2 Specific Objectives of the Study

The specific objectives of the study were:

- i. To examine the influence of stakeholders' participation on national agricultural and rural inclusive growth program performance in Kenya
- ii. To examine the influence of project planning on national agricultural and rural inclusive growth program performance in Kenya.
- iii. To determine the influence of project resource mobilization on the performance of national agricultural and rural inclusive growth program in Kenya.
- iv. To evaluate the influence of project monitoring on the performance of national agricultural and rural inclusive growth programs in Kenya.
- v. To establish the moderating influence of project management information systems on the relationship between project management practices and the performance national agricultural and rural inclusive growth programs in Kenya.

1.4 Research Hypotheses

The following research hypotheses guided the study;

- H₀₁: Stakeholder participation does not significantly influence the performance of a National agricultural and rural inclusive growth program in Kenya.
- H₀₂: Project planning does not significantly influence the performance of National agricultural and rural inclusive growth program in Kenya.
- H₀₃: Project resource mobilization does not significantly influence the performance of National agricultural and rural inclusive growth program in Kenya.
- H₀₄: Project Monitoring does not significantly influence the performance of National agricultural and rural inclusive growth program in Kenya.
- H₀₅: Project management information system does not have a significantly moderating influence on the relationship between project management practices and the performance of national agricultural and rural inclusive growth programs in Kenya.

1.5 Significance of the Study

This study is significant to the academia and scholars, donors and partners, community members, and policy makers as discussed below:

1.5.1 Academicians

The study research was necessary for students and the broader academic community to promote learning and expand knowledge. The research aims and outcomes are inextricably tied to the collected information. This study is also helpful since it gives insight into the scholar's cognitive process. It may also attract scholarships for future research.

1.5.2 Donors

The study was significant in giving the donors relevant information to guide them before identifying and passing donations for project proposals. The study enables them to identify the key factors to consider in portfolio management in achieving optimum project success. This study will guide individual investors to wisely utilize Investment advice and minimize the risk that can easily lead to project failure.

1.5.3 Community Members

The findings of this research can contribute to expanding our knowledge and comprehension of the world. They may have practical implications in various fields such as technology, industry, medicine, engineering, criminal justice, military, and public policy. Furthermore, community involvement in the research process can enhance the research process and the final outcome.

1.5.4 Policy Makers

To policymakers, the study shows how project management practices can be used in project implementation to achieve both the Sustainable Development goals and Vision 2030, a critical blueprint for economic growth and development in Kenya. The aim is to ensure proper spending is done at the counties, NGOs, and other bodies that support

projects in the devolved government, like the World Bank.

1.6 Scope of the Study

The study is divided into subject scope, time scope, and geographical scope. The study was carried out in 21 counties in Kenya where NARIGP are being implemented

1.6.1 Subject Scope

The study concentrated in all 21 counties in Kenya where NARIGP projects are being implemented. The study focused on the influence of four project management practices: stakeholder participation, project planning, project resource mobilization, and project monitoring on the performance of National agricultural and rural inclusive growth programs in Kenya.

1.6.2 Time Scope

This research focused on the information linked to the performance of NARIGP. The data was collected from the 21 counties implementing the NARIGP projects and restricted to completed projects up to the financial year 2023.

1.6.3 Geographical Scope

The study was conducted in 21 counties in Kenya where NARIGP has footprints, and the target population were from these teams that have worked on the NARIGP projects and programs. This is as listed in the appendix that lists the 21 counties of interest for this particular study.

1.7 Limitation of the Study

This study was carried out in the 21 counties that are implementing the National Agricultural and Rural Inclusive Growth Project (NARIGP) in Kenya. Therefore, there is a degree of limitation in the generalizability of these results since the study could not include other NARIGP projects that might have been implemented in different geographical areas. The study also had limitations in terms of time as it only covered up to the financial year 2023. Any developments and changes in the project

management practices and performance that might have occurred after the data collection period were not captured.

Moreover, the study relied on questionnaire surveys that were subject to various biases, such as overstatement or understatement of information by respondents or misinterpretation of some questions. Additionally, the study only focused on selected project management practices stakeholder participation, project planning, project resource mobilization, project monitoring, and the moderating role of Project Management Information Systems (PMIS) on the relationship between these practices and project performance. Other project management practices that might have contributed to the performance were not considered.

Collection of the data was also limited by several factors, such as accessibility challenges. For instance, the study did not fully consider the perspective of project sponsors, and in cases where the communities had not accessed certain information, such a perspective was lacking in the dataset. The study also had challenges with using a cross-sectional research design, which limited its ability to fully capture the dynamicity of the research topic or establish a cause-effect relationship between some of the variables. Questionnaires were used in the collection of the data, relying on the participants' abilities to answer the questions. Some of these participants might not have been fully aware of certain aspects of the subject of the study. In cases where participants were not able to submit their responses digitally, such respondents were required to rely on Google Forms. Statistical analysis was done using SPSS software, and there is always some degree of statistical modeling involved when reporting the results of such studies. These aspects are subject to limitations, especially with regard to research bias.

Lastly, the study was limited by lack of sufficient funds and time to collect more comprehensive data and cover all the targeted counties in detail due to the extensive nature of the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter provides a review of literature relating project management practices and project performance, including the moderating role of Project Management Information Systems (PMIS) through the case of National Agricultural and Rural Inclusive Growth Project (NARIGP) in Kenya. The chapter consists of theoretical review, empirical review, conceptual framework, and research gap sections. Unlike the descriptive review of prior research, this chapter provides a critical analysis of the reviewed literature.

2.2 Theoretical Review

The current study is guided by five theories, including Stakeholder Theory, Theory of Constraint, Resource-Based View (RBV), Change Theory, and System Theory. Overall, the selected theories explain how project management practices contribute to project performance while highlighting the moderating role of PMIS. Recent studies reveal that most development projects require applying multiple theories to understand project performance (Freeman et al., 2020; Kerzner, 2022; PMI, 2021).

2.2.1 Stakeholder Theory

This theory is based on the works of R. Edward Freeman (1984), who argues that all stakeholders' needs should be considered when pursuing organizational objectives. Contemporary literature reveals that researchers have been focusing on stakeholder value "as a basis of choice in stakeholder management, rather than stakeholder management as a basis of choice in value creation" (Bridoux & Stoelhorst, 2022; Freeman et al., 2020). In the current study, the theory explains stakeholder participation practices, including Sharing of information with stakeholders, Feedback processes, decision-making in relation to the stakeholders' views and Collaboration initiatives

The reviewed literature demonstrates that the inclusion of stakeholders promotes transparency, accountability, and project sustainability. In particular, there is empirical evidence that stakeholder participation improves stakeholder feedback and builds project legitimacy, with negative associations of high stakeholder engagement with project efficiency due to the complexities which collaboration entails. Such studies also note the role of PMIS, which provide a basis for stakeholder participation that could be related to improved performance through the mechanisms of: -Stakeholder Theory → Stakeholder Participation → Project Performance (with PMIS as moderator)

However, the theory has faced criticism due to “the lack of prioritization criteria (which stakeholder to prioritize?), the over(normative) emphasis on universalistic stakeholders’ principles, and the contextualizable of stakeholder management” (Bridoux & Stoelhorst, 2022). Particular literature highlights that stakeholder theory is inadequate “in stakeholder decision-making, especially in complex multi-stakeholder settings, and therefore fails to account for conflicting stakeholder interests” (Bridoux & Stoelhorst, 2022). According to recent studies, there is a shift from stakeholder control to stakeholder value co-creation, digital processes to engage stakeholders, and technologies (PMIS) to address complex stakeholders’ issues. Therefore, current study’s analysis of Stakeholder Theory’s role in project management and project performance aims at addressing the following:

2.2.2 Theory of Constraint

Theory of Constraints was developed by Goldratt (1990) and focuses on the fact that organizational performance is determined by the weakest constraint. The project management literature reveals that constraint management is critical for project performance, as the majority of project failures stem from inadequate management of constraints (Rahman, 2019). However, the constraint theory has faced criticism, especially in relation to its inability to account for complex interrelationships among constraints (Walker & Lloyd-Walker, 2018). At the same time, it was found that constraint management could help resolve a series of issues which impact project

performance in Kenya's public sector, including procurement and technical capacities, which have been identified as key constraints for agricultural projects.

It is noteworthy that TOC can be helpful in analyzing the project performance, but, similar to other theories, it could benefit from being related to the project monitoring processes, as "effective constraint management relies on enhanced project monitoring and planning to identify and respond to emerging constraints" (Rahman, 2019). This leads to the model of TOC → Project Monitoring & Planning → Project Performance (enhanced by PMIS). At the same time, TOC has been criticized as "over-simplified," especially in relation to the multi-constraint nature of public projects, the focus on single constraints, and a limited consideration of human constraints (Rahman, 2019). Literature review also demonstrates that recent researchers attempt to discuss how TOC could be utilized in public project management, including "shifting the focus from single-constraint management to multi-constraint management and from conceptual to practical applications" (Rahman, 2019). This study attempts to address the limitations of the Theory of Constraints by linking it to project monitoring in order to emphasize the importance of PMIS in overcoming the limitations of the theory.

2.2.3 Resource-Based View Theory

Resource-based View was developed by Barney (1991) and states that resources utilized by an organization determine its performance. Contemporary researchers report that a proper allocation of resources contributes to project performance (Patanakul & Milosevic, 2019). At the same time, scholars note that RBV has shortcomings, including the failure to consider "the influence of key contextual variables on the relationship between resources and performance" (Priem et al., 2018). Resource Allocation Theory was developed by David Hackman (1985). It states that effective allocation of resources determines project performance. Some researchers argue that the resource allocation process is the basis of project management (Hackman, 1985). It is noteworthy that the majority of Kenyan public projects face the problem of delays in financial and technical allocations, which significantly impact project performance (Mwangi et al., 2021). The reviewed literature reveals that the resource allocation process in Kenya is inadequate, which impacts the project

performance negatively. The role of PMIS in addressing the problem stems from its ability to ensure efficient allocation of resources without delays. As such, RBV → Resource Allocation → Project Performance (enhanced by PMIS). Several contemporary studies reveal that RBV has a number of weaknesses. In particular, the theory has been criticized due to “an internal focus, neglect of dynamic capabilities, and a static view of resource-based advantages” (Marnewick, 2020). Literature review also demonstrates that RBV was criticized for being static in nature. At the same time, the recent studies suggest that RBV has led to the emergence of Dynamic Capabilities Theory, an emphasis on digital resources, and a focus on managing institutional capabilities. Therefore, this study aims at addressing the limitations of RBV in relation to project management practices and PMIS by reviewing how the allocation of resources influences project performance.

2.2.4 Change Theory

This theory explains how changes influence the outcomes of a project, focusing on the relationship between project inputs and outputs, as well as indicators (Weiss, 1995). Contemporary project management literature reveals that Change Theory is integral to project evaluation due to its ability to emphasize accountability and outcomes. In particular, there is empirical evidence that Theory of Change has been utilized to design outcome frameworks, which promote “increased accountability through specification of causal assumptions through indicators and evidence of progress” (Funnell & Rogers, 2019). At the same time, it has been suggested that Change Theory promotes “predictability and control in complex systems of human action, and a linear approach to how we understand change” (Stame, 2020). Literature review demonstrates that in Kenya, agricultural projects face a number of environmental uncertainties, including variations in climate and market prices, which impact the outcome of the project (Mwangi et al., 2021). Although the limitations of the theory could be addressed through the utilization of adaptive systems (Stame, 2020), Change Theory is still integrated into project management practices to illustrate the importance of appropriate planning and monitoring as a way to strengthen project performance (Weiss, 1995). Thus, Change Theory → Planning & Monitoring → Project Performance.

As discussed in the literature, Change Theory has been subject to a number of critiques. In particular, the theory has been criticized due to the fact that it focuses too much on the predictable outputs of the project, and does not consider that the project's goals may not be achieved due to the fact that it cannot meet the changing needs of the stakeholders. Recent studies reveal that change theorists are developing a new paradigm of project management which acknowledges complexities, which are inherent to all development-related projects, and emphasizes "a shift in theoretical paradigms, and the need for adaptive project management, including increased use of real-time monitoring and evaluation" (Mayne, 2017). As such, the current study examines how Change Theory could be utilized to address the challenges of agricultural development in Kenya in combination with monitoring processes.

2.2.5 System Theory of Project Management

According to Bertalanffy (1968), systems theory views a project as a set of interrelated elements, which makes it a key concept in understanding project management. The systems approach was found to be instrumental in agricultural development projects due to the complexity of these initiatives (Koskela et al., 2019). At the same time, scholars discuss the limitations of the System Theory in project management, including the fact that "system principles lack direct relevance to project management practice" (Morris, 2017). In Kenya, the recently introduced devolution policy resulted in the emergence of significant challenges in coordinating various county ministries, which illustrates the complex nature of the systems in public projects. As such, the role of PMIS is critical to ensure that the system operates smoothly in accordance with the principles of the System Theory. In particular, the system theory has been utilized in studies which highlight the importance of project management's communication infrastructure in promoting system-level interactions (Rogers, 1983; Koskela et al., 2019).

The literature review demonstrates that although systems theory is critical in project management, it has been subject to numerous critiques, including "a tendency to confuse complex systems with simple systems" (Morris, 2017). Contemporary systems researchers discuss the importance of focusing on systems thinking, utilizing

systems approaches, and using the role of PMIS to manage complexity, including analyzing how to apply PMIS to system-level processes. This chapter aims at addressing the limitations of the System Theory by linking it to PMIS.

2.2.6 Critical Synthesis and Research Gap

The reviewed literature reveals that the majority of theories share certain limitations, including the following: -the lack of integration, which refers to the fact that theories are applied independently while interrelated theories have not been utilized to address the same set of issues, The limited consideration of the role of technology in project management

The focus on the private business context and the lack of relevance to government or rural development projects. Failure to address the complexity of modern projects, including the multi-stakeholder, multi-actor, and dynamic nature of these initiatives, which requires the application of adaptive management systems

2.3 Conceptual Framework

The independent variables of this research are stakeholders' participation, project planning, project resource mobilization, and project monitoring, while the dependent variable was the performance of NARIGP. The moderating variable, Project management information systems, was to moderate all these. For each of the independent, dependent, and moderating variables, indicators for the same are shown respectively

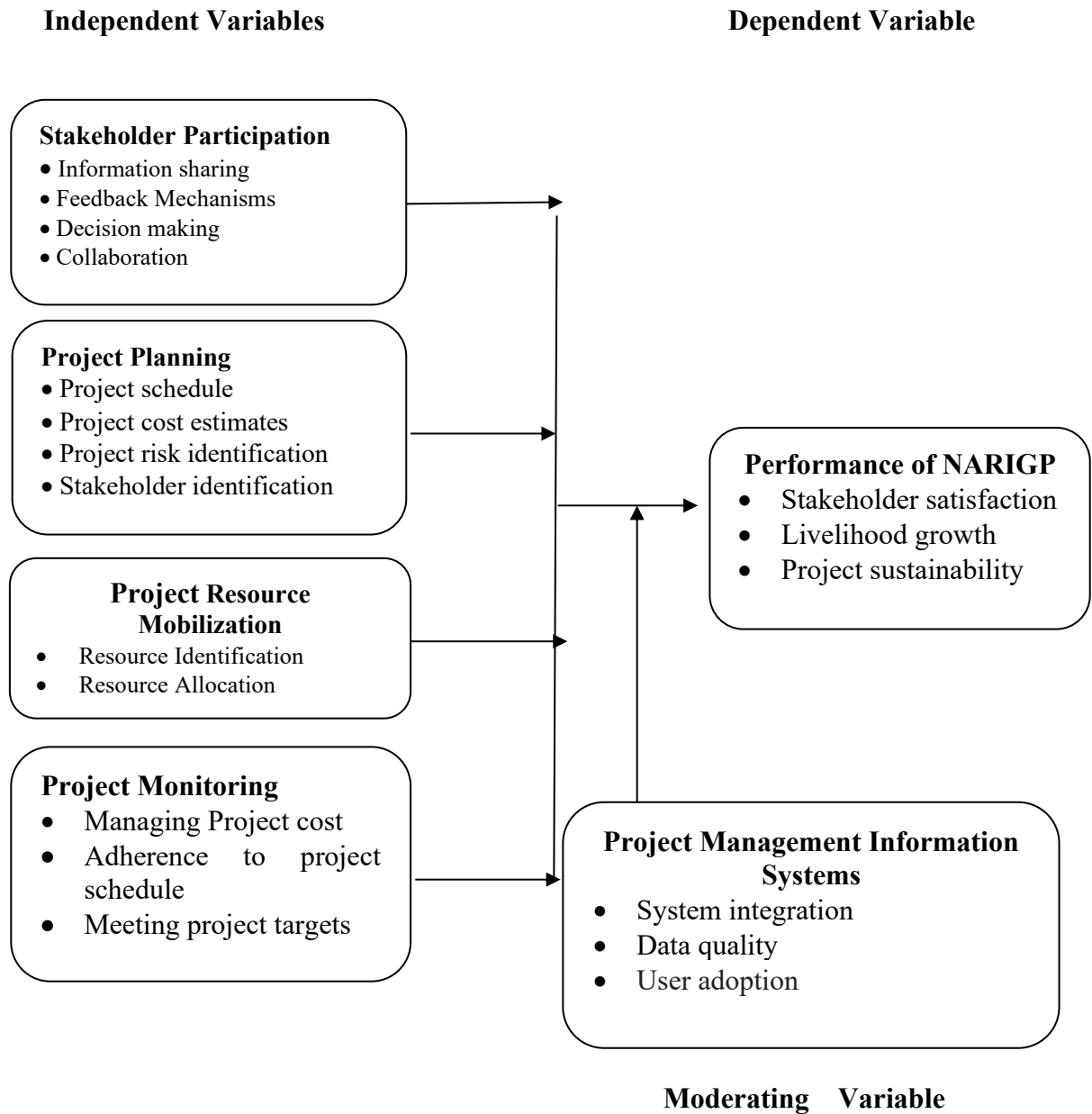


Figure 2.1: Conceptual Framework

2.3.1 Stakeholder Participation

Stakeholder participation involves individuals in an organizational framework by having them discuss and collaborate within multiple interests, institutions, and networks. This strategy fosters civic identity while also involving individuals in decision-making. Stakeholder involvement, according to Magassouba, Tambi, Alkhlaifat, and Abdullah (2019), is crucial for good government.

according to Karanja (2014), completing a public assessment is essential for identifying public needs, issues, and distressed groups and how suggested revitalization activities would affect them. A public assessment aids in determining the people's priorities and vision, and an effective revival project should address these objectives and visions.

According to Karanja (2014), effective stakeholder participation may give several advantages, such as improving information flow, boosting public awareness of local government initiatives, encouraging public advocacy, fostering collaboration, minimizing disputes, and achieving environmental protection. Stakeholder participation's key goals are to inform, engage, consult, cooperate, and empower the public through different mechanisms, such as elections or society organizations activities, in which community feedback is sought at all strategy phases.

Stakeholder engagement offers decision-making units a variety of policy development choices. It is critical to remember that incorporating stakeholders in decision-making results in diverse stakeholder viewpoints. According to Korne (2020), successful engagement helps connect stakeholder requirements with corporate objectives and is the foundation for effective method development. Finding common ground or shared motives allows a group of stakeholders to make a choice that has a meaningful outcome. According to Martin, Reinhardt, and Gurtner (2021), stakeholder involvement contributes to forming good and successful relationships over time. This collaboration fosters a mutually beneficial relationship and enables stakeholders to spot trends and developing problems that may influence the project now or in the future.

According to Ulibarri, Scott, and Perez-Figueroa (2019), including stakeholders entails having the community participate in defining the priorities they want the government to address (2019). Projects implemented without sufficient engagement with community people may be unsustainable or may not serve most of those using them. According to Mieszkowski and Kardas (2015), increasing stakeholder engagement is the only method to enhance the project's performance, even in the private sector. Increasing strong stakeholder engagement is the most efficient strategy to decrease waste. According to Paloniemi et al. (2015), stakeholder engagement enhances the likelihood

of recognizing possible setbacks that may influence the project throughout execution.

2.3.1.1 Information Sharing

Information sharing means the timely distribution and exchange of relevant project information. It involves providing information to stakeholders about the project's aims, scope, operations, and findings to ensure that everyone is well-informed and involved (Project Management Institute, 2021).

Information sharing helps stakeholders fully understand the purpose of the project and their role in it, thus reducing any doubts or negative expectations that could undermine its success. Additionally, it builds trust and accountability between stakeholders, which are critical success factors for a project's realization (Bourne, 2016; Organization for Economic Co-operation and Development, 2019). Therefore, in the case of NARIGP, information sharing will ensure that farmers, community groups, and local authorities are well-informed and can participate in the project's activities effectively.

2.3.1.2 Feedback Mechanisms

Feedback mechanisms are ways by which the stakeholders can give their views, complaints, and recommendations on the project activities. Some of these include meetings, consultations, surveys, complaint/redress mechanisms, and forums (World Bank, 2020).

This sub-variable ensures that the stakeholder's views are considered in the process of implementing the project, thus enhancing its improvement. The feedback mechanisms are important to ensure transparency, accountability, and trust in project governance (United Nations Development Programme, 2020). In NARIGP, the feedback mechanisms enable them to identify any arising issues and respond to them appropriately.

2.3.1.3 Decision-Making

Decision-making indicates the degree to which stakeholders can participate, influence, and take a leading role in setting priorities, allocating resources, and determining methods and approaches used to achieve project goals (OECD, 2019).

Participatory decision-making practices increase the sense of ownership and responsibility because people understand that their inputs, ideas, views, and visions are considered and integrated into the process. Regarding community development programs, such as NARIGP, incorporating various stakeholder groups in decision-making contributes to designing appropriate interventions and responses that best suit local conditions and social/economic needs (Food and Agriculture Organization, 2018; World Bank, 2020).

2.3.1.4 Collaboration

Collaboration is a concept that entails the nature of the stakeholders' relationship in carrying out the activities in a project. The concept captures the aspects of collaboration, partnerships, and networks among agencies, communities, and stakeholders in general (Ansell & Gash, 2018; Bryson et al., 2016).

Collaboration fosters resourcefulness, mutual exchange of ideas and knowledge, and improved problem-solving capacity among the stakeholders (Bryson et al., 2016). Collaboration also promotes the avoidance of duplication of efforts and fosters synergy in the implementation process (Bryson et al., 2016). In the context of NARIGP, collaboration promotes synergies and partnerships among agencies and stakeholders, thus, ensuring that the project activities are implemented in a coordinated manner.

2.3.1.5 Theoretical Contribution and Contribution to the Existing Body of Knowledge

This study made several theoretical contributions to the understanding of stakeholder participation. These include the evaluation of the stakeholder theory, participatory development theory, and systems theory within the context of agricultural development projects using modern approaches.

In terms of the stakeholder theory, a number of recent articles and reports have elaborated on the importance of managing stakeholders using an up-to-date approach since their participation is viewed as a “process with value-added potential” as opposed to a given managerial function (PMI, 2021; OECD, 2019). The current study expands on this body of work by illustrating how stakeholder participation could be channeled to affect the performance of a project through information exchange, consultation, decision-making, and collaboration. It further complies with the recommendations of contemporary studies in public administration to recognize the contribution to the empowerment and ownership of stakeholders in order to improve development interventions (FAO, 2018; World Bank, 2020). This study further conceptualized the analysis of participation by breaking it down into sub-variables and illustrating their effect on the subject of analysis. Finally, the current research examined the role of participation from a systems theory perspective, being a process that consists of interrelated elements, including information exchange, consultation, decision-making, and collaboration (UNDP, 2020). As such, this study demonstrated how these factors could be integrated to achieve project performance improvement.

Furthermore, this study provided empirical evidence of stakeholder participation in the performance of agricultural development projects, specifically NARIGP, thereby filling a gap in the recent literature. Contemporary articles and reports have stressed the importance of engaging stakeholders in development projects. However, the current study goes beyond general descriptions by providing a concrete example of how such an approach affects the performance of a given project in terms of efficiency, effectiveness, and overall improvement.

2.3.2 Project Planning

According to Kariungi (2014), project planning includes gathering baseline data, completing a requirements assessment, designing an action plan, and assessing performance. Defining the target populations is critical before developing goals, activities, and needed resources. According to Baldwin and Bordoli (2014), regardless of the definition used, project planning seeks to accomplish several common goals, including producing schedules and costs, carrying out the project to delineated design

and quality standards, trying to manage resource requirements, ensuring health and safety, and achieving stakeholders' expectations. Physical planning entails time-scheduling the project's work, whereas financial planning displays the needed cash flow each time.

Planning is famous for increasing the project's expense, schedule, and efficiency; planning is known to improve construction project performance. However, project teams also do not implement efficient methodologies for preparation, usually citing a lack of time or desire to perform comprehensive planning. Evidence from the study of Akinradewo and Aigbavboa (2019) shows that project planning in construction is a very critical task as it determines the layout of how the construction project to be executed. The construction plan outlines how the project be implemented and completed within the designated time under the given scope, which combines time, cost, and quality. The project plan's success depends on the contractor's ability; however, in case of the inability of the contractor to complete the project and meet the success criteria can result in the project's abandonment. Therefore, the project plan is crucial (Alchammari & Alshammare, 2021). According to Githenya and Ngugi (2014), during plan review, more focus should be placed on the role level rather than the activity level, as this can result in better project results. The Gantt chart is a popular tool for project planning. Idoro (2009) researched the levels of project planning and their influence on performance in the private and public sectors. According to the data, private sector projects have more preconstruction planning than initiatives in the public sector, whereas public service projects have more contract preparation than private sector initiatives. Nevertheless, private-sector initiatives outperform public-sector programs on many performance criteria.

2.3.2.1 Project Schedule

Project schedule is described as the process of identifying project activities, establishing their sequence, estimating their durations, and determining time-phased project activities completion. It entails the allocation of tasks according to a timeline to ensure completion within the stipulated time. The concept behind this is captured by the Critical Path Theory which requires identification of the 'critical path'; i.e.,

project activities that are critical to the completion of the whole project (Kerzner, 2017).

Critical path theory is relevant in project management because it improves time management and project activities coordination. This study contributes to the body of knowledge on project management by establishing the influence of project planning on the successful completion of agricultural development programmes within a scheduled time.

2.3.2.2 Project Cost Estimates

Project cost estimates involve the process of forecasting project costs; i.e., determining how much it will cost to complete the activities identified in the project plans. It also entails the estimation of additional costs incurred in the course of carrying out the project activities. The whole process plays a significant role in cost management and budgeting which are crucial aspects of project management (PMI, 2021). Project cost estimation is based on the principles of Cost Management Theory which require comprehensive project cost planning to ensure that expenditures are controlled effectively throughout the implementation process.

This study contributes to the body of knowledge on project management by establishing the extent to which cost estimation influences project budgeting and overall project success. The findings will shed light on the role played by project cost estimation in the financial aspects of public projects such as agricultural development programmes.

2.3.2.3 Project Risk Identification

Project risk identification is the process of identifying project risks which are defined as uncertain events or conditions that, if realized, may have a positive or negative effect on the project's objectives. The process may be performed in different ways including addressing threats and opportunities facing the project (Hillson, 2016). The concept is captured by the Risk Management Theory which takes a strategic approach to project management by requiring project managers to go beyond simply responding to project

risks to focusing on managing risk throughout the project lifecycle.

This study will contribute to the body of knowledge on project management by establishing the extent to which consideration of project risk factors contributes to the success of agricultural development programmes. The findings will highlight the relevance of risk management in rural development projects.

2.3.2.4 Stakeholder Identification

Stakeholder identification involves the process of identifying stakeholders who have an interest in the successful completion of the project. It also entails carrying out a stakeholder analysis to determine their influence and impact on the project's success (Freeman, 1984). The concept is captured by the Stakeholder Theory which requires project managers to address the expectations of various stakeholders in order to achieve project objectives. This study will contribute to the body of knowledge on project management by establishing the extent to which stakeholder analysis influences project success.

Theoretical Contribution of the Study

This study will contribute to the existing body of knowledge on project management by establishing the role played by project planning in the successful completion of agricultural development programmes. Although most of the concepts used in this study such as the Critical Path Theory, the Cost Management Theory, the Risk Management Theory, and the Stakeholder Theory have been widely used in different fields of project management, they have not been emphasized in public projects, especially in rural development projects. Therefore, this study will broaden the understanding of the application of these theories in diverse fields of project management. It will also contribute to the body of knowledge on project management by establishing the relationship between project planning factors and project success in rural development projects in Kenya.

Projects Resource Mobilization

Projects are designed with a defined budget, limited resources, and deadlines. A particular quantity of financial, material, and human resources is used during specific periods. Nevertheless, resources and time are frequently in short supply. The primary goal of a project is to maximize the utilization of available resources and time to have the greatest potential impact in resolving the problem and bringing about positive change. This principle is the foundation of project management in all businesses (Chaplowe & Cousins, 2015). Finally, the goal of making the best use of limited resources and time limitations provides the basis for project planning in all organizations, including cooperatives. Obtaining more significant resources and seeking additional money is essential to solve the underlying issue. A resource plan specifies the requirements and costs for all necessary inputs, such as personnel, office space or facilities, equipment, materials, or services, such as specific subcontracting supplies, training sessions, and other diverse inputs (Ogunde et al., 2017).

The results-based management strategy entails creating a resource program based on the tasks listed in the organizational breakdown matrix and calendar. A list of required inputs for each activity is established and then classified (e.g., equipment, personnel, raw materials) to create a strategic procurement strategy for the project. The resources required to carry out the actions associated with each outcome should be stated. Estimating the required resources for each sub-activity in the performance management process is usually unnecessary. Resource mobilization encompasses all of the necessary measures to acquire newly found resources inside an organization and enhance the usage of existing resources to raise the total number of resources. Ogunde et al. (2017) state that resource mobilization is essential for organizational strengthening.

Sadly, donor resource rivalry is fierce, and an institution's capacity to obtain these resources depends on the amount of competitiveness in their area and their capacity to uncover new sources of resources within their surroundings (Marle & Vidal, 2016). Most groups are unsure whether funders would stop sponsoring their programs and redirect the cash to other critical needs. Also, contributors may be unable to offer resources in some cases, particularly if their firm is deteriorating. These circumstances create donor financial unpredictability, making it difficult for institutions to successfully

run and administer their operations.

According to Chaplowe and Cousins (2015), creating a resource mobilization plan or strategy can enable the company to use its resources that are easily accessible nearby to help the company. Investigating alternative financing sources may increase program adaptability and self-sufficiency while decreasing dependency on foreign or donor funds. As competitiveness for grant funding intensifies, institutions can manage financial constraints and successfully execute projects by exploring alternate choices and mobilizing diverse resource flows (Marleand Vidal, 2016).

According to Chaplowe and Cousins (2015), good project management depends on efficient resource mobilization, scheduling, and optimization. Priorities ascribed to project activities dictate the distribution of limited resources, which may be estimated using project time effectively and intuitive analysis. When resources are limited, the goal is to develop an adequate timetable feasible, minimizing project length while optimizing resource use (Meridith et al., 2008). Because resources are few and costly, they must be utilized effectively and efficiently to guarantee a successful project. Yet, resource competitiveness is increasing as the variety of development players grows, and resources become scarce due to the recent worldwide financial crisis. As a result, resource mobilization can substantially impact project success.

Gaining monetary resources, mapping a diverse workforce, obtaining material resources, community involvement and participation, transparency, and accountability in financial accounting and administration are all part of resource mobilization. Physical resources are assets that take up space, have monetary worth, and are utilized in the organization's operations. The sort of physical resources available to the women's organization and their quantity can significantly affect the achievement of their efforts. Physical resources are used by product-based companies to provide things for sale and to run the firm. Physical resources, area, tools required for the service, and resources utilized to support the service are employed by service-based organizations to assist in service delivery (Marle & Vidal, 2016).

2.3.3.1 Resource Identification

Resource identification is a process that helps determine what type and how many resources are required to execute the project. These resources can include finances, expertise, people, materials, technologies, and support from government agencies. The concept of resource identification helps in ensuring all the required things for a project are available at the beginning of the implementation process. The concept relates to Resource-Based Theory (RBT) because it is well established that resources need to be identified and secured for successful project execution (Barney, 1991). This study will contribute to the topic by establishing the benefits of identifying the exact resources needed for public development programs long before they are implemented.

2.3.3.2 Resource Allocation

Resource allocation is a process of apportioning identified resources to different activities according to their priority, timing, and importance. It is a theory that facilitates the attainment of the objectives of a project by allocation resources in a systematic manner.

In the theoretical aspect, resource allocation fits best within the systems theory as it views a project as a system that requires balanced allocation of resources for it to yield desirable results (Kast & Rosenzweig, 1972). Indeed, the current research adds to the existing body of knowledge as it demonstrates how the allocation of resources in a fair and appropriate manner can lead to the effective execution of rural development projects.

2.3.3.3 Resource Utilization

Resource utilization entails using the provided resources wisely to meet the set goals. This concept promotes the most effective and efficient use of available resources while avoiding any form of wastage.

The idea connects to the Utilization theory because it focuses on achieving more output from the least input while eliminating any form of waste (Pinto, 2016). The research makes a significant contribution to the discussion by providing evidence that effective

use of the provided resources can improve performance, especially in the public sector, which is usually faced with limited resources.

Theoretical Contribution of the Study

This study contributes to project management theories by providing an in-depth analysis of resource mobilization sub-variables which have been used in the implementation of public sector development programmes. Although Resource Based, Systems and Efficiency theories have been extensively used in analyzing phenomena in the corporate sphere, this study focused on evaluating their applicability in the community and government agricultural schemes.

By evaluating resource identification and allocation, the paper reveals the importance of resources mobilization in achieving project goals. This study demonstrates that resources mobilization facilitates effective coordination and successful implementation of development projects.

Project Monitoring

According to Marle and Vidal (2016) a project's monitoring system allows for assessing its progress toward attaining its objectives and facilitating required modifications. It also enables evaluating and documenting construction projects once the task has been finished. A Monitoring system is an essential tool for results-based project management because it makes the project responsible to the target audience, partners, and donors and fosters organizational effectiveness and project improvement. This process's expertise may be shared and used in different projects and regions. A well-designed assessment method that integrates member oversight and control exhibits reciprocal learning and gives input to other stakeholders, which can benefit cooperative companies (Marle & Vidal, 2016).

The internal and participative monitoring process allows the cooperative or cooperative community-based development to determine if the initiative is meeting its objectives and utilizing resources efficiently and effectively. Corrective actions can be made if there are any deviations. Issues with the initial design, budget, or managerial competency may be identified by the project's managerial, cooperative participants or

stakeholders. The work plan is essential for evaluating project operations and guaranteeing they are completed within budget, by the proper personnel, and on schedule. It also aids in determining if the actions result in the expected outputs described in the log frame. As a result, monitoring should be built into the design project and funded from the start (Chaplowe & Cousins, 2015). The goal of this manual is to help with project design. Still, it does not address the assessment process, usually undertaken by an external evaluator or managed by the donor. Monitoring entails contrasting the initial intention to the actual change at each level of the logical framework, which includes actions, outputs, results, and objectives. Monitoring revolves around comparison, measurement, verification, and action (Marle & Vidal, 2016; Chaplowe & Cousins, 2015).

Performance monitoring aims to monitor what the project has done and what it has created for the targeted beneficiaries. The project manager utilizes this sort of monitoring for performance management, allowing them to check that the program is proceeding as intended. It indicates if resources are being used efficiently to perform operations within the timeframe specified and whether outcomes are being obtained and delivered as expected. Moreover, performance monitoring may be used to report on the program's short- term progress (Chaplowe & Cousins, 2015).

Progress Tracking

Progress tracking refers to the continuous measurement of project activities, milestones, and deliverables against the approved project plan. It ensures that implementation is proceeding as scheduled and allows early detection of delays or deviations.

Progress tracking is grounded in Performance Measurement Theory, which emphasizes the use of indicators and benchmarks to assess project advancement (Kerzner, 2022). This study contributes to the theoretical body of knowledge by demonstrating that systematic tracking improves early detection of implementation gaps in public sector development projects.

Performance Measurement

Performance measurement is a process of identifying a certain number of key performance indicators (Key Performance Indicators-KPIs) to control and evaluate the performance effectiveness or quality of a project's implementation. It usually involves measuring a project's performance against set criteria, including cost, time, scope, and quality.

The concept of performance measurement fits into the Results-Based Management Theory, which prioritizes measuring to promote accountability through the established policies. This paper's analysis provides an insight into the relationship between performance measurement and accountability, illustrating that the former significantly improves accountability in rural development programmes.

Budget Monitoring

Budget monitoring entails the constant review and control of expenditure to ensure that funds are used within the approved budget limits. It involves the analysis of the financial performance of a project and comparing it against the assigned budget.

The theory that supports the second research question is Cost Control Theory. The theory highlights the need to emphasize financial discipline and variance analysis in project management and execution (PMI, 2021). The research undertaken will contribute to the theory by establishing the role played by continuous budget monitoring in enhancing accountability and minimizing expenditure in public projects.

Quality Monitoring

Quality monitoring refers to exercising control over a process to ensure that products, goods, or services meet the quality or standard set in the specifications. This theory is based on the Total Quality Management (TQM) Theory because it is about ensuring quality and total customer satisfaction (Oakland, 2020). Therefore, I believe my study adds value to the overall knowledge on quality monitoring by providing insights into how the implementation of the quality monitoring system of an organization improves an organization's sustainability with respect to selected community programs.

Theoretical Contribution of the Study

This study contributes to project monitoring theory by developing the role of progress, performance, budget, and quality monitoring in public agricultural development projects.

Although Performance Measurement Theory, Results-Based Management Theory, Cost Control Theory, and Total Quality Management Theory have been practiced in private and industrial projects, this study focuses on their applicability in government-sponsored rural development programs.

Therefore, this study will add value to Project Monitoring Theory by evaluating the effectiveness of these sub-sets of project monitoring in the National Agricultural and Rural Inclusive Growth Programme (NARIGP). Thus, concluding that project monitoring is a vital component of project planning and implementation that should be emphasized in government programs.

Project Management Information Systems

PMIS has been defined in different words, though with a consensus of thought, by numerous schools in the literature. Project Management Knowledge (2010) described PMIS as system tools and techniques used in project management to deliver information. PMIS is a computer-based information technology software an organization uses to generate, store, and manage project data in pursuit of optimal project performance (Obeidat & Aldulaimi, 2016). PMIS systems usually comprise several software packages that enable more efficient resource scheduling, information management and distribution, knowledge repositories, and cost management systems (Project Management Institute, 2017).

According to Project Management Knowledge (2010), PMIS ensures that projects are implemented, controlled, and sustained to completion in a manner that achieves “all of the project goals and objectives while honoring the preconceived project constraints of time, budget, quality, and scope as well as optimizing the allocation and integration of inputs needed to meet pre-defined objectives while mitigating any risks. PMIS can streamline the data management required for project planning and performance

monitoring to increase competitiveness and the chances of project performance (Teixeira et al., 2016).

Retnowardhani and Suroso (2019) evaluated five case studies that found PMIS to have advantages such as correct decision-making based on the visibility of accurate project performance data and improved project performance by increasing communication through PMIS. The software can simplify project management by streamlining and automating the execution of various project tasks (Kostalova, Tetreva, & Svedik, 2015). New PMIS applications enable project managers (PMs) to spend less time on repetitive, rule-based tasks, allowing the PMs to focus more on higher-order functions such as innovation, creativity, stakeholder relations, and strategy.

PMIS was introduced to the market in the late 1970s and was created by companies like Oracle, Artemis, and Scitor Corporation (2019). However, it was only in the late eighties and the nineties that project management software was more widely used as more and more people started using personal computers. Software and project management techniques have developed rapidly (Finances Online, 2019). Over the last decade, PMIS has changed considerably, driven by the advances in new technology and the need for better systems. PMIS has evolved from systems that only manage project scheduling and resources to comprehensive systems that support many other project management functions at a project and project portfolio level (Teixeira et al., 2016).

The PMBOK Guide provides the following categories and functions of PMIS: Scheduling software assists with planning and mapping out project timelines by providing tasks with start and finish dates and links between the tasks. These are commonly known as Gantt charts. The software greatly enhances the speed of creating and updating these charts. Cost Control Software assists with project cost control and includes spreadsheets, statistical analysis, and simulation tools, making it easier to estimate costs and evaluate cost estimate alternatives. Resource Management Software assists in optimizing resource utilization and highlights where resources are constrained. The software can help manage resource groups, track resource loading, and record time sheets and associated resource costs. Information (document) Management assists with project communication, enabling stakeholders to source and share documents on time.

These systems can be specialized project information portals, web interfaces, collaborative work management tools, and dashboards (PMBOK Guide 2017).

The PMIS is a tool that helps facilitate the project's monitoring and evaluation process. Project managers must adopt such a system to carry out an accurate and timely monitoring exercise. This system gives project managers the skills and knowledge to manage projects appropriately. In essence, monitoring provides management with helpful information for decision-making (Kabeyi, 2019). Project Management Information Systems (PMIS) represent the technological systems used to support planning, coordination, monitoring, and reporting of project activities. PMIS influence how project management practices translate into performance outcomes. The sub-variables include:

System Integration

System integration refers to the extent to which PMIS connect various project management functions into a unified platform, enabling seamless data flow and coordination.

Data Quality

Data quality reflects the accuracy, reliability, and completeness of information generated and stored within PMIS. High-quality data improves decision-making and reporting accuracy.

Stakeholder Satisfaction

User adoption measures the extent to which project staff and stakeholders effectively use PMIS tools in daily operations. Higher adoption enhances system effectiveness.

Performance of NARIGP

According to Pamela et al. (2013) project performance is a serious concern in many developing nations, where many projects are undertaken at substantial expense and regularly meet performance issues. It suggests that, despite significant expenditure on performance initiatives, the public does not profit from these efforts owing to

performance concerns. According to Karanja (2014), a public assessment is critical for identifying general needs, challenges, and distressed populations and how the proposed revival would eventually affect the public. Understanding a public's priorities and vision is aided by public assessment, and a successful revival project should meet these objectives and aspirations (Pamela et al., 2013).

It is critical to assess performance carefully, especially regarding the sustainability of goods and services for participants. It entails preparing for the resources required to sustain operations in the medium and long term after the completion of the project. Sustainability includes numerous components such as content, financing, size, environmental effect, and resource consumption (Wright, 2017). Social, institutional, environmental, and financial performance are all essential components of performance. The influence on working conditions, compliance with international labor norms, and social protection are all aspects of social performance. Financial performance concerns funding follow-up actions and establishing income streams for all future maintenance and operation needs.

In project management, performance refers to examining and eliminating superfluous redundancies to ensure success while limiting costs and dangers (Jack et al., 2016). This method considers various issues, including the program's environment, society, and economics. An instance of environmental efficiency in action occurs when a project committee evaluates the influence of environmental contamination on the project's success. In essence, project management performance is about generating a trustworthy project with minimum opportunity costs, especially in the face of uncertainty (Chaplowe & Cousins, 2015).

The primary objective of implementing lean principles in a project is to eliminate or minimize all forms of waste to achieve this goal in sustainable development; the first step is to identify the different types of waste within the project environment. A sustainable manager must identify these waste elements in the project's current state and the desired future (Jack et al., 2016). Further, the project manager should be able to project a timeline from the present to the end. Once the waste elements have been identified, they should be classified based on their order of priority, and steps should

be taken to address them accordingly.

Waste items with the most minor damage to the project's long-term viability are given the lowest priority. In contrast, those that may be hazardous to the project's future results are given the highest. The next phase is to define and implement objectives that are consistent with environmental sustainability within the project. At this point, the project leader should come up with viable alternatives for substituting the waste elements that have been eliminated. The capacity to produce innovative waste-avoidance concepts is required to adopt environmentally friendly practices (Chaplowe & Cousins, 2015). The research community has identified various factors that determine project success, such as the project mission, project schedule/plan, client consultation, top management support, personnel, technology, monitoring and feedback, channels of communication, client acceptance, and troubleshooting expertise (Montenegro et al., 2021).

Quality assurance in a project includes recognizing and removing the elements contributing to failed projects. Project performance is a complicated and multi-dimensional term with numerous features, and its success criteria differ from one project to the next because of the distinctive characteristics of each program (Mir & Pinnington, 2014; Ali et al., 2021). Additionally, due to its relationship with stakeholders' views, the project's performance has become even more complicated in the past few decades (Davis, 2014). Thomas (2002) identified financial stability as a critical project success criterion. Turner (2007) defined project performance as meeting user requirements, meeting self-defined criteria, fulfilling the project's purpose, customer satisfaction, recurring business, team satisfaction, supplier satisfaction, and end-user satisfaction.

Stakeholder Satisfaction

Stakeholder satisfaction within the NARIGP project is described as the extent to which the needs and desires of specific project stakeholders are met. In this regard, stakeholders comprise farmers, communities, county governments, project staff, and development partners involved in the project's implementation (Freeman, 1984; Project Management Institute [PMI], 2021). Consequently, the sub-variable of

stakeholder satisfaction reflects stakeholder perceptions about the relevance, quality, accessibility, and responsiveness of the project's interventions. In other words, to a great extent, project stakeholders' satisfaction with the project's performance demonstrates the degree to which the project facilitates community inclusion and enhances trust and collaboration between project stakeholders (Bourne, 2016). Additionally, stakeholder satisfaction with the NARIGP project performance reflects how well the project is managed and operated by emphasizing transparency, accountability, and responsiveness (PMI, 2021).

The stakeholder satisfaction has become even more crucial for the NARIGP project because the initiative has focused on promoting community-driven development, which has prioritized beneficiary ownership of the development process and outcomes (World Bank, 2013). As a result, high levels of satisfaction among stakeholders signify increased likelihood of project implementation success, enhanced community participation, and long-term impact on the target communities.

Livelihood Growth

Livelihood growth in the context of the NARIGP project is regarded as an aspect of community well-being, which emphasizes the improvement in individual and household welfare resulting from the project interventions (Chambers & Conway, 1992; Ellis, 2000). In this regard, the sub-variable of livelihood growth encompasses the following components: income, agricultural production, food security, assets, and overall well-being. In other words, project-induced livelihood growth can be actualized through improving rural households' capacities and enhancing their access to economic opportunities, financial services, natural resources, and markets (World Bank, 2018). As a result, livelihood growth has become one of the key aspects of assessing the impact of the NARIGP project, since, unlike project activities, the sub-variable highlights the project outcomes (Scoones, 1998). More specifically, improved livelihoods indicate that the NARIGP project's interventions have contributed to the community's socio-economic development and transformation.

Project Sustainability

Project sustainability is considered as the most critical evaluation criteria used to determine the extent to which the benefits derived from a project are maintained long after the project completion, when there is no external support (United Nations Development Programme, 2009; World Bank, 2018). Within the context of the NARIGP project, the sub-variable of project sustainability involves assessing to what extent community institutions, networks, linkages, and structures established during the project implementation phase were strengthened throughout the project's lifespan to ensure long-term functionality (Kusek & Rist, 2004). Additionally, the extent to which the NARIGP project's sustainability has been achieved demonstrates how far the target communities and stakeholders have enhanced their capabilities and skills to maintain the project's positive outcomes and impact long after its completion.

Generally, project sustainability is regarded as an essential criterion for assessing the effectiveness and impact of public and donor-funded projects (UNDP, 2009; World Bank, 2018). In context of the NARIGP project, project sustainability is critical because it emphasizes the development of viable and resilient rural communities and agricultural systems.

2.4 Empirical Review

Stakeholder Participation and Project Performance

Empirical studies have shown that stakeholder participation is frequently associated with positive project performance, particularly in public and community development projects. Recent studies have demonstrated that stakeholder participation improves project performance (World Bank, 2023; Organization for Economic Co-operation and Development, 2019). In addition, the studies emphasize that project owner culture encourages project performance.

However, the studies differ in terms of the impact of stakeholder participation on project performance. For example, studies on participation in Sub-Saharan Africa show that although many projects use participatory methods, project performance is only occasionally enhanced by participation (Ebekozi et al., 2024; Nakabugo et al.,

2020). Other studies note that stakeholder participation improves project performance in Kenya through better information exchange and conflict resolution mechanisms (Kakw'u & Sang, 2024; Bashir et al., 2024). However, challenges such as elite capture, insufficient public awareness, and ineffective feedback mechanisms hinder effective stakeholder participation in Kenyan projects. Thus, the studies contradict each other by showing that stakeholder participation has both positive and negative effects on project performance.

Some recent studies, including those cited above, do not address the role of PMIS in facilitating stakeholder participation in project management. Most studies on stakeholder participation focus on conventional project management techniques. This paper seeks to fill this gap by investigating how stakeholders participate in a project using PMIS.

Project Planning and Project Performance

Project planning is generally considered paramount to a project's success. Studies demonstrate that projects that implement planning are highly likely to achieve their objectives compared to those that fail to incorporate planning activities such as scheduling, estimating, and risk analysis (Project Management Institute, 2021; Kerzner, 2022). These findings are similar whether the projects reviewed were in developed or developing countries.

However, the same research demonstrates the influence of such factors as institutional capacity on project planning. Indeed, Flyvbjerg (2021) explores the reasons why many projects in developing countries undergo significant delays or experience overruns, despite detailed initial planning, is attributable to inadequacy in project planning practices.

In Kenya, inadequate planning has been identified as the primary cause of project implementation challenges. For instance, Ong'era & Musili (2019) examine the effect of planning on the successful completion of public works projects while Minyiri & Muchelule (2018) review the implications of poor planning on project approval delays. The body of knowledge on project planning is extensive, but most of the research is

conducted within the context of developing countries such as Kenya (Minyiri & Muchelule, 2018; Ong'era & Musili, 2019; Project Management Institute, 2013). However, such investigations overlook the ability of project managers to continuously update and adjust plans while addressing risks and other challenges. Additionally, the majority of the studies reviewed above fail to consider the implications of PMIS on project planning as an intervening variable.

Project Resource Mobilization and Project Performance

Resource mobilization is a key determinant of project success as it determines the degree to which financial, human, and material resources are available at a given time. Studies have demonstrated that effective resource allocation plays a critical role in project governance and aids in achieving high performance, especially when there is minimal wastage (Patanakul & Milosevic, 2019; United Nations Development Programme, 2020).

Some of the reviewed articles establish a positive relationship between resource availability and performance while others refute this assumption arguing that resources have no significant influence on performance unless they are appropriately managed (Priem et al., 2018). In addition, the reviewed article by Ebekozen et al. (2024) explains some of the major challenges affecting resource mobilization in African countries. The challenges include donor dependency, delayed disbursement of funds, and weak institutional capacity. On the contrary, Kenyan studies demonstrate that most projects face implementation challenges partly due to lacking appropriate resource allocation and utilization (Controller of Budget, 2024).

The reviewed articles indicate that although there is a positive association between resource availability and performance, many organizations face several resource-related challenges hindering successful project completion. In addition, the reviewed articles fail to emphasize the role of appropriate information systems in effective resource allocation and management in projects. Most researchers have evaluated the relationship between resource mobilization and project performance without considering the moderating role of PMIS. This study will contribute to the existing body of knowledge by establishing the mediating role of PMIS in the relationship

between resource mobilization and project performance.

Project Monitoring and Project Performance

Project monitoring has been identified as a critical force in determining the success of projects. Empirical studies have shown that monitoring promotes project performance through early identification of project deviations and subsequent corrective measures (World Bank, 2023; United Nations Development Programme, 2020). Monitoring also promotes accountability and transparency, especially in public projects.

However, the current body of literature shows that monitoring has not been adequately emphasized, especially in the developing world. This is because monitoring has been performed in an ad-hoc manner and has not been utilized as a management tool to promote performance (Flyvbjerg, 2021). In Kenya, monitoring has been a challenge, resulting in the abandonment of many projects (Controller of Budget, 2024). While monitoring frameworks have been developed, there are weaknesses in the implementation and institutional capacity to undertake monitoring, thus limiting its ability to promote project performance.

Additionally, the current literature lacks information on the role of real-time monitoring systems in project performance. Although the use of PMIS has been emphasized worldwide and has been shown to promote performance, there is limited information on its role in Kenya. This study, therefore, focuses on the role of PMIS in strengthening the monitoring and performance of public projects in Kenya.

Project Management Information Systems

The role of Project Management Information Systems (PMIS) in improving project performance has been a topic of great interest in recent empirical studies. Research has shown that project performance is enhanced when there is proper access to information, improved communication, and effective decision-making processes (Project Management Institute, 2021; Marnewick, 2020).

There is a great disparity in the research findings on the role of PMIS in different geographical locations. Studies have shown that PMIS is well-established and commonly used in developed countries compared to developing countries (Ebekozi et al., 2024). On the contrary, limited research has been conducted on the use of PMIS in Kenya. Most of the studies on project management practices have been focusing on the conventional aspects of project management with little emphasis on the use of PMIS. This study fills this research gap by establishing how PMIS boosts the project management practices of National Agricultural Research and Innovation Project (NARIGP).

Critique of Existing Literature

Although there is an extensive amount of empirical literature on project management practices and project performance, there are conceptual, methodological, and contextual limitations in the reviewed literature. Consequently, these limitations reduce the effectiveness and applicability of the studies.

Firstly, there is a conceptual inadequacy in the reviewed literature. Most of the authors reviewed used project management practices, which have been tested and applied in other industries and fields, to interpret their results. This approach has been questioned, especially when the study focuses on development projects in low- and middle-income countries (Davies et al., 2018). The reviewed literature also indicates that project management practices, including knowledge management, have been applied to development projects despite the differences in stakeholder, institutional, and political capacities of the countries involved.

Secondly, the reviewed literature reveals contradicting results on the link between project management practices and project performance. On the one hand, several articles establish a positive relationship between project management practices and project performance. On the other hand, some of the reviewed articles establish a non-significant relationship between project management practices and project performance. For instance, some studies reveal that project management practices have a significant impact on project performance, while others indicate that the impact is not significant. Similarly, on the relationship between management practices and

performance was inconclusive as some articles established negative while others indicated a positive relationship. These contradictions prompt the need to conduct further studies on the relationship between project management practices and performance.

Moreover, most of the reviewed articles have used a cross-sectional study design to establish the relationship between project management practices and project performance. This method fails to explain the dynamic nature of project management practices. The reviewed literature provides empirical evidence that project management practices change as a project progresses through various stages. However, using a cross-sectional study design limits the understanding of these changes over time and their impact on project performance.

Furthermore, the reviewed literature indicates that there is no theoretical framework for project management practices and their impact on project performance. Most of the authors reviewed paid scant attention to developing theories on project management practices and project performance. Consequently, there is a dearth of theories specific to project management practices and project performance.

In addition, the reviewed literature indicates no explicit consideration of the variables that influence project management practices and project performance. For instance, the literature review shows that project management practices, such as planning processes and project scope control, are implemented in isolation without explicitly considering how they contribute to project performance. However, according to the reviewed literature, the impact of any given project management practice on project performance depends on the extent to which the other supporting practices are implemented and the capacity of the implementing organization among other factors. Notably, most of the literature reviewed focuses on the level at which project management practices should be carried out without emphasizing their interrelationship and integration. The reviewed literature indicates limited information on the application of information technology in project management. Although the literature review shows that the use of a Project Management Information System (PMIS) contributes to effective planning, controlling, and managing of a project, there

is limited information explaining the extent to which PMIS use influences project performance. Additionally, although most literature establishes a positive relationship between the use of PMIS and project performance, not all project management practices are considered. This limitation is primarily evident in developing countries such as Kenya. Therefore, there is a need to conduct more research on the role of PMIS in project management among various industries. The reviewed literature reveals that most of the empirical studies were conducted in the construction industry in developed countries. In other words, there is limited information explaining the contextual influence on project management practices and project performance, particularly in developing countries. For instance, there is limited scholarly information on the implication of adopting project management practices in agricultural development programs in Kenya. However, local studies indicate the presence of various methodological and contextual influences on project management practices and project performance. Consequently, it is not possible to generalize the results of most of the studies reviewed to Kenyan contexts.

Summary

Despite the voluminous empirical literature on project management practices and project performance, several conceptual, methodological, and contextual gaps limit the generalizability, applicability, and theoretical development of the topic.

Firstly, there is a conceptual deficiency in the theoretical development of project management practices and performance. Most of the empirical literature on project management practices and performance uses generic project management concepts to interpret different project management practices and performance without fully appreciating the contextual variances. The literature reveals that development projects have several unique aspects not present in other forms of projects, such as a higher level of stakeholder heterogeneity and weaker institutional governance in low- and middle-income countries (Wambugu et al., 2021). Thus, the relevance and effectiveness of generic project management approaches, such as PMBOK, had been questioned, especially for development projects.

Second, most of the literature has contradictory evidence on the relationship between project management practices and project performance. While some empirical articles provide positive evidence on the relationship between project management practices and project performance, others document negative and mixed evidence. For example, empirical evidence reveals that selected project management practices have a significant relationship with project performance, whereas others do not contribute meaningfully to project performance. On the other hand, management literature also reveals that selected project management practices do not have a uniform impact on performance, depending on the measurement level, indicating mixed and inconsistent evidence.

Third, most previous studies examining the role of project management practices used a cross-sectional research design, which is not appropriate for investigating dynamic constructs (Cheng et al., 2021; Uwihoreye & Maringe, 2024). In addition, most of the studies used quantitative research methodologies that are limited in capturing the contextual nature of the phenomenon of interest. Literature also reveals that project management practices are not static; instead, they continuously evolve and transform throughout the project's life cycle (Gebrehiwot et al., 2023). As a result, most of the previous studies have been unable to establish a causal relationship between project management practices and project performance.

Fourth, there is limited theoretical literature on project management practices. Although project management practices have been studied extensively, most of the theoretical studies rely on borrowed theories, such as economics, sociology, and psychology, and do not develop project management-specific theories.

Fifth, the role of each project management practice on project performance has been studied independently. That is, most of the studies focus on the role of individual project management practices, such as planning or monitoring, rather than looking at their overall impact on project performance. Literature reveals that stakeholders in a project set interact and perform in a certain manner, depending on the other project management practices adopted (Gebrehiwot et al., 2023). In addition, the literature reveals that stakeholders' participation, project planning, resource mobilization and

management, project monitoring and evaluation, and project information systems are implemented at varying levels of maturity, depending on the project management capability deployed to manage the project. This observation suggests that there may be an interaction effect between project management practices on project performance.

Sixth, there is limited literature on the role of computer-assisted project management information systems in project performance. A quick scan of the literature reveals that PMIS plays a critical role in managing and supporting projects, including supporting planning, controlling, monitoring, and evaluation activities. For example, empirical studies demonstrate that PMIS improves project performance by supporting project planning, control, and monitoring functions, such as scheduling, project cost control, and decision-support systems. However, evidence on the extent to which PMIS influences project performance is inconclusive, with most of the studies documenting both positive and negative relationships in different institutional settings. Literature also reveals that PMIS plays a critical role in enhancing the efficiency and effectiveness of project performance, but with heterogeneous evidence on its overall impact, especially in developing countries.

Finally, most of the previous empirical literature on project management practices and performance comes from developed countries. There is limited literature on agricultural development project management practices and performance in Sub-Saharan Africa, particularly in Kenya. Local studies also indicate that there are several contextual gaps in understanding the role of project management practices on project performance, such as a lack of location-specific studies and an in-depth exploration of the influence of contextual variables on the project management practices-performance relationship.

It can be concluded that the reviewed literature provides substantial theoretical and empirical evidence on project management practices and performance. Although there is conflicting evidence on the relationship between project management practices and performance, most of the literature reveals that the former has a positive relationship with the latter. In addition, the reviewed literature demonstrates that stakeholder participation has a positive relationship with project performance, but it is usually

implemented formally rather than substantially. In addition, project planning, resource mobilization, and project monitoring also have a positive relationship with project performance, but they face several implementation challenges and limitations. This study also reveals that there is growing need and interest in using computer-assisted project management information systems to increase the efficiency and effectiveness of project management practices.

However, the literature is limited by several conceptual, methodological, and contextual gaps. First, most of the studies have failed to consider the influence of context on project management practices and performance. Second, previous studies examining the role of project management practices have focused on individual rather than combined influences. Third, there is limited literature exploring how project management practices affect project performance using qualitative research. Fourth, there is limited literature on the role of PMIS in influencing the project management practices-performance relationship, especially in Kenya.

The current study attempts to contribute to addressing the various conceptual, methodological, and contextual gaps documented in the literature. The current study builds upon previous literature on the influence of project management practices on project performance by exploring the combined influence of project management practices on project performance. In addition, this study examines the role of context and PMIS as moderators in the project management practices-performance relationship. Moderating role of PMIS within the context of agricultural development projects in Kenya.

2.5 Research Gaps

Despite extensive research on project management practices and project performance, there are several aspects that have been left unexplored in the context of agricultural development programs. Specifically, there are research gaps at global, regional, and local levels concerning the National Agricultural and Rural Inclusive Growth Project (NARIGP) in Kenya.

Firstly, there is evidence that stakeholder participation enhances project performance, but most studies fail to theorize project participation and explore its relationship with project performance. The studies by World Bank (2023) and Organization for Economic Co-operation and Development (2019) reveal that participants have emphasized participation in general terms and ignored specific aspects of project performance. Studies conducted in Kenya indicate that stakeholders have become involved in projects mainly through process consultation, which represents a formalistic approach to participation. This study will help fill this research gap by providing an in-depth analysis of the effect of stakeholder participation on the performance of the NARIGP.

Secondly, most of the previous studies have revealed that planning is a critical success factor, but scholars have focused little on the contextual factors affecting the relationship between project planning and performance. The researchers have identified planning as the most vital component of project management, yet studies in developing countries have shown that plans are often defective, poorly implemented, and ineffective (Flyvbjerg, 2021). Evidence from Kenya indicates that the estimation of project costs, identification of risks, and scheduling have been challenging during the planning process. However, prior investigations have failed to establish how these aspects of project planning affect the performance of agricultural development programs. This study will contribute to the body of knowledge by establishing the influence of project planning on the performance of NARIGP.

Thirdly, there is conflicting evidence on the role of resource mobilization on project performance. Some studies have revealed the role of resource availability on project performance, whereas others have shown that the effective utilization of resources is a better predictor of project performance (Patanakul & Milosevic, 2019). In the context of Sub-Saharan Africa, resource mobilization faces several challenges, including aid dependency, donor volatility, and institutional fragility. The studies conducted in Kenya have shown the role of resource availability on project performance but have neglected to establish the mediating role of resource mobilization on the relationship between resource availability and project performance. This study will add to the body of knowledge by investigating the effect of resource mobilization on the performance

of NARIGP.

Fourthly, there is evidence that monitoring is critical to achieving project performance, but scholars have failed to establish how monitoring activities affect performance outcomes. World Bank (2023) and United Nations Development Programme (2020) reports reveal that monitoring practices in developing countries are often poorly resourced, implemented, and evaluated. Scholars have established the importance of monitoring, but there is a need for more studies to reveal the extent to which monitoring activities can improve project performance. Although Kenya has monitoring systems, they have been insufficient and ineffective in enhancing the performance of the NARIGP. This study will fill the research gap by investigating how project monitoring activities can be made more effective in large-scale agricultural development projects.

Lastly, there is a paucity of research on the role of Project Management Information Systems (PMIS) on project performance in the context of Kenya. Project management literature indicates that PMIS plays a significant role in project management processes, including performance reporting, collaboration, and decision-making (Project Management Institute, 2021). However, there is a need for more empirical evidence establishing the effect of PMIS on the performance of public projects, especially in developing countries. Previous studies on project management practices in Kenya have focused on conventional project management studies. In addition, scholars have failed to investigate the moderating role of PMIS on the relationship between project management practices and project performance. This study aims to fill this research gap by investigating the moderating role of PMIS on the relationship between project management practices and the performance of NARIGP.

Another gap that this study aims to fill is that most of the past studies have used a sector-specific project management approach, which does not apply when analyzing agricultural development programs. The studies conducted in Kenya have primarily focused on construction projects and have failed to consider the unique aspects of agricultural development initiatives. Secondly, most of the previous studies have used a cross-sectional design, which does not account for the dynamic nature of project

management practices and their impact on project performance. This study will provide a theoretical and empirical basis for the effect of project management practices on the performance of large-scale agricultural development projects.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

Positive research theory is the foundation of this research. The theory holds that reality is stable and can be observed and deduced objectively (Flick, 2018). The chapter outlines the study methodology, including the research design, research variables, study location, target population, sampling technique, sample size, research instruments, pilot study, data collection methods, data analysis and presentation, and logical and ethical considerations.

3.2 Research Philosophy

Research philosophy refers to a set of beliefs or a plan that guides the development of knowledge about a phenomenon, from assumptions and approaches to data collection methods, analysis, and interpretation to be conscious of what is to be investigated (Creswell and Creswell, 2018 and Saunders, Lewis and Thornhill, 2015). Dudovski (2018) posits that adopting any philosophy, positivist, interpretivism, pragmatist, or realism, depends on the study's ontological, epistemological, and axiological assumptions. The study's conceptual foundation is based on the Positivist philosophy, which is seen to help understand the problems that impact project success in Kenya. According to Friedman (1956, 1957), positivism implies that reality is steady and can be objectively analyzed and understood without affecting the research object. As a result, because it provides the appropriate theoretical foundation, this philosophy is deemed significant to investigating project achievement in Kenya (Roberts, 2010).

3.3 Research Design

The study adopted an explanatory research design, which is appropriate for examining causal relationships between variables and testing hypotheses. This design was selected because the study aims to determine the influence of project management practices on project performance and assess the moderating role of Project Management Information Systems (PMIS).

Explanatory research design is widely used in quantitative studies where the objective is to test theory driven relationships using statistical techniques. According to *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* by Creswell and Creswell (2018), explanatory designs enable researchers to examine relationships between variables and establish cause and-effect linkages through hypothesis testing. Similarly, Saunders, Lewis, and Thornhill (2019) emphasize that explanatory research is appropriate where the study seeks to explain relationships between variables, hypotheses are tested using quantitative data and Statistical techniques such as regression analysis are applied

Further, recent methodological studies confirm that research design serves as a blueprint that links research questions, data collection, and analysis to ensure validity and reliability of findings (Asenahabi, 2019).

Justification:

The explanatory design is suitable for this study because it Enables testing of hypotheses (H01–H05), Supports analysis of causal relationships, allows quantitative measurement of variables and Facilitates testing of moderating effects (PMIS)

3.4 Target Population

According to Kenley and Harfield (2015), the study population of a survey encompasses the entire set of entities for whom the survey results was used to derive conclusions. As a result, the study population determines the units the survey findings are meant to reflect. In this study, the target population comprises of 229 respondents involved in the implementation of the National Agricultural and Rural Inclusive Growth Project (NARIGP) across 21 counties in Kenya. Specifically, the population includes Project implementing committee members, County project coordination officers, Community-driven development committee members, Beneficiary group leaders and Project monitoring and evaluation officers

The study focuses on selected NARIGP project sites in the identified counties, ensuring representation of both implementation and beneficiary perspectives.

In accordance with the Government of Kenya, Ministry of Agriculture (2023) project implementation reports, NARIGP has community-driven projects that are currently

being implemented in different counties as units of analysis.

Table 3.1: Target Population

	County government implementing NARIGP	Target Population
Arid areas –	Turkana CG	12
	Samburu CG	9
Semi-arid areas	Makueni CG	10
	Kitui CG	10
	Embu CG	8
	Meru CG	11
	Kwale CG	12
	Kilifi CG	14
	Narok CG	11
	Kirinyaga CG	8
Medium-to-high rainfall areas	Kiambu CG	15
	Murang’a CG	9
	Nakuru CG	7
	Bungom CG	14
	Trans Nzoia CG	11
	Nandi CG	12
	Vihiga CG	12
	Kisii CG	10
	Migori CG	12
	Nyamira CG	13
	Homa Bay CG	9
	Total	229

3.5 Sample and Sampling Techniques

According to Orodho and Kombo (2008), sampling is a procedure that involves selecting a number of subjects or items from a given population, such that the chosen sample represents a cross-section of the population.

3.5.1 Sampling Techniques

The researchers have utilized the stratified sampling technique in which the population was divided into groups namely, Project managers, Project sponsors and Community representatives. The stratified sampling technique was adopted because it allows having heterogeneous groups within the sample which increases the

power of research findings. In addition, Saunders et al. (2019) state that this technique facilitates having representation and avoids having sampling errors which would affect the accuracy of research results.

3.5.2 Sample Size

A sample is a subset of a population selected to participate in a study, as espoused by Brasel (2020). Yamane sample size determination (Yamane, 1967) with the following formula, which assumes a 95% confidence limit, was adopted for this study.

The study focused on 229 respondents, and census was applied because the population was accessible and manageable. Each member of the population contained significant and unique information, and accuracy was critical, which ruled out the application of sampling. Saunders et al. (2019) explain that census is applicable when the population is available and each respondent has valuable and unrenewable information. On the other hand, Creswell and Creswell (2018) argue that census supports internal validity because there is no risk of sampling bias. In this case, all 229 respondents who were included in the study were actively involved in NARIGP implementation, and each provided specialized and situational information that could not be replaced by another respondent. Moreover, omitting some respondents would have decreased the accuracy of results because of the loss of vital information. Therefore, census was the best choice because it enhanced validity (no sampling bias), reliability (all members of the population were covered), and accuracy of results.

Table 3.2: Sample Size

	County government implementing NARIGP	Sample Size
Arid areas	Turkana CG	8
	Samburu CG	6
Semi-arid areas	Makueni CG	6
	Kitui CG	6
	Embu CG	5
	Meru CG	7
	Kwale CG	8
	Kilifi CG	9
	Narok CG	7
Medium-to-high rainfall areas	Kirinyaga CG	5
	Kiambu CG	10
	Murang'a CG	6
	Nakuru CG	4
	Bungom CG	9
	Trans Nzoia CG	7
	Nandi CG	8
	Vihiga CG	8
	Kisii CG	6
	Migori CG	8
	Nyamira CG	8
	Homa Bay CG	6
	Total	146

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

N = population

n = sample size

e = the desired level of precision (0.05)

$$n = \frac{229}{1+229(0.05)^2} = 146$$

Based on the target population of 229, the sample size was 146. A simple random sampling procedure was used to reach the respondents. Table 3.2 gives a summary of the sample size.

3.6 Data Collection Instrument

The study utilized structured and semi-structured questionnaires to collect quantitative data. The questionnaire employed Likert-scale items to measure study variables.

Questionnaires were selected because they allow standardized data collection, enable quantitative analysis and are efficient for large populations

According to Creswell and Creswell (2018), questionnaires are appropriate for explanatory studies because they support statistical analysis and hypothesis testing to collect both quantitative and qualitative data. Novikov and Novikov (2013) contemplate a questionnaire as a formal set of questions or statements designed to collect respondents' information that accomplishes research objectives. Cuervo-Cazurra, Mudambi, and Piscitello (2017) report that questionnaires are resourceful data collection tools that enable the researcher to measure the research variables and are informed by the simplicity of its administration, items' scoring, and ease of use in the data analysis process. The questionnaires were administered to the sampled respondents concerning their responsibilities in the agriculture sector. A Likert scale in the questionnaire was employed where most questions were structured on an agreement continuum using a 5-point Likert-type scale.

3.7 Data Collection Procedure

According to Kothari (2011), data collection is the systematic process of obtaining and quantifying data on the studied variables that allow investigators to respond to research questions, test hypotheses, and assess outcomes. The data collection commenced after the researcher received formal authorization from JKUAT and a letter of introduction and approval from NACOSTI. After formal approval by NARIGP management, the link to the questionnaire was forwarded to the designated county officer in charge at the 21 county offices for onward distribution to respondents. Mixed questionnaires were used in this study since they allow quantitative and qualitative data collection. Therefore, the questionnaires were distributed via Google Forms as it is the fastest, cheapest, most convenient, and most reliable way to manage virtual questionnaires. The mixed questionnaires are presented on a Likert scale, with a score of 1-5, tabulated as follows: 1= Strongly Disagree; 2= Disagree; 3= Somewhat Agree; 4= Agree; 5=Strongly Agree.

3.8 Pilot Test

A pilot study was conducted to check the accuracy and appropriateness of the research design and instruments. The aim is to make sure that the questionnaire is consistent, clear, and can be understood. The questionnaire was piloted using 15 respondents drawn from the target population. Mugenda (2003) asserts that 10% of the sample population is adequate for piloting. The validity and reliability of the research tool were also determined.

3.8.1 Validity of the Research Instrument

Validity is the degree to which an instrument measures what it is expected to measure or how truthful the outcomes are. It is concerned with accurately representing the study variables to affirm the research instrument's appropriateness (Kothari, 2015; Nachmias and Nachmias, 2014). Various classifications of validity are used in testing the fitness of measures, but a globally acknowledged classification consists of four main forms: criterion, face, content, and construct. Validity deals with trustworthiness, lawfulness, and germane research (Creswell & Creswell, 2018).

Face validity was applied in the early phases of designing the questionnaire. Face validity was attained by supervisors critiquing the questionnaire. Experts examining the items give their opinions, and necessary adjustments were made to fit their purpose. According to Middleton (2020), face validity reflects how appropriate the content of a test is on the surface or face of it if the content of the test appears to be suitable to its stated aims.

Criterion validity measures the degree to which data obtained from an instrument meaningfully and accurately reflects or represents a theoretical concept (Creswell & Creswell, 2018). It measures how well one measure predicts an outcome for another action. This approach is often used where no criteria or content domain is accepted as an adequate concept measure. The measurements need to conform to the theoretical expectations. This study borrowed social, economic, and environmental reports from previous studies and theories.

Content validity was used to check if the tool created suits the job. If research the instrument is representative of all relevant parts of the subjects it aimed to cover, then it has construct validity. Matula *et al.* (2018) opine that content validity is the accuracy with which a tool measures the factors being studied. The study was evaluated for content validity using the Content Validity Index (CVI). According to Polit and Beck (2011), a content validity index with at least six experts should give a maximum CVI of 0.8.

Further, construct validity was used to validate the instruments. Construct validity is when a tool or test can measure what it is intended to measure. Construct validity to accomplish convergent and discriminant facts was assessed using factor analysis, as Straub *et al.* (2004) postulated.

3.8.2 Reliability of the Research Instrument

Kothari (2014) advances that producing consistent results qualifies a measuring instrument as reliable, which means that the same results should be obtained with repeated instrument administration. Reliability tests were carried out via questionnaires. This study used the internal consistency method to ensure reliability. Cronbach's alpha coefficient was calculated to determine the correlation between different items under study. Cronbach Alpha coefficient was calculated on the study variables to determine construct reliability. Mathematically, if there are p sub-items used, Cronbach Alpha coefficient (α) is calculated thus:

$$\alpha = \frac{p}{p-1} \left(\frac{S_t^2 - \sum S_i^2}{S_t^2} \right)$$

S_t^2 = the variance of the scores for the summation of the Individual sub-items

$\sum S_i^2$ = the sum of the variance of individual items.

The Alpha coefficient can take any value from zero (shows no internal consistency) to one (complete internal consistency). Sekaran (2016) advanced that reliability coefficients closer to 1.0 are considered better, but as they fall less than 0.60, they are

considered poor; therefore, the coefficients around the 0.70 range are acceptable, and those over 0.80 are desirable. A coefficient above or equal to 0.7 is sufficient for most cases (Sreevidya and Sunitha, 2011). Reliability analysis was performed to verify the accuracy of the measurement model. Computations to determine the reliability statistics, including Cronbach's Alpha, were done. The details of reliability of each of the constructs were presented in Table 3.3. The reliability statistics, including Cronbach's Alpha, were essential in determining the internal consistency of the items included in each variable.

Table 3.3: Reliability Results

	Reliability Statistics		
	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
Performance of NARIGP	0.746	0.750	7
Stakeholders' participation	0.861	0.859	10
Project planning	0.899	0.898	7
Project resource mobilization	0.870	0.870	7
Project monitoring	0.881	0.899	7
Project management information system	0.788	0.768	7

The reliability results indicate that Cronbach's Alpha values for the study constructs ranged from 0.746 to 0.899. Consequently, all dimensions were found to be reliable since the scores exceeded the lower reliability limit of 0.70 (Fraenkel & Wallen, 2000). In this case, Performance of NARIGP was 0.746, whereas Stakeholders' Participation stood at 0.861. On the other hand, Project Planning registered the highest reliability score at 0.899. Project Monitoring and Project Resource Mobilization recorded 0.881 and 0.870 respectively. Similarly, the Project Management Information System was moderately reliable at 0.788. Overall, the reliability analysis reveals that all constructs were reliable. This implies that the items used in each dimension captured the intended meaning of the construct. Notably, all the dimensions met the recommended reliability

level of more than 0.70 (Fraenkel & Wallen, 2000). Therefore, the reliability of the study's instruments was satisfactorily achieved. According to Nunnally and Bernstein (1994), the items explored in this research would contribute significantly to subsequent studies. Additionally, the findings' reliability enhances the validity of this study's recommendations and conclusions. Thus, the study's recommendations and subsequent implementation of the proposed strategies will improve project management practices in the NARIGP.

3.9 Diagnostic Tests

The study was subjected to the following diagnostic tests.

3.9.1 Multicollinearity Test

In statistics, Multicollinearity occurs when two or more predictor variables are highly correlated in a multiple regression model (Michael, 2020). Determining multicollinearity, according to Freund, Rudolf, and Ramon, little (2000), is important and should be tested by examining the tolerance and the variance inflation factor (VIF) diagnostic factors. The VIF measures the impact of multicollinearity among the variables in a regression model (Gakure and Uloko 2016). VIF or tolerance values less than 0.1 and VIF greater than indicate significant multicollinearity. A multicollinearity test is to be performed on all the study variables.

Autocorrelation is the correlation between members of a series of observations ordered in time or space (Gall and Borg, 2008; Gujarat, 2009). According to Tsay (2020), the Durbin- Watson statistic ranges between 0 and 4. A value near 2 indicates non-Autocorrelation; a value closer to 0 indicates a positive correlation, while a value closer to 4 indicates a negative correlation. An Autocorrelation test was executed on the study variables, and the results obtained was discussed in chapter four of this research study.

3.9.2 Normality Test

An assumption of a normally distributed dependent variable is important to make inferences from an analysis. One of the methods used to check for normality is the Q-Q test. According to Gall and Borg, (2008), a Q-Q test is a plot of standard distribution

percentiles against the observed data's corresponding percentiles. When conducting a Q-Q test, the resulting plot should show an approximately straight line with a positive slope as a sign of normality. This method was employed to determine the normality of the dependent variable in the study, and the results obtained was discussed in chapter four of this research study.

3.9.3 Heteroscedasticity Test

The variance of the residual terms is expected to be constant in the case of homoscedasticity. There is heteroscedasticity if the variances are unequal (Field, 2009). Since the data for this research is a cross-section of constituencies, this raises concerns about the existence of heteroscedasticity. The Classical Linear Regression Model (CLRM) assumes that the error term is homoscedastic and has a constant variance. If the error variance is not constant, then there is heteroscedasticity in the data.

Running a regression model without accounting for heteroscedasticity would lead to biased parameter estimates. The heteroscedasticity, the Breusch-Pagan/Godfrey test (1979). The null hypothesis of this study was that the error variance is homoscedastic. If the null hypothesis is rejected and a conclusion is made that heteroscedasticity is present in the panel data, then this would be accounted for by running a Feasible Generalized Least Squares (FGLS) model.

3.10 Data Analysis and Presentation

The primary raw data was obtained from the questionnaires and checked for omissions, legibility, and consistency before being coded for analysis. The Statistical Package for the Social Sciences (SPSS) version 27 was used to analyze quantitative and inferential statistics. Qualitative data was analyzed using content analysis and presented the results in prose form. The inferential analysis was used in examining the association between project planning and the performance of NARIGIP in Kenya. The researcher used the correlation coefficient to test the strength and direction of the relationship between the variables.

The study calculated multiple regression analysis, which helped to generate a weighted estimation equation that supported the prediction of values (Cooper and Schindler, 2016) for response variables from the values for several predictor variables. The study sought to predict the performance of the National Agricultural and Rural Inclusive Growth Programme in Kenya based on Stakeholder Participation, Project planning, Project Resource Mobilization and Project Monitoring, and moderating variable of the Project Management Information System. The regression model adopted was;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \epsilon + Z \dots \dots \dots (i)$$

Where: Y = performance of NARIGP

X_1 = Stakeholders Participation

X_2 = Project Planning

X_3 = Project Resource Mobilization

X_4 = Project Monitoring

Z = Project Management Information System

β_0 is a constant (in which the value of the dependent variable is; Y when all the independent variables are 0).

β_{1-4} is the regression coefficients or change induced by independent and moderating variables.

ϵ : The error term.

To establish the moderating effect of Project Management Information System (z) on the relationship between the independent variable and the dependent variable, the model adopted was;

$$Y = \beta_0 + \beta_1 X_1 Z + \beta_2 X_2 Z + \beta_3 X_3 Z + \beta_4 X_4 Z + \epsilon \dots \dots \dots (ii)$$

3.11 Hypothesis Testing

The F-test and T-test was used to test the five hypothesis statements. SPSS version 25 was used to do the tests. The test criteria are such that the null hypothesis H_0 to be rejected if $\beta \neq 0$. Otherwise, the study failed to reject H_0 . The hypothesis test was done at a significant level of 5 percent, which is significant for social sciences. The p-values from the regression analysis were used to decide if to reject or accept the null hypothesis.

- **H01:** Project planning has no significant effect on project performance
- **H02:** Resource mobilization has no significant effect on project performance
- **H03:** Project monitoring has no significant effect on project performance
- **H04:** PMIS has no significant moderating effect

Where,

We Reject H_0 if $p < 0.05$

We Fail to reject H_0 if $p \geq 0.05$

Table 3.3: Hypothesis Testing

Hypothesis Statement	Hypothesis Test	Decision Rule
H01: Stakeholder Participation has no significant influence on the performance of Kenya's National Agricultural and Rural Inclusive Growth Programme.	F-test (ANOVA) T-test H0: $\beta_1 = 0$; H0: $\beta_1 \neq 0$	Reject H01 if $p \leq 0.05$; otherwise, fail to reject H01 if $p > 0.05$.
H02: Project planning has no significant influence on the performance of Kenya's National Agricultural and Rural Inclusive Growth Programme.	F-test (ANOVA) T-test H0: $\beta_2 = 0$; H0: $\beta_2 \neq 0$	Reject H02 if $p \leq 0.05$; otherwise, fail to reject H02 if $p > 0.05$.

H₀₃: Project Resource Mobilization has no significant influence on the performance of Kenya's National Agricultural and Rural Inclusive Growth Programme.	F-test (ANOVA) T-test H₀: $\beta_3 = 0$; H₁: $\beta_3 \neq 0$	Reject H₀₃ if $p \leq 0.05$; otherwise, fail to reject H₀₃ if $p > 0.05$.
H₀₄: Project Monitoring has no significant influence on Kenya's performance of the National Agricultural and Rural Inclusive Growth Programme.	F-test (ANOVA) T-test H₀: $\beta_4 = 0$; H₁: $\beta_4 \neq 0$	Reject H₀₄ if $p \leq 0.05$; otherwise, fail to reject H₀₄ if $p > 0.05$.
H₀₅: Project Management Information System do not have a significant moderating role in the performance of National Agricultural and Rural Inclusive Growth Programme in Kenya	F-test (ANOVA) T-test H₀: $\beta_5 = 0$; H₁: $\beta_5 \neq 0$	Reject H₀₅ if $p \leq 0.05$; otherwise, fail to reject H₀₅ if $p > 0.05$.

3.12 Ethical Consideration

The study adhered to strict ethical standards, including:

Informed consent: Participation was voluntary and based on full disclosure

Confidentiality: Respondent identities were anonymized

Privacy protection: Data was securely stored and used only for academic purposes

Ethical approval: Authorization was obtained from relevant institutional and county authorities

Non-maleficence: The study ensured no harm was caused to participants

3.13 Operationalization of Variables

All the variables were measured on a five-point Likert scale with an option for respondents to choose between Strongly Disagree (1) and Strongly Agree (5). The operationalization of the terms was based on the Project Management Institute's (PMI, 2021) standards and previous research that identified key performance indicators for project success, monitoring systems, and the utilization of information system tools in public project management.

Table 3.3: Operationalization of Study Variables

Variable Type	Variable	Indicators	Measurement Scale
Independent Variable	Project Planning	Scheduling, stakeholder engagement, budgeting	Likert scale (1–5)
Independent Variable	Project Monitoring	Progress tracking, reporting, evaluation systems	Likert scale (1–5)
Independent Variable	Resource Mobilization	Resource identification, allocation, utilization	Likert scale (1–5)
Dependent Variable	Project Performance	Cost efficiency, timeliness, quality, stakeholder satisfaction	Likert scale (1–5)
Moderating Variable	Project Management Information Systems (PMIS)	System usage, data accuracy, reporting efficiency, accessibility	Likert scale (1–5)

3.14 Chapter Summary

The present chapter describes the research methodology that has been used. Below the research design, the target population, sampling strategy, data collection procedures, operationalization of variables, data analysis, diagnostic tests, ethical issues, and hypothesis testing have been presented. The study was conducted using the APA 6th edition formatting guidelines to ensure consistency and research validity.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter presents the findings and results of the use of variables using procedures mentioned in chapter three of the methodology. In line with specific objectives, data was analyzed, interpreted, and inferences drawn on them. The main aim of the study was the determination of the influence of project management practices on the performance of the National Agricultural and Rural Inclusive Growth Program in Kenya.

4.2. Response Rate

In this study a total of 146 questionnaires were administered to the different employees of National Agricultural and Rural Inclusive Growth Program County project coordinators, component agriculture leaders, community-driven leaders, line project managers, Finance officers, project donor, National project coordinator and Directors of supply chain management, who have or are benefiting directly from the projects within 21 counties in Kenya. The response rate was analyzed as per questionnaire order and presented in table 4.1 below:

Table 4.1: Response Rate

	No.	Percentage
Total questionnaire distributed	146	100
Total returned questionnaires	132	90.4
Unusable questionnaires	7	4.8
Usable questionnaires	125	85.6

Source: Field Data (2024)

Based on the information provided in Table 4.1, 125 questionnaires were distributed and 132 questionnaires returned. This represented a response rate of 90.4%. Nevertheless, upon screening and cleaning the data to remove missing and outlier

values, 7 questionnaires were marked as incomplete or missing values and 3 were removed as outliers. This reduced the response rate to 85.6%. The high response rate was achieved because of the support from the management in NARIGP Kenya, which enabled the research to be successful. The questionnaires were first given to those who required more time to respond, which enabled faster collection.

Based on the recommendation by Mugenda and Mugenda (2013), a response rate of fifty percent is satisfactory, sixty percent is good, and seventy percent and above is very good. Cooper and Schindler (2014) agree that one should consider the response rate when determining whether a study is sufficient to produce meaningful results. They recommend pursuing the study if the expected response rate is more than sixty percent. Therefore, eighty-five percent is a very satisfactory response rate to guarantee quality data for analysis and produce reliable results.

4.3 Data Preparation, Screening and Cleaning

Data preparation is the process of gathering information, cleaning and combining it into one file or table for analysis purposes (Karen, 2019). The data underwent various preparations to meet the required standard needed for qualitative and quantitative analysis in this study.

4.3.1 Checking for Missing Values and Treatment

After collecting the questionnaires with the help of the participants, the next step was checking their correct filling. The cases with more than 50 percent of missing data or values were excluded from the analysis since, according to Hair (2010), researchers can remove ‘respondents with more than 50 percent of missing values’; Tabachnick and Fidell (2018) also note that such respondents can distort other respondents’ data. Thus, four respondents with more than 50 percent of empty data cells were excluded from consideration. For other respondents, who had less than 50 percent of missing values, according to Pallant (2011), their further treatment involved substituting missing values with the mean values for the variables. Hair (2010) also recommends mean substitution as a method for dealing with missing values, which has advantages such as less ‘computational complexities’, unbiasedness of factor loadings, and simplicity since it

can be implemented with the help of any statistical software package. It is evident that respondents with missing values were treated correctly in accordance with the rules of quantitative research.

4.3.2 Outliers

Outliers were detected to ensure data accuracy and reliability. First, the study used Mahala Nobis Distance ($p < 0.001$) to determine multivariate outliers by comparing the data set's critical value with the calculated chi-square value. The extreme values above the critical value on the chart were evaluated and removed if necessary. Secondly, the study used boxplots and standardized residuals to identify univariate outliers. The extreme values were determined using the standardized residual values of less than -3 and greater than 3. The extreme values were then verified, transformed, or removed for better regression model results.

Table 4.2: Mahalanobi Distance

			P		
		Case ID	Value	value	
Mahalanobi Distance	Highest	1	81	130.18	0.0000
		2	115	91.41	0.0000
		104			

3

4.4 Factor Analysis

Prior to carrying out both the descriptive and inferential statistical procedures, the data were examined to unveil its underlying factor structure using both exploratory and confirmatory factor analyses. Field (2013) explains that factor analysis is a process of reducing a set of variables to a smaller number of factors or variables. Factors are sometimes referred to as latent variables because they are not measured directly; rather, they are hidden variables that explain the variances in the measured variables. Factor analysis helps examine relationships between several variables by grouping them into a smaller set of factors according to underlying dimensions. Additionally,

the Kaiser-Meyer-Olkin Test was used to ascertain that there were enough variables for factor analysis. This test also determines whether the sample size was adequate for the intended analysis. In this study, Bartlett's Test of Sphericity was also used to determine whether the variables had equal variance.

This is an important assumption for tests such as ANOVA; therefore, it was necessary to ensure there was no significant variance between the different groups before proceeding with the rest of the analysis (Abd ElHafeez et al., 2022). Total Variance Explained was also stated, as it shows the percentage of variance explained by each construct. After extracting factors, rotation was done, which helped minimize the number of factors that each variable was loaded on. Component factor analysis with varimax rotation was done on all the variables to delete items with high loadings on each other. This process is used to identify a simpler structure so that it becomes easy to evaluate the variables. The varimax rotation was considered appropriate for this study because it was assumed that factors were mutually independent. Hair et al. (2015) suggest that items with loading factors of less than 0.5 are deleted, and those with more than 0.5 are retained in a factor analysis. Therefore, items were well loaded onto their underlying variable structures and dimensions. A summary and discussion of the results are provided in this section.

4.4.1 Factor Analysis for Project Performance

Tables 4.1 present the principal component matrix for all constructs of the project performance. The table shows how factors loaded on constructs. The authors used Varimax rotation to arrange factors in a simpler structure to understand the data. The Varimax method rotates the factors such that each component has maximum loading on the factor. Table 4.9 of the study shows Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Bartlett's Test of Sphericity for Project Performance. The tests were performed to estimate the sampling adequacy and the sphericity of the data respectively. The authors fitted the data to the factor model. The Kaiser-Meyer-Olkin Measure test estimates whether the sample size is adequate whereas Bartlett's Test of Sphericity evaluates the hypothesis that the correlation matrix is an identity matrix.

The study adopted Varimax rotation method to load variables on factors to make interpretation of data easier. The method ensures that the variables are loaded on one factor to enhance simplicity in understanding the relationship between variables in the project performance.

Table 4.3: Factor Analysis for Project Performance

	Loadings
The project has achieved its intended goals and objectives.	0.718
The project was completed within the allocated time frame.	0.780
The project was completed within the allocated budget.	0.746
The project deliverables meet the desired quality standards.	0.661
The project outcomes have met or exceeded stakeholders' expectations.	0.678
The project has effectively addressed identified risks and issues.	0.876
The project has generated positive impacts or benefits for the organization or community.	0.846
KMO and Bartlett's Test	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	0.615
Bartlett's Test of Sphericity, Approx. Chi-Square	180.817
Df	21
Sig.	0.000
Total Variance Explained	
Eigenvalues	2.314
% of Variance	57.382
Cumulative %	57.382
Extraction Method: Principal Component Analysis.	

The result from Table 4.3 shows that Bartlett's Test of Sphericity had a significant value of Chi-square (x2) 180.817 with a p-value of .000 which is below the 0.05 level of significance. At the same time, the KMO measure of sampling adequacy was found to be 0.615 which is higher than the recommended 0.5 by Field (2013). This shows that the data was suitable for factor analysis for Project Performance which was recommended by Leech et al. (2013) and Morgan et al. (2012). The KMO test result implies that the sample size was adequate for factor analysis while Bartlett's Test of Sphericity was significant at which shows equal variance in all sample groups hence why it was appropriate to use factor analysis.

Table 4.4 reveals that the 1 component had an Eigen value of 2.314. This Eigen value was greater than 1 which implies that the factors explain a greater variance than one observed variable. In addition, the total variance explained by all the factors added up to 57.382% which was a satisfactory percentage since the recommended percentage was above 40% according to yong & pearce (2013). This means that the items selected were relevant to explaining the project performance construct and were suitable for the rotation process. Moreover, the factors explained most of the variance and were prioritized using the Eigen values because of their contribution towards explaining the variance in the observed variables (tabachnick and fidell, 2018). The results from varimax rotation had a high factor loading which implies that there was a high correlation between the factors and the variables. There were seven items in the study that had factor loading scores higher than the minimum required score of 0.5 (Hair et al. (2014). All the seven items met the threshold and were therefore considered appropriate for use in the final analysis.

4.4.2 Factor Analysis for Project Management Practices

Exploratory factor analysis was conducted to explore project management practices. The extraction method was principal component analysis, and Varimax rotation with Kaiser Normalization was used. Table 4.4 contains the KMO Measure of Sampling Adequacy and Bartlett's Test of Sphericity needed to evaluate the sample for factor analysis.

Table 4.4: KMO and Bartlett's Test for Project Management Practices

	Loadings
Stakeholders are actively involved in the decision-making process of the project.	0.902
Stakeholders have ample opportunities to provide feedback and suggestions for the project.	0.914
Stakeholders are regularly updated on the progress and milestones of the project.	0.812
Stakeholders are provided with the necessary information and resources to participate effectively in	0.892
Stakeholders' perspectives and concerns are considered and integrated into the project planning	0.858
Stakeholders' contributions and inputs are acknowledged and valued by the project team.	0.606
The project team actively seeks and encourages stakeholder engagement throughout the project	0.678
Stakeholders have a sense of ownership and commitment to the project's success.	0.735

The project team collaborates with stakeholders address any issues or challenges that arise during	0.655
Stakeholders have a clear understanding of their roles and responsibilities in the project.	0.701
The project objectives and scope are clearly defined and communicated.	0.656
The project plan includes well-defined tasks, deliverables, and timelines.	0.918
The project team has conducted thorough research and analysis to inform the planning process.	0.644
The project plan considers potential risks and includes appropriate mitigation strategies.	0.555
The project plan has been reviewed and approved by key stakeholders.	0.672
The project plan allows for flexibility and adaptation as needed.	0.551
The project plan aligns with the organization's overall strategic goals and objectives.	0.591
The project team has effectively identified the resources required for project implementation.	0.547
Adequate resources have been allocated to the project to ensure its successful execution.	0.552
The project team has established precise mechanisms for acquiring and mobilizing the required	0.696
The project team actively monitors and manages resource utilization to ensure efficient and	0.516
The project team proactively identifies and addresses any resource gaps or constraints that may ...	0.685
The project team collaborates with relevant stakeholders to leverage additional resources and	0.642
The project team has a well-defined plan for resource allocation and prioritization.	0.576
The project team has established clear monitoring objectives and indicators to track project progress.	0.789
The project team regularly collects and analyzes data to assess project performance against set targets.	0.714
The project team effectively communicates project monitoring results to relevant stakeholders.	0.906
The project team promptly identifies and addresses any deviations or issues detected through	0.84
The project team utilizes appropriate monitoring tools and techniques to ensure accurate and reliable.	0.895
The project team collaborates with stakeholders to obtain their input and feedback during monitoring.	0.931
The project team conducts regular project review meetings to discuss monitoring findings and make.	0.904
Total Variance Explained	
Eigenvalues	7.028
% of Variance	63.929
Cumulative %	63.929
KMO and Bartlett's Test	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	0.551
Bartlett's Test of Sphericity, Approx. Chi-Square	5393.276
Df	465
Sig.	0.000

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a Rotation converged in 6 iterations.

In Table 4.4, Bartlett's Test of Sphericity has a highly significant Chi-Square value ($\chi^2=5393.276$ with a degree of freedom of 465) and a p-value of .000 which is below the significance level ($p \geq 0.05$). At the same time, the measure of sampling adequacy was 0.551 which is higher than the suggested 0.5 threshold by Field (2013). Therefore, the initial assessment concluded that the variables are appropriate for factor analysis in line with the suggestion by Leech et al. (2013).

After testing KMO in Table 4.4, the next step in the evaluation process was to consider Varimax rotation. Specifically, the analysis identified two components with Eigenvalues and a percentage of variance explained by the underlying factors in project management practices (Table 4.4). It was revealed that all items comprising stakeholders' participation, project planning, project resource mobilization, and project monitoring jointly explain 63.929% of the variance in the project management practices. Simultaneously, the Eigenvalues of 7.028 exceeded the threshold of 1 suggested by Yong and Pearce (2013). This outcome was a basis for proceeding to the items extraction step as Eigenvalues exceeded the threshold value of 1 and thus, items adequately represent the variables (Yong and Pearce, 2013).

Hair et al. (2014) suggested that items with factors loading below 0.5 should be excluded from further analysis. Therefore, the study assessed all items included in the project management practices comprising stakeholders' participation, project planning, project resource mobilization, and project monitoring. According to the results presented in Table 4.4, 31 items from Varimax rotation step exceeded the threshold of 0.5. Consequently, 9 items were subjected to further analysis because of their substantial contribution to the outcome variable of interest in accordance with Hair et al. (2014). Specifically, the analysis was narrowed down to these items to ensure that all factors influencing project management practices have adequate impact on it.

4.4.3 Factor Analysis for Project Management Information Systems

The study employed principal component analysis and Varimax rotation to assess the Project Management Information Systems. The results of these analyses were summarized in tables 4.5, highlighting key indicators such as the KMO Measure of

Sampling Adequacy, total variance explained, and the rotated components matrix.

Table 4.5: KMO and Bartlett's Test for Project Management Information System

	Loadings
The project management information system (PMIS) effectively captures and stores project data and information.	0.850
The PMIS provides timely and accurate reports and updates on project progress.	0.875
The PMIS facilitates efficient communication and collaboration among project team members.	0.874
The PMIS allows for easy access to project documentation and relevant resources.	0.727
The PMIS supports effective decision-making by providing reliable and relevant data and analysis.	0.778
The PMIS is user-friendly and intuitive, requiring minimal training for team members to navigate and utilize its features.	0.861
The PMIS ensures the security and confidentiality of project information and data.	0.899
KMO and Bartlett's Test	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	0.711
Bartlett's Test of Sphericity, Approx. Chi-Square	421.119
Df	21
Sig.	0.000
Total Variance Explained	
Initial Eigenvalues	3.144
% of Variance	72.296
Cumulative %	72.296
Extraction Method: Principal Component Analysis.	
Rotation Method: Varimax with Kaiser Normalization.	

Findings from Table 4.5 indicate that Bartlett's Test of Sphericity had a chi-square value of 421.119 and a p-value of 0.000 which is less than 0.05. In addition, the KMO measure of sampling adequacy was found to be 0.711 which is way above the threshold of 0.5 as recommended by Field (2013). Therefore, the results prove that data collected from Project Management Information Systems in western Kenya is suitable for factor analysis as recommended by Leech et al. (2013).

Follow-up analysis from Table 4.5 indicates that all items explained 72.296% of variance in the Project Management Information Systems. Additionally, the Eigenvalues of the two rotated components were 3.717 and 3.144 which are above the

threshold of 1 as recommended by Yong and Pierce (2013) and therefore justifies the proceeding analysis with the items as they can adequately explain the variables. A component matrix for the seven performance items indicating items with poor loading was generated and the results are probably in Table 4.5. The table below describes the contribution of each item toward the analysis. All items had loadings of more than 0.5 as recommended by Hair et al. (2014) and therefore none of them was excluded from the analysis. The discussion will focus on items contributing to the factor analysis since they meet the criteria of factor analysis as outlined in the research.

4.5 Demographic Information

This section contains an analysis of the demographic data, including the level of education, employee position within the organization, managed projects, and years of employment with the organization.

Table 4.6: Respondent Gender

	Frequency	Percent
Male	80	64
Female	45	36
Total	125	100

The findings presented in Table 4.6 reveal that the gender distribution among respondents shows a majority (64%) of male participants in the study. This higher percentage of male respondents compared to the 36% of female respondents indicated predominance of male representation suggests that men are more actively involved in the NARIGP, which could influence perceptions and experiences related to project management practices.

Table 4.7: Respondent Age

	Frequency	Percent
18 - 30 years	3	2.4
31 - 40 years	45	36
41 - 50 years	77	61.6
Total	125	100

The data provided in Table 4.7 demonstrate that the most common age group for respondents is 41-50 years, which comprises 61.6% of all participants. Another considerable group is represented by people aged between 31 and 40, comprising 36%. Only 2.4% of respondents are aged between 18 and 30. Therefore, it may be concluded that NARIGP is mostly performed by middle-aged individuals who presumably have extensive experience and knowledge about project management practices. At the same time, there might be a possibility that young people are not interested in participating in the project management sphere.

Table 4.8: Respondent Education Level

	Frequency	Percent
Primary Certificate	3	2.4
Secondary Certificate	32	25.6
College Diploma/Certificate	49	39.2
University Undergraduate Degree	41	32.8
Total	125	100

Findings from Table 4.8 indicate that the largest portion of the respondents fall under the category of having a College Diploma/Certificate. Specifically, 39.2% have a College Diploma/Certificate, 32.8% hold a University Undergraduate Degree, 25.6% have a Secondary Certificate, while only 2.4% have a Primary Certificate. It can be concluded that on average the respondents are well-educated with most of them having completed at least some college education. It is also interesting to note that almost a third of the respondents have a University Degree, which highlights their level of expertise, knowledge, and competencies in the field of project management. In addition, the significant number of respondents with a College Diploma/Certificate, indicates their practical experience in project management practice.

Table 4.9: Respondent Job Position in the Project

	Frequency	Percent
Components Agriculture Leader	7	5.6
Community Driven Leader	43	34.4
Line Project Manager	45	36
Finance Officer	30	24
Total	125	100

The researchers have utilized the data from Table 4.9 to determine the most common respondents to the survey. According to the results, the largest group of respondents (36%) falls under the category of Line Project Managers. The second largest group of project workers comprises Community Driven Leaders and accounts for 34.4%. Finance Officers constitute 24% of all respondents, while Components Agriculture Leaders only comprise 5.6%. Overall, the prevalence of Line Project Managers implies that the majority of the respondents are project managers who are directly responsible for managing and implementing the given project. In turn, the significant share of Community Driven Leaders reflects the extent to which community-driven development is present and supported within the project. Lastly, the sizeable portion of Finance Officers also adds to the value of these findings, as they provide insight into the financing and management aspects of the project.

Table 4.60: Respondent Department

	Frequency	Percent
Health	7	5.6
Agriculture	30	24
Education	53	42.4
Public Works	27	21.6
Environment	8	6.4
Total	125	100

Results contained in Table 4.10 indicate that the biggest portion of respondents belongs to the education department, representing 42.4%, while the agriculture department accounts for 24%, and public works for 21.6%. The distribution of these

departments among the respondents adds value to the results to show that the attention of all the main sectors in these communities needs to be considered to achieve the set objective successfully.

Table 4.71: Respondent Years in NARIGP

	Frequency	Percent
Less than 1 year	24	19.2
1 - 5 years	48	38.4
6 - 10 years	38	30.4
Over 10 years	15	12
Total	125	100

The results presented in Table 4.11 reflect that 19.2% of respondents have been a member of NARIGP for less than a year and 38.4% have been members for between one and five years. Therefore, it may be concluded that a relatively large proportion of respondents have a short-term of experience working with the organization. At the same time, 30.4% have been a member for between six and ten years, which demonstrates that most respondents have mid-level experience, and 12% have more than ten years of experience, which suggests that a proportion of respondents have rich experience. It may be concluded that the respondents have various levels of experience, which may affect their responses to the questionnaire. The majority of respondents fall into the category of those who have worked with the organization for between one and five years. It indicates that the project has a sufficient number of fresh employees who can provide innovative ideas and methods, as well as experienced professionals who can share their knowledge and expertise. It is noteworthy that the years of experience may be used as a factor that may affect the reliability of the results. Thus, it is possible that the answers provided by the respondents who have worked with the organization for a short time will differ from the answers provided by the respondents with extensive work experience, which may affect the implementation of project management processes and strategies.

4.6 Descriptive Statistics

4.6.1 Performance of NARIGP

Using a five-point Likert scale, the study sort to establish performance of NARIGP in Kenya, Table 4.12 shows the results. From the table the statements were rated in percentages responding to the 5-point Likert scale.

Table 4.82: Performance of NARIGP

		SD	D	N	A	SA	Mean	Std. Dev
The project has achieved its intended goals and objectives.	%	20	20	1.6	39.2	19.2	3.18	1.46
The project was completed within the allocated time frame.	%	0	17.6	28	16.8	37.6	3.74	1.14
The project was completed within the allocated budget.	%	20	20	12	13.6	34.4	3.22	1.58
The project deliverables meet the desired quality standards.	%	0	25.6	24	32	18.4	3.43	1.07
The project outcomes have met or exceeded stakeholders' expectations.	%	23.2	24	11.2	31.2	10.4	2.82	1.37
The project has effectively addressed identified risks and issues.	%	12.8	18.4	5.6	36.8	26.4	3.46	1.39
The project has generated positive impacts or benefits for the organization or community.	%	11.2	19.2	7.2	30.4	32	3.53	1.40
NARIGP Performance							3.07	0.75

Findings from Table 4.12 reveal that 39.2% of the respondents feel neutral about achieving the success criteria for the project with a mean of 3.18 and a standard deviation of 1.46. This means that some respondents hold positive attitudes towards attaining the success criteria while others are indifferent. In relation to completion of the project within the scheduled time, results from the table indicate that 54.4% of the respondents agree that the project was completed within the set time with a mean of

3.74 and a standard deviation of 1.14. This shows that the project has a better chance of achieving the second success criterion.

Concerning the achievement of the third success criterion, that is, completion within the allocated budget, the findings show that 20% of the respondents feel neutral about the attainment of this criterion with a mean of 3.22 and standard deviation of 1.58. This reveals that there are mixed opinions among the respondents regarding attainment of this criterion. In relation to the success criterion of meeting the desired quality deliveries, the table below indicates that 50.4% of the respondents agree that the project delivery met the desired quality standard with a mean of 3.43 and standard deviation of 1.07.

With regards to the fourth success criterion of project success, that is, satisfying or exceeding stakeholder requirements and expectations, the findings from Table 4.13 below demonstrate that 47.6% of the respondents disagree that the project has satisfied stakeholder expectations with a mean of 2.82 and standard deviation of 1.37. Similarly, in relation to the fifth success criterion of project success, that is, resolving project issues and risks, Table 4.13 below reveals that 63.2% of the respondents agree that the project has adequately handled issues and risks with a mean of 3.46 and standard deviation of 1.39. Finally, with regards to the sixth success criterion, that is, generating positive impact for the organization or community, the findings demonstrate that 62.4% of the respondents agree that the project has generated positive impacts from the project with a mean of 3.53 and standard deviation of 1.4. Based on these results, it is evident that NARIGP has a mean of 3.07 and standard deviation of 0.75 which implies moderately positive perceptions towards the project. However, the results also reflect some of the aspects of the project where there is need to improve upon, for instance, stakeholder satisfaction and impact generation.

4.6.2 Stakeholder Participation

Table 4.14 contains descriptive statistics for stakeholder participation in the project, thus, the respondents' views on how involved they are as stakeholders. From the data below, one can see the statement to which the respondents gave their response and the percentage distribution of the responses according to the 5-point Likert scale.

Table 4.93: Stakeholders Participation

		SD	D	N	A	SA	Mean	Std. Dev
Stakeholders are actively involved in the decision-making process of the project.	%	8	32	12.8	31.2	16	3.15	1.26
Stakeholders have ample opportunities to provide feedback and suggestions for the project.	%	8	44.8	8.8	35.2	3.2	2.81	1.10
Stakeholders are regularly updated on the progress and milestones of the project.	%	11.2	16.8	38.4	28	5.6	3.00	1.06
Stakeholders are provided with the necessary information and resources to participate effectively in the project.	%	4	20.8	36.8	32.8	5.6	3.15	0.95
Stakeholders' perspectives and concerns are considered and integrated into the project planning and execution.	%	15.2	34.4	7.2	34.4	8.8	2.87	1.28
Stakeholders' contributions and inputs are acknowledged and valued by the project team.	%	0	55.2	20.8	19.2	4.8	2.74	0.93
The project team actively seeks and encourages stakeholder engagement throughout the project lifecycle.	%	1.6	51.2	20.8	12.8	13.6	2.86	1.11
Stakeholders have a sense of ownership and commitment to the project's success.	%	0	69.6	12.8	16.8	0.8	2.49	0.80
The project team collaborates with stakeholders address any issues or challenges that arise during the project.	%	0.8	74.4	14.4	10.4	0	2.34	0.67
Stakeholders have a clear understanding of their roles and responsibilities in the project.	%	10.4	58.4	29.6	1.6	0	2.22	0.65
Stakeholders' participation							3.08	0.79

Findings from Table 4.13 indicate that 32% of respondents believe that stakeholders are somewhat involved in the decision-making process (Mean= 3.15, Std. Dev= 1.26). This implies that the involvement of stakeholders in the decision-making process is moderate. In addition, 44.8% of respondents are neutral about the opportunity to provide input regarding the project (Mean= 2.81, Std. Dev= 1.10). This is a concerning finding as it suggests that the respondents do not feel that they have the opportunity to provide input for the project. 38.4% of respondents felt neutral about getting periodic updates on the project's progress (Mean= 3, Std. Dev= 1.06). This implies that some stakeholders are not informed about the progress of the project. Furthermore, 36.8% of respondents are neutral about having the required resources and information needed to participate in the project's activities (Mean= 3.15, Std. Dev= 0.95). This shows that stakeholders have some of the resources they need, but some do not have access to the

essential information required to participate fully.

The involvement of stakeholders in ensuring that their views and concerns are incorporated into the project's planning has a mean score of 2.87 (Std. Dev= 1.28), with 34.4% of respondents indicating that they are somewhat involved. This implies that the views of stakeholders are partially considered in project planning. Moreover, 55.2% of respondents are neutral about acknowledging the efforts made by various stakeholders (Mean= 2.74, Std. Dev= 0.93). This finding suggests that despite some stakeholders' efforts, most project members do not recognize their contributions fully.

In addition, the extent to which the project team encourages stakeholder engagement results in a mean score of 2.86 (Mean= 2.86, Std. Dev= 1.11). The finding further implies that 51.2% of respondents are neutral about the project team's effort to involve them in the project. Thus, the project team should consider adopting alternative methods to boost stakeholder engagement throughout the project's duration. Moreover, the extent to which stakeholders feel that they have ownership of the project has a mean score of 2.49 (Mean= 2.49, Std. Dev= 0.80). The finding further implies that 69.6% of respondents are neutral about their degree of ownership of the project. This indicates that some stakeholders do not feel that they own the project.

Finally, 74.4% of respondents are neutral about addressing issues and challenges amicably in collaboration with stakeholders. The finding further implies that the project team lacks collaborative strategies to address project-related challenges (Mean= 2.34, Std. Dev= 0.67). In addition, the extent to which stakeholders understand their roles and responsibilities revealed that 58.4% of respondents are neutral about their roles and responsibilities (Mean= 2.22, Std. Dev= 0.65). This further implies that stakeholders do not fully understand their roles and responsibilities. Overall, the mean score for stakeholder participation is 3.08 (Mean= 3.08, Std. Dev= 0.79). Thus, the findings suggest that the overall perception of stakeholders' participation is positive but needs improvement.

4.6.3 Project Planning

Table 4.14 presents descriptive statistics for project planning or respondents' assessment of how various aspects of planning contribute to the effectiveness of the project under study. The items were measured using a 5-point Likert scale, and the results illustrate how effective the project is perceived by respondents in relation to project planning essentials.

Table 4.104: Project Planning

		SD	D	N	A	SD	Mean	Std. Dev
The project objectives and scope are clearly defined and communicated.	%	16.80	62.40	15.20	5.60	0.00	2.10	0.73
The project plan includes well-defined tasks, deliverables, and timelines.	%	3.20	72.80	11.20	12.80	0.00	2.34	0.74
The project team has conducted thorough research and analysis to inform the planning process.	%	0.00	74.40	19.20	6.40	0.00	2.32	0.59
The project plan considers potential risks and includes appropriate mitigation strategies.	%	6.40	19.20	22.40	51.20	0.80	3.21	0.98
The project plan has been reviewed and approved by key stakeholders.	%	0.80	24.00	47.20	14.40	13.60	3.16	0.97
The project plan allows for flexibility and adaptation as needed.	%	0.00	28.00	17.60	54.40	0.00	3.26	0.87
The project plan aligns with the organization's overall strategic goals and objectives.	%	6.40	22.40	48.00	23.20	0.00	2.88	0.84
Project Planning							3.21	0.86

Findings from Table 4.15 show that in terms of establishing whether the project objectives and scope are well stated and communicated, 16.8% strongly disagree, and 62.4% disagree with the statement (Mean = 2.10, Std. Dev = 0.73). This suggests that many respondents are not comfortable with the communication of project objectives and scope. In relation to the project having well-defined tasks, deliverables, and time frames as part of the planning process, 3.2% strongly disagree, and 72.8% disagree (Mean = 2.34, Std. Dev = 0.74). This implies that the respondents are not satisfied with the planning process in relation to having well-defined tasks, deliverables, and time frames. Concerning conducting a thorough research and analysis to support the planning process, 74.4% disagree (Mean = 2.32, Std. Dev = 0.59). This implies that the respondents do not have much confidence in the planning process due to lack of adequate research and analysis. However, the statement about project plan having

considered risks and appropriate strategies to mitigate them received a positive response from the respondents. For instance, 51.2% agreed with the statement, resulting in a mean of 3.21 and a standard deviation of 0.98.

In relation to project plan being reviewed and approved by key stakeholders, the mean was 3.16 with a standard deviation of 0.97. In addition, 47.2% of the respondents were neutral on the issue. This suggests that although many respondents are confident that the project plan was reviewed and approved by key stakeholders, others are not certain. Concerning project plan being flexible and responsive to accommodate project changes, 54.4% agreed with the statement (A), with a mean of 3.26 and a standard deviation of 0.87. This implies that the respondents were confident that the project plan was flexible and responsive to accommodate project changes.

Finally, in relation to project plan aligning with the organization's overall strategic goals and objectives, the mean was 2.88, and the standard deviation was 0.84. In addition, 48% of the respondents were neutral on the issue. This implies that although some respondents were confident that the project plan aligned with the organization's overall strategic goals and objectives, others were not certain. On the whole, the mean for Project Planning was 3.21 (Mean = 3.21, Std. Dev = 0.86), which shows that the respondents had a positive perception of the planning process. However, the mean scores for project objectives and scope being well stated and communicated, project having well-defined tasks, deliverables, and time frames, and conducting a thorough research and analysis to support the planning process were low, which suggests that the respondents were not comfortable with these aspects of project planning. It is therefore important to address these issues in order to improve project planning and achieve positive outcomes for the NARIGP initiatives.

4.6.4 Project Resource Mobilization

Table 4.15 presents descriptive statistics for project resource mobilization. It shows respondents' evaluation of the extent to which the project has been effective in recruiting and allocating resources. The results were generated using a 5-point Likert scale and indicate respondents' degree of agreement or disagreement with each statement.

Table 4.15: Project Resource Mobilization

		SD	D	N	A	SA	Mean	Std. Dev
The project team has effectively identified the resources required for project implementation (such as budget, equipment, and personnel).	%	0.0	10.4	39.2	50.4	0.0	3.40	0.67
Adequate resources have been allocated to the project to ensure its successful execution.	%	6.4	2.4	3.2	50.4	37.6	4.10	1.04
The project team has established precise mechanisms for acquiring and mobilizing the required resources.	%	7.2	3.2	24.0	60.0	5.6	3.54	0.93
The project team actively monitors and manages resource utilization to ensure efficient and effective use.	%	0.0	8.0	36.8	53.6	1.6	3.49	0.67
The project team proactively identifies and addresses any resource gaps or constraints that may impact project progress.	%	16.8	40.0	19.2	24.0	0.0	2.50	1.04
The project team collaborates with relevant stakeholders to leverage additional resources and support when needed.	%	1.6	16.0	36.8	45.6	0.0	3.26	0.78
The project team has a well-defined plan for resource allocation and prioritization.	%	1.6	36.8	29.6	16.0	16.0	3.08	1.11
Project Resource Mobilization							2.94	0.76

For the identification of resources needed to implement the project, 50.4% of respondents agreed that it is being done effectively (Mean = 3.40, Std. Dev = 0.67). Thus, this finding suggests that the stakeholders have a positive perception of the project team's ability to recognize the resources required for the smooth execution of the project. In relation to the adequate allocation of resources needed for successful project execution, 50.4% of respondents agreed with the statement (Mean = 4.10, Std. Dev = 1.04). Therefore, this finding implies that the project stakeholders have a positive perception of the project team's capacity to provide sufficient resources for the project. The project team's ability to establish appropriate mechanisms for acquiring and mobilizing resources was positively assessed by 60% of the respondents with a mean score of 3.54 (Mean = 3.54, Std. Dev = 0.93). This result suggests that the majority of the project stakeholders perceived that the project team is effective in developing mechanisms for resource mobilization.

Regarding the effective monitoring and control of resource utilization, 53.6% of respondents agreed that it is being done effectively (Mean = 3.49, Std. Dev = 0.67). This finding implies that the project stakeholders perceive that appropriate actions are being taken to monitor and control the utilization of resources to ensure their effective use in the project. In relation to the project team's ability to identify and address the occurrence of various resource gaps and constraints, 16.8% of respondents strongly disagreed with the statement (Mean = 2.50, Std. Dev = 1.04). Thus, this result reveals that the majority of project stakeholders perceive that the project team does not effectively address the issue of resource gaps and constraints that may arise during project execution.

Respondents' perception of the project team's collaboration with stakeholders to acquire additional resources revealed a mean score of 3.26 (Mean = 3.26, Std. Dev = 0.78) with 45.6% agreeing with the statement. Hence, this finding suggests that the majority of the project stakeholders have a moderate perception of the project team's effort to collaborate with other stakeholders to obtain additional resources. In relation to establishing a well-defined plan for the allocation and prioritization of the utilization of resources, 36.8% of respondents disagreed with the statement (Mean = 3.08, Std. Dev = 1.11).

Therefore, considering the mean score of 2.94 (Mean = 2.94, Std. Dev = 0.76) of the statements related to Project Resource Mobilization, it can be concluded that the project stakeholders have a moderately positive perception of project resource mobilization. However, there are some issues related to resource mobilization that require management attention. These include the identification of resource gaps and constraints and the establishment of a clear plan for the allocation and prioritization of resource utilization.

4.6.5 Project Monitoring

Table 4.16 provides descriptive statistics for Project Monitoring. The table indicates stakeholders' perception towards the procedures used in monitoring the project implementation process and project resources. The results are presented by Mean and Standard Deviation scores, with data generated from a 5-point Likert scale.

Table 4.116: Project Monitoring

			SD	D	N	A	SA	Mean	Std. Dev
The project team has established clear monitoring objectives and indicators to track project progress.	%	1.6	36.8	16.0	44.8	0.8	3.06	0.96	
The project team regularly collects and analyzes data to assess project performance against set targets.	%	0.8	32.8	5.6	40.8	20.0	3.46	1.17	
The project team effectively communicates project monitoring results to relevant stakeholders.	%	0.8	32.0	31.2	36.0	0.0	3.02	0.85	
The project team promptly identifies and addresses any deviations or issues detected through monitoring.	%	0.8	25.6	7.2	34.4	32.0	3.71	1.19	
The project team utilizes appropriate monitoring tools and techniques to ensure accurate and reliable data collection.	%	16.0	6.4	11.2	66.4	0.0	3.28	1.14	
The project team collaborates with stakeholders to obtain their input and feedback during monitoring.	%	0.8	26.4	6.4	52.8	13.6	3.52	1.05	
The project team conducts regular project review meetings to discuss monitoring findings and make necessary adjustments.	%	0.8	32.8	22.4	44.0	0.0	3.10	0.89	
Project Monitoring							3.36	0.91	

Findings in Table 4.16, establishing clear monitoring objectives and indicators to evaluate progress of the project, 44.8% of the respondents agreed with a Mean of 3.06 and Standard Deviation of 0.96. This shows that there is moderate level of confidence among the stakeholders in setting of monitoring objectives. Although a large proportion of the respondents neither agree nor disagree with the statement, those who agreed show that there is need to improve monitoring objectives. On the other hand, 40.8% of the respondents agreed with the regular collection of data and analysis to monitor the project which has a Mean of 3.46 and Standard Deviation of 1.17. This suggests that there is positive perception towards conducting data collection and analysis on a regular basis to monitor the progress of the project.

However, only 36.0% of the respondents agreed with the effective communication of monitoring results to stakeholders with a Mean of 3.02 and Standard Deviation of 0.85. This implies that although many people neither agree nor disagree with the communication of project monitoring results, those who agreed have positive

perception towards communication of monitoring results to stakeholders. The ability of the project team to respond effectively to any problems, irregularities, or other concerns identified through monitoring has a Mean of 3.71 and Standard Deviation of 1.19. This shows that a large proportion of the respondents (32%) agreed with the effective response of the project team to any concerns detected by monitoring. The results further show that 66.4% of the respondents agreed with the use of appropriate monitoring tools and techniques to carry out project monitoring with a Mean of 3.28 and Standard Deviation of 1.14. This implies that project monitoring tools and techniques are used appropriately to gather required information for effective decision making.

In addition, 52.8% of the respondents agreed with the collation of feedback from stakeholders with a Mean of 3.52 and Standard Deviation of 1.05. This means that project monitoring involves consultation with stakeholders to obtain inputs and feedback which are important for effective monitoring of the project. Finally, the project team conducts periodical project review meetings to discuss project monitoring with a Mean of 3.10 and Standard Deviation of 0.89. Thus, 44.0% of the respondents agreed with this finding showing that although project review meetings are valued, there is need to increase interaction and discussion around project monitoring in order to improve project implementation process. It can be concluded that the overall Mean for Project Monitoring is at 3.36 (Mean=3.36, SD=0.91). This suggests that the stakeholders have positive perception towards project monitoring but with many areas that need improvement for success of National Adaptation Research and Innovation Grant Program.

4.6.6 Project Management Information Systems

Table 4.17 presents the descriptive statistic data on Project Management Information Systems (PMIS) to illustrate respondents' perception towards the effectiveness of the system in managing the project data and information communication. The data values reflect the level of agreements on the 5-point scale.

Table 4.127: Descriptive Statistics for Project Management Information Systems

		SD	D	N	A	SA	Mean	Std. Dev
The project management information system (PMIS) effectively captures and stores project data and information.	%	16	17.6	22.4	16.8	27.2	3.22	1.43
The PMIS provides timely and accurate reports and updates on project progress.	%	1.6	11.2	38.4	35.2	13.6	3.48	0.92
The PMIS facilitates efficient communication and collaboration among project team members.	%	0.8	27.2	24	48	0	3.19	0.87
The PMIS allows for easy access to project documentation and relevant resources.	%	0.8	17.6	4	77.6	0	3.58	0.81
The PMIS supports effective decision-making by providing reliable and relevant data and analysis.	%	23.2	20	8	48.8	0	2.82	1.26
The PMIS is user-friendly and intuitive, requiring minimal training for team members to navigate and utilize its features.	%	3.2	27.2	40	13.6	16	3.12	1.08
The PMIS ensures the security and confidentiality of project information and data.	%	3.2	64.8	8.8	23.2	0	2.52	0.89
Project Management Information Systems							3.21	0.65

Results in table 4.17, while assessing the ability of the PMIS to capture and store the project's data and information, 27.2% strongly Agree (Mean =3.22, Std. Dev=1.43), which implies that there is moderate agreement on the issue. On the other hand, there is a high level of disagreement with regard to the ability of the PMIS to provide timely and accurate reports and updates on the project's progress with 35.2% Agree (Mean =3.48, Std. Dev=0.92). This is an indication that the respondents have a positive perception of the system when it comes to providing information.

The ability of the PMIS to enable effective communication and collaboration within the project team has a mean of 3.19 (Mean =3.19, Std. Dev=0.87) with 48% of the respondents agreeing to the statement. This implies that the project team has a positive perception of the PMIS as a tool for enhancing collaboration within the team. However, there is moderate agreement on the ability of the PMIS to provide project

documents and resources with ease with 77.6% of the respondents giving positive responses (Mean =3.58, Std. Dev=0.81).

The PMIS's ability to provide reliable data that can be used to make effective decisions was disagreed by 23.2% of the respondents (Mean =2.82, Std. Dev=1.26). This low mean indicates that the stakeholders have negative perceptions concerning the ability of the system to provide data for decision-making purposes. The ability of the PMIS to be operated with ease has a mean of 3.12 (Mean =3.12, Std. Dev=1.08) with 40% of the respondents being neutral. This indicates that there is moderate agreement on the ability of the PMIS to be operated with ease.

With regard to the ability of the PMIS to provide information confidentiality and security, the respondents showed moderate disagreement with 64.8% disagreeing with the statement (Mean =2.52, Std. Dev=0.89). This implies that the project stakeholders have negative perceptions regarding the ability of the information system to offer confidentiality and security with regard to project information. It is evident from the results that the overall mean for Project Management Information Systems is 3.21 (Mean =3.21, Std. Dev=0.65). From these results, it is apparent that there are several areas that need improvement in order to increase the efficiency of the PMIS.

4.7 Qualitative Findings

This section presents the qualitative results of the study. The results were generated by evaluating the open-ended questions from the selected questionnaires and key informants. Thematic analysis was used for the evaluation process since it is regarded as an appropriate method for identifying themes and patterns in qualitative data (Braun & Clarke, 2021). The results are presented under the following sub-sections: stakeholder participation, project planning, resource mobilization, project monitoring, and project management information systems.

Stakeholders Participation Enhances Project Ownership and Sustainability

The qualitative results revealed that stakeholder participation is a key factor in determining the ownership of a project, its acceptance, and sustainability. The respondents associated stakeholder participation in project planning and decision-

making with project ownership. The farmers who participated in decision-making identified with the project's goals and therefore were more likely to maintain the project's benefits after funding. The respondents associated stakeholder participation with reduced project implementation challenges and increased accountability.

The qualitative results therefore support the quantitative results that revealed the relationship between stakeholder participation and project performance. The qualitative analysis therefore explains how stakeholder participation influences project performance.

Effective Project Planning Increases the Likelihood of Project Success despite External Factors. The respondents associated effective project planning with proper allocation of resources and time to achieve the set objectives. They associated project planning with the setting of priorities and the establishment of a monitoring mechanism. The participants revealed that effective project planning contributed to the timely completion of the project and efficient use of available resources. The respondents however revealed that project planning was limited by external factors beyond the control of the project managers.

The qualitative results therefore support the quantitative results that revealed the relationship between project planning and project performance. The qualitative analysis therefore explains how project planning influences project performance. The respondents associated project planning with the establishment of a monitoring mechanism that ensured proper use of available resources. The results also revealed that project planning was limited by external factors beyond the project managers' control.

Resource Mobilization Affects the Implementation of a Project

The findings revealed that the respondents associated resource availability with the success of a project. They identified insufficient funding, lack of skilled labor, and inadequate technical know-how as factors that negatively affected the implementation of the project. The respondents associated funding gaps and inadequate manpower with slow progress and reduced project quality.

The qualitative results therefore support the quantitative results that revealed the

relationship between resource mobilization and project performance. The qualitative analysis therefore explains how resource mobilization influences project performance.

Project Monitoring Ensures Accountability and Enhances Performance

The respondents associated project monitoring with accountability and described it as a mechanism that facilitated the adjustment of the project's implementation process. They revealed that project monitoring ensured effective use of available resources and timely completion of the project. The participants described project monitoring as a tool that ensured transparency and enhanced performance by raising concerns that were not addressed during the implementation of the project. One respondent said,

“Monitoring ensures that activities are implemented as planned and provides opportunities for corrective action whenever there is a need. Projects that are monitored are more likely to be completed on time and achieve their intended objectives.”

The qualitative results therefore support the quantitative results that revealed the relationship between project monitoring and project performance. The qualitative analysis therefore explains how project monitoring influences project performance. The respondents associated project monitoring with the establishment of a monitoring mechanism that ensured proper use of available resources.

Project Management Information Systems Improve the Coordination and Communication of Projects

The respondents associated Project Management Information Systems (PMIS) with improved coordination and communication of projects. They described PMIS as a digital tool that facilitated effective decision-making, improved the sharing of information, and increased the transparency of the project management process. The participants however revealed that the use of PMIS was hindered by the lack of technological infrastructure, limited technical skills, and limited financial resources. These factors reduced the extent to which PMIS could be used to improve project performance.

The qualitative results therefore support the quantitative results that revealed the relationship between PMIS and project performance. The qualitative analysis therefore explains how PMIS influences project performance. The respondents associated PMIS with improved coordination and communication of projects. They also associated the limited use of PMIS with the lack of technological infrastructure, limited technical skills, and limited financial resources.

Integration of Qualitative and Quantitative Findings

The qualitative findings therefore support the quantitative results by providing an explanation of how each of the independent variables influences project performance. The findings reveal that stakeholder participation is related to project ownership, planning is related to the effective use of resources, resource mobilization determines the availability of resources, project monitoring ensures accountability, and PMIS improves the coordination and communication of projects. The quantitative results therefore provide evidence of a relationship between the independent variables and project performance, while the qualitative results explain how this relationship exists in the context of the NARIGP project.

4.8 Assumptions of Regression Model Testing

The investigation used a regression model to evaluate the statistical relationship between the independent and dependent variables. In case the regression model made incorrect assumptions, then the results would be compromised. Before carrying out the regression analysis and testing the hypotheses, it was necessary to carry out diagnostic tests to check whether the regression model satisfied the underlying assumptions (Green, 2007). Teddlie and Tashakkori (2010) argue that there is a great risk of obtaining biased, ineffective, and inconsistent estimates of parameters if one attempts to force equations to fit when the basic assumptions of linear regression are violated. To test the assumption of the regression model, this study carried out diagnostic tests, namely; normality tests, linearity tests, autocorrelation tests, multicollinearity tests, and heteroscedasticity tests.

4.8.1 Normality Test

The assumption of the regression model relies on the normal distribution of data about the studied variables (Hair et al., 2010). The normality test aims to answer whether the data fits a normal distribution well and to what extent it represents a random variable with a normal distribution. It is necessary to test normality to determine whether the sample data at hand has come from a population with a normal distribution with some degree of tolerance. Many parametric tests, including correlation and regression analysis, t-test, and analysis of variance, require that the data follows a normal distribution (Ghasemi and Zahediasl, 2012). To assess the data distribution in our study, we decided to apply Kolmogorov-Smirnov and Shapiro-Wilk Test (Shapiro and Wilk, 1968). Each of these tests was calculated for every variable. Then, we determined whether our data follows a normal distribution by interpreting the p-value retrieved from the Kolmogorov-Smirnov test and Shapiro-Wilk test. Table 4.18 presents the Test of Normality results using the Kolmogorov-Smirnov and Shapiro-Wilk tests for the various parameters of the NARIGP study. By analyzing the significance values presented in Table 4.18, it can be concluded that the p-values for each of the variables, including NARIGP performance, stakeholders' participation, project planning, resource mobilization, project monitoring, and PMIS, exceed the significance threshold of 0.05.

Table 4.138: Test of Normality

	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
NARIGP performance	0.098	125	.200*	0.97	125	0.679
Stakeholders' participation	0.078	125	.200*	0.986	125	0.903
Project Planning	0.173	125	0.061	0.937	125	0.143
Project resource mobilization	0.135	125	.200*	0.937	125	0.137
Project Monitoring	0.152	125	0.158	0.927	125	0.084
PMIS	0.151	125	0.169	0.972	125	0.719

* This is a lower bound of the true significance.

a Lilliefors Significance Correction

Kolmogorov-Smirnov test results for Table 4.18 reveal that p-values range from 0.061 for Project Planning to 0.2 for NARIGP performance and Stakeholders participation, signifying that each variable follows the normal distribution pattern. Similarly, Shapiro-Wilk normality test statistics show figures such as 0.937 for Project resource mobilization and 0.972 PMIS, further substantiating these variables conformed to the normal distribution pattern. Shapiro-Wilk test recorded the highest p-value at 0.903 for Stakeholders participation. The implication of these results is that most statistical procedures require data to be normally distributed (Ghasemi & Zahediasl, 2012; Field, 2013). Thus, the variables identified in this study as following the normal distribution pattern were declared fit for further statistical analyses, including regression analysis because the residuals would follow the normal distribution pattern. The p-value critical value used in this study was set at 0.05. Therefore, the p-values obtained from the test statistics were higher than this critical value, further substantiating the conclusion that the data conforms to the normal distribution pattern (Tabachnick & Fidell, 2018).

Furthermore, this study used graphs to examine the normality of the data, including a histogram and Normal P-P plot presented in figures 4.1 and 4.2 respectively. Histograms are widely used in descriptive statistical analysis to determine skewness (normality of the data). At the same time, the Normal P-P plot helps evaluate goodness-of-fit by comparing the observed cumulative distribution against the theoretical or fitted cumulative distribution.

The need to check if the data conforms to the normal distribution pattern arises because most statistical techniques rely on this distribution. This study established that each of the statistical variables used adheres to the normal distribution pattern because the calculated p-value was higher than the critical value of 0.05. Additionally, graphical analysis using histograms and Normal P-P plot further proved the normality of the statistical data used for this study. A histogram is a goodness-of-fit statistics that estimates summary shape statistics by comparing them to a normal distribution.

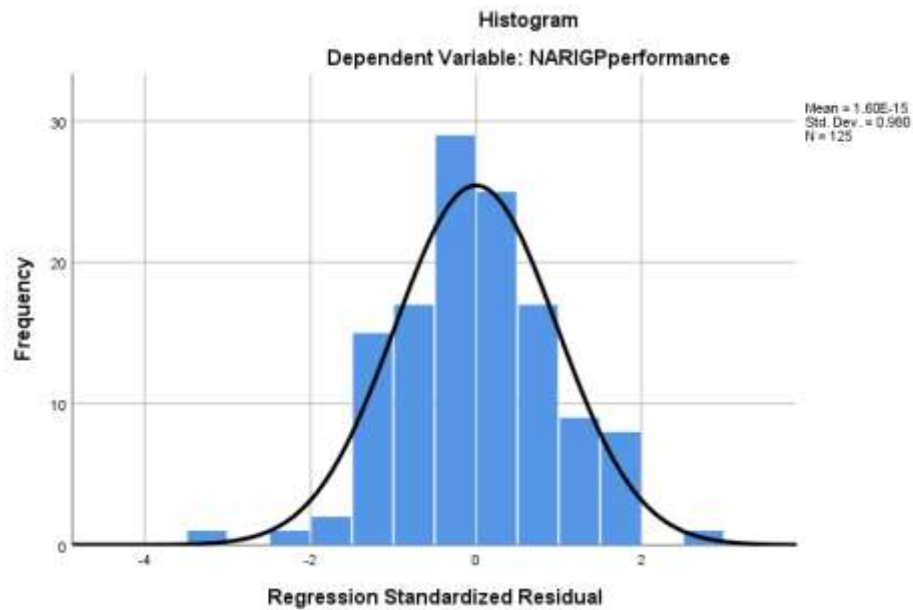


Figure 4.1: Histogram for Testing Normality

Source: Field Data (2024)

The two numerical measures of shape, skewedness and kurtosis were performed to assess normality. An assessment of normality using a Histogram in Figure 4.1 shows that the standardized residuals are highly normally distributed with skewedness and kurtosis. The data was therefore considered to be normally distributed. Additionally, a test for normality was performed by generating a Normal P-P plot from the data using SPSS version 26 and the results are presented in figure 4.2. A normal distribution probability plot which has a diagonal line and the data points close to the line indicates normal distribution. The rule of thumb for the p-value for normality test or a goodness of fit test is that one should reject the hypothesized distribution if the p-value is less than or equal to 0.05.

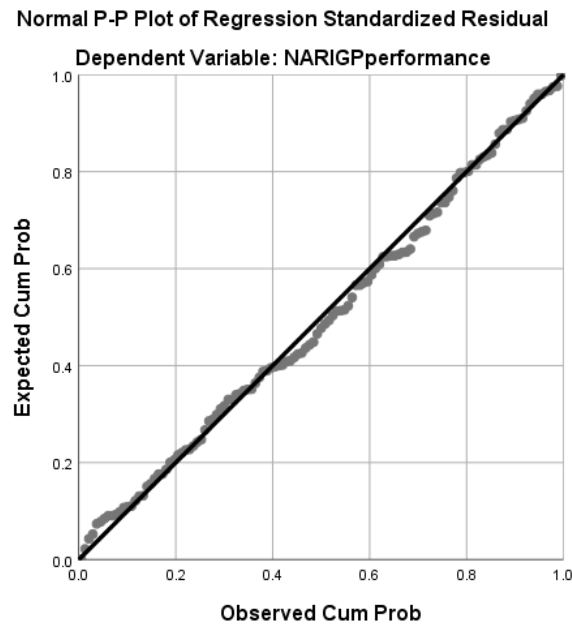


Figure 4.2: Normal P-P Plot of the Residuals

Source: Field Data (2024)

From Figure 4.2 the scatter dots fell within the line of best fit and this led the study to conclude that the dataset was normally distributed, and hence the model could be used in the analysis.

4.9 Linearity Test

Linearity specifies that a given dependent variable is a linear function of the independent (predictor) variable. Linearity suggests a relationship between both variables (Ghasemi & Zahediasl, 2012). In this study, it was crucial to assess linearity because statistical models presume that data is linear. Using methods such as linear regression requires an underlying assumption of the linearity of data before embarking on such an analysis. The normal P-P plot in figure 4.2 above indicates that the data conforms to linearity. Multiple regression analysis correctly estimates the relationship between the dependent and independent variables when linearity is met (Gujarate, 2009). There is a high likelihood of encountering non-linear relationships in social science studies, thus examining analyses for linearity is paramount (Gujarate, 2009).

In case of a violation of linearity, all the estimates of the regression such as the coefficients, standard errors, and statistical tests are compromised and become biased and hence inefficient and unpredictable estimates of parameters (Cooper & Schindle, 2014 and Teddlie & Tashakkori, 2010). When analyzing data with a regression procedure, if the relationship between the predictor and dependent variables is non-linear, the study results in biased regression coefficients with underestimated standard errors leading to an increase in type I and II errors (Cooper & Schindle, 2014). A test for linearity was performed using statistical package for social sciences, SPSS. The analysis adopted the stepwise procedure as the preferred approach for testing linearity. The analysis was performed using the following a priori criteria; rejecting the null hypothesis when $p < 0.05$ and accepting it when the p-value is greater than 0.05. Table 4.20 presents the results of the ANOVA test for linearity analysis performed on the factors affecting NARIGP performance. The analysis sought to establish a linear relationship between NARIGP performance (NP) and the independent variables; Stakeholders' participation (SP), Project Planning (PP), Project resource mobilization (PRM), Project Monitoring (PM), and Project Management Information Systems (PMIS) and therefore the data met the linearity assumption required for regression analysis.

Table 4.19: ANOVA Test for Linearity

	Sum of Squares	Df	Mean Square	F	Sig.
NP * SP	33.858	1	33.858	132.936	0.000
NP * PP	69.517	1	69.517	341.425	0.000
NP* PRM	66.867	1	66.867	281.577	0.000
NP* PM	47.801	1	47.801	175.533	0.000
NP*PMIS	33.638	1	56.481	148.511	0.000

Key: NP=NARIGP performance, SP=Stakeholders' participation, PP=Project Planning

PRM=Project resource mobilization, PM=Project Monitoring

The results in Table 4.19 illustrate that all the factors considered in the study have statistically significant linear relationships with NARIGP performance since there is a p-value of 0.000 for all the tests. In fact, the highest record was achieved for the test of NARIGP performance against project planning (PP) with an F-statistic of 341.425

($F = 341.425$, $p = 0.000$). Therefore, one can state that every change in project planning will lead to a change in NARIGP performance in a linear manner (Field, 2013). Similarly, Stakeholders' participation ($F = 132.936$, $p = 0.000$), Project resource mobilization (PRM) ($F = 281.577$, $p = 0.000$), and Project Monitoring (PM) ($F = 175.533$, $p = 0.000$) had statistically significant linear relationships with NARIGP performance. This implies that stakeholders' participation, project resource mobilization, and project monitoring need to be emphasized on to achieve desired project performance outcomes (Tabachnick & Fidell, 2018). Additionally, the results of NARIGP performance against PMIS also revealed a statistically significant linear relationship, $F = 148.511$, $p = 0.000$. Therefore, the study confirms that PMIS is vital in enhancing NARIGP performance since it provides the much-needed information platform for effective decision-making (Hair et al., 2014).

4.9.1 Autocorrelation Test

It is a requirement of regression analysis assumptions that there should be absence of correlation between residuals over time. Autocorrelation test was performed to establish whether the residuals were correlated over time. A study of autocorrelation was performed to establish whether there was presence of autocorrelation in the variables. Durbin Watson Statistic was used to establish whether there was autocorrelation of residuals. Gujarati (2009) observes that the ideal range for Durbin-Watson statistic for no autocorrelation is between 1 and 2. The results of the Durbin Watson test are presented in the table below:

Table 4.20: Durbin Watson Test Statistic

	Durbin-Watson
NP-SP	1.449
NP-PP	1.459
NP-PRM	1.668
NP-PM	1.384
NP-PMIS	1.614
Overall	1.587

Key: NP=NARIGP performance, SP=Stakeholders' participation, PP=Project Planning

PRM=Project resource mobilization, PM=Project Monitoring

Table 4.20 shows the Durbin-Watson statistic for NP-SP is 1.449, for NP-PP is 1.459, for NP-PRM is 1.668, for NP-PM is 1.384, and for NP-PMIS is 1.614. The overall Durbin-Watson statistic is therefore 1.587. There is no sign of Autocorrelation as all the Durbin-Watson test statistic values lie in the normal range of 1 to 2 (Gujarat, 2009). The absence of Autocorrelation was expected for this study as it is a requirement for the regression model. It is only under the assumption of zero autocorrelation that the ordinary least squares estimate of regression coefficients obtained from the sample data are unbiased and efficient. The Durbin-Watson test statistics, however, reveal lower levels of correlation for NP-PMIS, NP-PRM and NP-PM with the values being 1.614, 1.668 and 1.384 respectively. A value closer to 2 in the DW test implies that there is little likelihood for Autocorrelation to be present in the regression model. Put differently, the regression analysis for the performance of NARIGP and factors affecting it is free from Autocorrelation problem.

It is further evident from the above table that the statistics are within the acceptable range of independence from autocorrelation. For instance, the lowest value in the table is 1.384 which is for NP-PM and indicates that the residuals for this regression model are slightly more correlated. However, even this value is within the range of independence from Autocorrelation. On the other hand, the DW statistic for NP-PRM is 1.668 implying that the residuals for this regression model are the most independent.

4.9.2 Multicollinearity Test

Multicollinearity arises when two or more independent variables in a regression are arbitrarily close to linearly associated with each other. Consequently, it becomes impossible to estimate the effect of each variable on the dependent variable accurately. When one independent variable in a regression is linearly related to the other independent variables in the equation with substantial accuracy, causing Multicollinearity problem, thus making the model less efficient and less effective in estimating the results (Cooper & Schindle, 2014). Imperfect Multicollinearity leads to imprecisely estimated regression coefficients with consequently large or even infinite standard errors and confidence intervals for the coefficients, thus influencing the decision to reject or not reject the null hypothesis. The study used Variance Inflation

Factor (VIF) and tolerance to test for Multicollinearity. The results are presented in Table 4.33 below:

Table 4.141: Multicollinearity Test

	Collinearity Statistics	
	Tolerance	VIF
Stakeholders' participation	0.588	1.701
Project planning	0.423	2.362
Project resource mobilization	0.654	1.529
Project monitoring	0.437	2.287
PMIS	0.837	1.194

The results of the multicollinearity test are presented in Table 4.21. They show the collinearity statistics of the variables linked to the performance of NARIGP, Stakeholders' participation, project planning, project resource mobilization, project monitoring, and PMIS. The tolerance and VIF values indicate that there is no multicollinearity among the independent variables: Stakeholders' participation (Tolerance – 0.588; VIF – 1.701), project planning (Tolerance – 0.423; VIF – 2.362), project resource mobilization (Tolerance – 0.654; VIF – 1.529), project monitoring (Tolerance – 0.437; VIF – 2.287), and PMIS (Tolerance – 0.837; VIF – 1.194) exceed the appropriate threshold. Particularly, no tolerance value is less than 0.1, which would indicate multicollinearity (Cooper & Schindler, 2014). Besides, VIF values are below 10, which also suggest the absence of multicollinearity (Field, 2013).

The multicollinearity test results support further analysis using the studied variables since no multicollinearity was detected (Field, 2013). Specifically, Field (2013) states that VIF values exceeding 10 suggest multicollinearity, whereas tolerance values below 0.1 eliminate multicollinearity. Thus, multicollinearity is absent in all independent variables: Stakeholders' participation, Project Planning, Project resource mobilization, Project Monitoring, and PMIS. Consequently, these variables can be used for additional analysis and multiple regression.

4.9.3 Homoscedasticity

Since statistical tests are sensitive to variations, the assumption of Homoscedasticity is essential to linear regression models whereby unequal variances lead to biased and skewed results. Homoscedasticity refers to situations when the variance across the sample is the same. It is a state whereby there is equal levels of variability between compared groups of the dependent variable across values of an independent variable that is either categorical or continuous. This implies that there is data homoscedasticity when the amount of scatter is the same around the regression line for all the values of the predictor variable or if the error term is homogenous for all the independent variables. On the other hand, heteroscedasticity is a violation of Homoscedasticity whereby there are different levels of variance between the dependent variables over a range of independent variables that are either categorical or continuous. This indicates that there are unequal levels of variability over a range of independent variables or when error term magnitude depends on the values of independent variables (Teddle and Tashakkori (2010) & Hair et al., 2015).

Because the data used for this study was collected from different cadres, there were concerns regarding the presence of heteroscedasticity. Thus, analyzing the regression model without first testing for heteroscedasticity or addressing it in case it was present would have led to the generation of biased parameter estimates. According to Thomas, Nelson & Silverman (2011), as heteroscedasticity levels increase, there is a higher likelihood of encountering violation of the homoscedasticity assumption. In linear regression models, it is often assumed that there is homogeneity of variance, which implies that the error term is homoscedasticity and independent of the independent variable. However, if the error term's variance is not constant, then there is heteroscedasticity which means the presence of statistical instability in the regression model. Therefore, a Levene test was performed to test for homogeneity of variance as recommended by Nordstokke & Zumbo (2010). The author suggests that one should report a p-value greater than 0.05 for Levene's test to indicate that the homogeneity of variance assumption is met. In Table 4.22, below, the results of Levene's Test for homoscedasticity for the variables under study are presented. The test evaluates whether the variances are equal for the groups of the independent variable for some of

the key indicators of NARIGP performance.

Table 4.152: Levene's Test for Homoscedasticity

		Levene Statistic	df1	df2	Sig.
NARIGP performance	Based on Mean	0.865	4	120	0.487
Stakeholders' participation	Based on Mean	1.375	4	120	0.247
Project Planning	Based on Mean	0.687	4	120	0.602
Resource Mobilization	Based on Mean	1.999	4	120	0.099
Project Monitoring	Based on Mean	1.169	4	120	0.328
PMIS	Based on Mean	1.653	4	120	0.165

The Levene statistics of Table 4.22 for the NARIGP performance, stakeholders' participation, project planning, project resource mobilization, project monitoring, and PMIS range between 0.687 and 1.999 with p -values ranging between 0.099 and 0.487. This suggests that there is no significant difference in variances for all the variables tested since all the p -values are greater than the alpha level of significance (0.05).

Indeed, since all Levenetest significance values were greater than the alpha level of significance, and according to Martin and Bridgmon (2012), researchers can assume that they did not violate the homoscedasticity assumption. The implication of this finding is that the researcher may proceed with the analysis and report the results of using statistical procedures that require the homogeneity of variance. By this, it can be concluded that the study met the assumption of homoscedasticity of variance. To examine homoscedasticity of variance, a scatter diagram was generated from the SPSS program and is presented in figure 4.3 below.

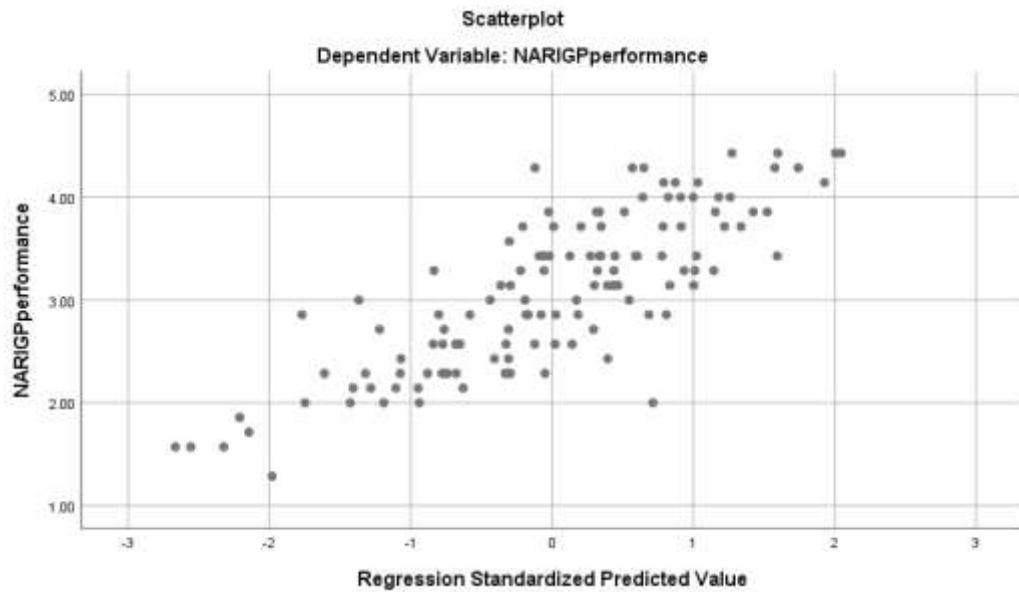


Figure 4.3: Homoscedasticity in the dependent variable NARIGP Performance

From Figure 4.3, the dependent variable (NARIGP Performance) was observed to be homoscedastic as the scatter dots did not form any systematic pattern that was either exploding or converging from the origin (Shen, Cui & Wang, 2014).

4.10 Correlation Analysis

The paper employed multiple correlation analysis to demonstrate that there is a connection between two sets of figures (independent and dependent), for instance, predictor and outcome variables. Pearson Correlation Coefficient (r) was the chosen statistical tool. The result from the statistical test ranges between -1 and +1 (Kothari, 2015). The purpose of the correlation analysis according to Kothari (2015) is to indicate whether there is a connection between the values of two variables. Correlation r determines the degree of association between two quantitative sets of data. A high degree of association indicates that the value of r is close to +1 or -1. The findings of the study are reflected in Table 4.23.

Table 4.23: Pearson Correlation Analysis

		NP	SP	PP	PRM	PM	PMIS
NP	Pearson Correlation	1					
	Sig. (2-tailed)						
SP	Pearson Correlation	.724**	1				
	Sig. (2-tailed)	0.000					
PP	Pearson Correlation	.681**	.559**	1			
	Sig. (2-tailed)	0.000	0.000				
PRM	Pearson Correlation	.673**	.585**	.465**	1		
	Sig. (2-tailed)	0.000	0.000	0.000			
PM	Pearson Correlation	.684**	.575**	.737**	.464**	1	
	Sig. (2-tailed)	0.000	0.000	0.000	0.000		
PMIS	Pearson Correlation	.367**	.301**	.504**	.222*	.419**	1
	Sig. (2-tailed)	0.000	0.001	0.000	0.013	0.000	

** Correlation is significant at the 0.01 level (2-tailed).

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

Key: Key: NP=NARIGP performance, SP=Stakeholders' participation, PP=Project Planning, PRM=Project resource mobilization, PM=Project Monitoring

The results contained in Table 4.23 indicate that there is a positive correlation between NARIGP performance and Stakeholders' participation with a Pearson correlation coefficient of 0.724 ($p < 0.01$). This suggests that the higher the level of stakeholders' participation, the greater the likelihood of improved performance, signifying that their involvement has a critical role in the success of the project. Project Planning also had a positive relationship with NARIGP performance as evident by the correlation coefficient of 0.681 ($p < 0.01$). The results further show that there is a positive but slightly weak relationship between Project resource mobilization and NARIGP performance ($r = 0.673$, $p < 0.01$). This implies that effective resource mobilization is a critical factor in the success of a project. The correlation analysis also shows that NARIGP performance and Project Monitoring also have a positive relationship ($r = 0.684$, $p < 0.01$). Lastly, although the relationship between NARIGP performance

and Project Management Information System (PMIS) is weaker ($r=0.367$, $p<0.01$), it appears to have a positive relationship. This suggests that PMIS has some degree of influence on performance despite its minor contribution compared to the other factors. It can be concluded from the results of the Pearson correlation analysis that NARIGP performance has a positive relationship with the remaining factors. This justifies the need to conduct a regression analysis.

4.11 Regression Analyses

Multiple regression analysis is extremely beneficial for testing hypotheses because it allows for investigating the relationship between one dependent variable and multiple independent variables simultaneously. First of all, multiple regression analysis differs from simple correlation analysis because it allows for testing different variables for their ability to predict a certain outcome. Multiple regression analysis is beneficial for testing complex theories that require examining multiple variables that can predict the outcome of interest. Moreover, multiple regression analysis allows for controlling for potentially confounding variables, thus allowing for testing the relationship between variables of interest while controlling for the effect of other variables. Overall, multiple regression analysis facilitates the ability of a researcher to test complex theories by allowing for testing multiple independent variables in terms of their ability to predict an outcome while controlling for the effect of other independent variables (Hair et al., 2019).

4.11.1 Multiple Regression Model for Effect of Project Management Practices on NARIGP Performance

Multiple regression analysis was performed to assess the simultaneous effect of project performance practice indicators (stakeholders' participation, project planning, project resource mobilization, and project monitoring) on NARIGP performance. The model summary, ANOVA, and coefficients of estimates results are presented in table 4.24.

Table 4.164: Multiple Regression Model Summary for Project Management Practices and NARIGP Performance

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.845a	0.713	0.701	0.41074

a Predictors: (Constant), PMIS, Project Resource Mobilization, Project Monitoring, Stakeholders Participation, Project Planning

b Dependent Variable: NARIGP performance

Table 4.24 shows that 71.3% of total variance in the NARIGP's performance was explained by all the project management practices (stakeholders' participation, project planning, project resource mobilization, and project monitoring) jointly ($R^2 = 0.713$). This result is satisfactory because it implies that the set of project management practices explained a substantive portion of variance in project performance. However, the value of Adjusted R Square in Table 4.25 is 0.701. Therefore, 70.1% of variance in NARIGP's performance was explained by the independent variables used in the analysis. More specifically, the adjusted R square indicates an adjusted amount of variance explained by the regression model. In this case, the term 'adjusted' means that the variance explained by the model was penalized due to the inclusion of several independent variables. Overall, this statistic is instrumental in assessing the predictive capacity of the set of project management practices to explain variance in the NARIGP's performance. Consequently, based on the results of multiple regression analysis presented in Table 4.25, it is possible to conclude that project management practices predicted a considerable portion of variance in the NARIGP's performance.

When analyzing the results of ANOVA necessary to assess whether the variance explained by the regression model is substantial, the focus should be on comparing the explained and unexplained variance. In other words, if the explained variance is considerably greater than the unexplained variance, the results justify the use of the regression model because it means that the variation in the dependent variable can be predicted based on the set of independent variables. Hence, ANOVA analysis helps to assess the significance of the regression model to evaluate whether the results of the study allow concluding that there is a relationship between the independent and

dependent variables. This statistical test's results are presented in Table 4.25.

Table 4.175: ANOVA Goodness of fit for Project Management Practices and NARIGP Performance

	Sum of Squares	df	Mean Square	F	Sig.
Regression	49.989	5	9.998	59.26	.000b
Residual	20.077	119	0.169		
Total	70.066	124			

a Dependent Variable: NARIGP performance

b Predictors: (Constant), PMIS, project Resource Mobilization, Project Monitoring, Stakeholders Participation, Project Planning

Table 4.25 presents ANOVA results for the goodness of fit analysis performed to establish relationships between project management practices and NARIGP performance. The results illustrate a significant model fit ($F = 59.26$, $p = 0.000 < 0.05$). This conclusion indicates that the selected project management practices account for a significant proportion of variance in the NARIGP performance. In other words, the improvement in the examined project management practices will lead to improved project performance.

Findings in Table 4.26 provide the coefficients for the effect analysis of project management practices on NARIGP performance. The coefficients help understand how stakeholders' participation, project planning, project resource mobilization and project monitoring contribute to the changes observed in NARIGP performance.

“Observed inconsistencies in the reported degrees of freedom raise concerns regarding the accuracy, reliability, and robustness of the statistical analysis presented.”

Table 4.186: Coefficients for Project Management Practices and NARIGP Performance

	Unstandardized		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	0.245	0.169		1.445	0.151
Stakeholders' participation	0.297	0.064	0.311	4.612	0.000
Project Planning	0.181	0.062	0.218	2.909	0.004
Project Resource Mobilization	0.288	0.061	0.293	4.735	0.000
Project Monitoring	0.166	0.060	0.208	2.746	0.007

a Dependent Variable: NARIGP performance

The findings in Table 4.26 showed that Stakeholders' participation had a positive and significant effect on NARIGP performance ($\beta = 0.311$, $p\text{-value} = 0.000$). Thus, hypothesis H01 was rejected; therefore, the study infers that one unit increase in Stakeholders' participation results in an increase in NARIGP performance by 0.311 units. The study suggests that Stakeholders' participation is vital in enhancing NARIGP performance.

These findings strongly support the conclusions drawn in existing literature regarding the importance of stakeholder engagement in project management. Specifically, Kipkoech (2022) highlights that programs with adequate stakeholder involvement during the project identification phase perform better, reinforcing the necessity for effective participation to enhance performance outcomes. This aligns with the results presented in Table 4.27, indicating that increased Stakeholders' participation correlates with improved NARIGP performance. Similarly, King'ori (2022) emphasizes that low levels of stakeholder participation during project identification and planning negatively influence project performance, further corroborating the significance of active engagement. Sulemana's (2018) findings, which stress the suitability of stakeholder participation in the planning process, also align with the current study's results, as they collectively underscore the critical role stakeholders

play in ensuring project relevance and success. Additionally, the observations made by Orimba, Mungai, and Awiti (2018) about the strong relationship between stakeholder participation in project implementation and performance outcomes echo the results from Table 4.27, which emphasizes the need for robust engagement throughout the project lifecycle. The supporting findings from Wamugu and Ogollah (2017), who noted the benefits of involving stakeholders from the initiation stage in CDF projects, further validate the conclusion that early participation enhances project success, which is consistent with the study's results. Moreover, insights from Nyandika and Ngugi (2014) and Adan (2012) regarding the influence of leadership roles in fostering stakeholder involvement and subsequently enhancing project performance serve to strengthen the argument presented in the current findings.

Finally, Njogu's (2016) research, which affirms the positive effects of stakeholder inclusion during project monitoring on overall project success, reinforces the imperative for ongoing engagement at every stage of project management, aligning seamlessly with the conclusions of the current study that highlights the vital role of Stakeholders' participation in enhancing NARIGP performance. Thus, the results from Table 4.27 not only support but also significantly enrich the existing body of literature on the importance of stakeholder participation in improving project outcome. Furthermore, project planning also demonstrated a positive and significant effect on NARIGP performance ($\beta = 0.218$, $p\text{-value} = 0.004$). Accordingly, hypothesis H02 was rejected. This indicates that a one-unit increase in Project Planning is associated with an increase in NARIGP performance by 0.218 units.

The results suggest that effective Project Planning is crucial for improving overall project outcomes. This aligns with Hashakimama (2022), which discovered that project planning substantially impacts the effectiveness of Rwanda's food sustainability initiative project, asserting the importance of meticulous planning in achieving desired results. Muute and James (2019) further support this finding by stating that effective quality project planning is essential for positive outcomes, advising that construction businesses should implement adequate and ongoing training programs to enhance the workforce's capabilities, thereby contributing to better project management. However, it is crucial to note that not all studies view project planning

positively; for instance, Mwanza et al. (2020) found that inadequate project planning procedures had a considerable detrimental impact on the performance of construction projects. This discrepancy underscores the importance of thorough and well-executed planning processes. Moreover, Githenya and Ngugi (2014) highlighted that effective project planning significantly affects the successful implementation of Community Development Fund (CDF) projects, suggesting that enhancing project planning practices can lead to improved project performance (Chesiyna and Wanyoike, 2016). The literature consistently emphasizes the pivotal role of Project Planning in enhancing project effectiveness, validating the findings of this study regarding its positive influence on NARIGP performance. In addition, project resource mobilization had a notable positive and significant effect on NARIGP performance ($\beta = 0.293$, $p\text{-value} = 0.000$), leading to the rejection of hypothesis H03. This finding infers that a one-unit increase in Project resource mobilization correlates with an increase in NARIGP performance by 0.293 units.

This highlights the importance of resource mobilization as a critical factor in enhancing project performance. Supporting this conclusion, Ronoh and Kirui (2021) revealed a substantial relationship between resource scheduling and performance outcomes, further emphasizing the necessity of effective resource management strategies. Additionally, Makokha and Ngugi (2022) found that resource allocation has a favorable and significant influence on project implementation within the Busia County Government in Kenya, reiterating that proper mobilization of resources leads to successful project execution. Further, Rugiri and Njangiru (2018) demonstrated that available resources are essential determinants of project performance, with a Pearson product-moment correlation analysis revealing a positive association between resource distribution and project outcomes.

This aligns well with the current study's findings, highlighting the critical role that resource mobilization plays in achieving desired performance levels. Similarly, Kimutai and Kirui (2020) utilized questionnaires and discovered a distinct link between resource scheduling and project execution. They indicated that proper scheduling ensures projects remain within budget, adjustments are made to accommodate changing demands, and project personnel have the necessary resources

to perform their tasks effectively. Moreover, Obegi and Kimutai (2017) emphasized the significance of resource scheduling in project performance, noting its role in maintaining project efficiency and adaptability. As projects become increasingly complex, Pinha and Ahluwalia (2019) found that advanced techniques in project scheduling are essential to optimize successful outcomes. Finally, Ndayisaba and Mulyungi (2018) discovered that effective resource management significantly influences project completion, contributing to 83.7% of project success in the Muhanga district of rural Rwanda. Collectively, the literature supports the findings of this study, reinforcing the idea that Project resource mobilization is vital for enhancing NARIGP performance and overall project effectiveness. Project Monitoring demonstrated a positive and significant effect on NARIGP performance ($\beta = 0.208$, $p\text{-value} = 0.007$).

As a result, hypothesis H04 was also rejected. This indicates that an increase of one unit in Project Monitoring is associated with an increase in NARIGP performance by 0.208 units. The findings suggest that effective project monitoring is essential for achieving higher performance levels within the NARIGP framework. The findings suggest that effective project monitoring is essential for achieving higher performance levels within the NARIGP framework. This is supported by Oyelami and Dosumu (2021), who concluded that monitoring and evaluation (M&E) practices significantly impact construction project timelines in the study area. Similarly, Kinyua and Njoroge (2021) discovered that effective monitoring and evaluation considerably influence road construction projects, highlighting the broader relevance of monitoring practices across different types of projects. Furthermore, Wanjala et al. (2017) found that diverse monitoring approaches substantially impacted project performance, reinforcing the notion that not only the presence of monitoring but also the methods employed are critical to achieving project success.

Tong'l et al. (2019) indicated that addressing monitoring-related issues could aid in implementing county government projects on time, emphasizing the role of proper oversight in ensuring project delivery within specified timeframes. Additionally, Nwagu and Iravo (2015) revealed a positive relationship between monitoring and project success, suggesting that effective monitoring and assessment contribute to

improved project performance. The consistent evidence from various studies corroborates the findings of this research, underscoring the critical importance of Project Monitoring as a key factor in enhancing NARIGP performance and ensuring successful project outcomes across various contexts.

4.11.2 Moderating Effect of PMIS on the Relationship between Stakeholders' Participation and NARIGP Performance

A moderator variable is a variable that changes the degree of relationship between the main independent and dependent variables (Matula et al. 2018). The moderation effect in the current study was demonstrated by the interaction effect of Xs and Z variables. Moderated regression analysis; model summary, ANOVA for goodness of fit and coefficients of estimates was performed and the results were presented in Tables 4.27 and 4.29.

Table 4.197: Model Summary for Moderating Effect of PMIS on the Relationship between Stakeholders' Participation and NARIGP Performance

Model Summary				Change Statistics				
	R	Adjusted	Std. Error of	R	F			
R	Square	R Square	the Estimate	Square Change	Change	df1	df2	Sig. F Change
.724a	0.524	0.52	0.52061	0.524	135.511	1	123	0.000
.771b	0.595	0.588	0.4825	0.070	21.198	1	122	0.000

a Predictors: (Constant), stakeholders' participation

b Predictors: (Constant), stakeholders' participation, SP_PMIS

c Dependent Variable: NARIGP performance

The results in Table 4.27 show that for the first model, the R Square is 0.524 which implies that the Stakeholders' participation explains 52.4% of the variance of NARIGP performance. On the other hand, the result for the second model is 0.595 which implies that with the moderators (PMIS), the stakeholder participation and PMIS together explain 59.5% of the variance in NARIGP performance. The results of the two R squares were used to determine how much the PMIS variable contributed towards explaining the variance in NARIGP performance. This was done by taking the

difference of the two R squares giving a result of 0.07 which implies that the PMIS variable contributed 7% towards explaining the variance in NARIGP performance. The result is significant as shown by the sig. F Change of 0.000 and also the F change of 21.198 indicating improvement in model fit after the addition of the PMIS as a moderator variable. This result implies that the PMIS plays a very important role in moderating the relationship between Stakeholders' participation and NARIGP performance.

Table 4.28: Moderating effect of PMIS on the relationship between stakeholders' participation and NARIGP performance.

Table 4.208: Coefficients for moderating effect of PMIS on the Relationship between Stakeholders' Participation and NARIGP Performance

Model		Unstandardized		Standardized Coefficients		
		Coefficients		Beta	T	Sig.
		B	Std. Error			
1	(Constant)	0.942	0.189		4.985	0.000
	Stakeholders' participation	0.691	0.059	0.724	11.641	0.000
2	(Constant)	1.138	0.180		6.313	0.000
	Stakeholders' participation	0.345	0.093	0.361	3.704	0.000
	SP*PMIS	0.084	0.018	0.449	4.604	0.000

a Dependent Variable: NARIGP performance

Table 4.28 revealed that the moderating influence of PMIS on the link between stakeholders' participation and NARIGP performance is positive and significant ($\beta = 0.449$; $p = 0.000$). Thus, hypothesis H05 was rejected as PMIS does have a significant moderating influence. In fact, in the interaction model, it is postulated that for each one unit increase in the interaction between Stakeholders' participation and PMIS, NARIGP performance will increase by 0.449. This implies that PMIS plays a major role in enhancing the stakeholder participation-performance relationship. This result confirms the results of prior research. According to the Project Management Knowledge (2010), project management information systems ensure that the projects

are implemented, controlled, and completed to achieve all the set goals and objectives. It also ensures that the objectives are met within the stipulated time, budget, quality, and scope. This will ensure that there are optimal allocation and integration of resources to meet the set objectives while avoiding risks facing the project. By managing information needed for project planning and performance control, project management information systems support project performance while minimizing risks, therefore, increasing competitiveness and performance (Teixeira et al., 2016). The five cases carried out by Retnowardhani and Suroso (2019) revealed that PMIS supports correct decision-making because of the availability of the needed information about the project performance and helps improve project performance through enhanced communication. Since PMIS makes it easy to manage a project through automation and simplification, project managers are enabled to carry out other roles including being innovative, creative, and involved in maintaining relationships with other stakeholders (Kostalova, Tetreanova, and Svedik, 2015). The results presented above are coherent with the study findings. It can be noted that PMIS improves the involvement of stakeholders, therefore, improving performance, an issue that has been corroborated by previous researchers. Consequently, the results reveal that effective application of PMIS must be carried out to yield positive outcomes on stakeholder participation and overall project performance and support the positive relationship established in the previous study.

The optimal regression model for moderating the effect of PMIS on the relationship between stakeholders' participation and NARIGP performance is as follows:

$$Y = 1.138 + 0.345x_1 + 0.084x_1 * z + \epsilon. \dots\dots\dots\text{Model 4.2}$$

Where;

- Y = NARIGP performance
- X₁ = Stakeholders' Participation
- Z = PMIS
- ε = error term

4.11.3 Moderating Effect of PMIS on the Relationship between Project Planning and NARIGP Performance

A Hierarchical regression analysis was performed to test the moderating influence of human resource on the relationship between project planning and NARIGP performance. A moderated regression analysis; model summary, ANOVA for goodness of fit and coefficients of estimates was performed as presented in Tables 4.29.

Table 4.29: Model Summary of Moderating Effect of PMIS on the Relationship between Project Planning and NARIGP Performance

Model	Model Summary				Change Statistics					
	R	R Square	Adjusted Square	R Std. Error of the Estimate	R Square Change	F Change	df 1	df2	Sig. Change	F
1	.681a	0.464	0.46	0.55237	0.464	9	1	123	0.000	106.63
2	.682b	0.465	0.456	0.55445	0.000	0.081	1	122	0.776	

a Predictors: (Constant), Project Planning

b Predictors: (Constant), Project Planning, PP*PMIS

c Dependent Variable: NARIGP performance

The results in Table 4.29 reveal that for the first model, the value of R Square is 0.464. This implies that project planning accounts for 46.4% of the variance in the performance of NARIGP. On the addition of the interaction term shown by the change in the value of R Square from 0.464 to 0.465, the second model's value of R Square change is 0.001.

This reveals that the inclusion of the moderating variable has virtually no effect on improving the performance of the model. Furthermore, an examination of the F change statistics when the interaction term is added shows an F change of 0.081 with a significance level of Sig F Change of 0.776. This result further confirms that the influence of PMIS as a moderating variable is not significant. Thus, although project planning has a significant influence on the performance of NARIGP, its moderating influence is minimal since its inclusion in the model resulted in a minimal increase in the variance accounted for by the model and an insignificant F change value. This led

the researchers to proceed to report the coefficient estimates of the interaction effect as shown in Table 4.30.

Table 4.210: Coefficients Results for Moderating Effect of PMIS on the Relationship between Project Planning and NARIGP Performance

Coefficients		Unstandardized		Standardized		
Model		Coefficients		Coefficients		
		Std.				
		B	Error	Beta	t	Sig.
1	(Constant)	1.389	0.170		8.149	0.000
	Project Planning	0.565	0.055	0.681	10.327	0.000
2	(Constant)	1.413	0.191		7.402	0.000
	Project Planning	0.529	0.137	0.638	3.849	0.000
	PP*PMIS	0.008	0.030	0.047	0.285	0.776

a Dependent Variable: NARIGP performance

The results in Table 4.30 indicated that the moderating effect of project management information system (PMIS) on the relationship between project planning and NARIGP performance was not significant ($\beta=0.047$, $p=0.776>0.05$) which means that PMIS did not moderate the effect of project planning on the performance of NARIGP. Thus, null hypothesis H05b that stated ‘Project Management Information System (PMIS) does not have a significant moderating influence on the relationship between Project Planning and the performance of NARIGP’ was supported since the results showed that PMIS had no moderating effect that significantly influenced the relationship between the project planning and performance of NARIGP, although project planning significantly contributed to the performance of NARIGP. Table 4.31: Moderating influence of PMIS on the relationship between project planning and NARIGP performance.

4.11.4 Moderating Effect of PMISs on the Relationship between Project

Resource Mobilization and NARIGP Performance

The study used hierarchical regression analysis to assess the moderation role of PMISs on the relationship between Project resource mobilization and NARIGP performance. The results of the analysis are presented in tables 4.31.

Table 4.221: Model Summary for Moderating Effect of PMISs on the Relationship between Project Resource Mobilization and NARIGP Performance

Model	Model Summary				Change Statistics				
	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.673a	0.452	0.448	0.55848	0.452	101.644	1	123	0.000
2	.748b	0.559	0.552	0.5032	0.107	29.51	1	122	0.000

a Predictors: (Constant), Project Resource Mobilization

b Predictors: (Constant), Project Resource Mobilization, PRM*PMIS

c Dependent Variable: NARIGP performance

Findings in Table 4.31 reveal that in the first model, the R Square is 0.452, and this implies that 45.2% of the variation in the performance of NARIGP was explained by the predictive power of the project resource mobilization captured in the regression model. In the second model where PMIS was added as the moderating variable, the R Square improved significantly to 0.559. This means that 55.9% of the variation in performance in NARIGP is explained by the combination of project resource mobilization and its interaction with PMIS. From this result, we can say that adding the moderating variable resulted in a 10.7% increase in the amount of explained variation in performance, which is evident by looking at R Square change. The F change of 29.51 also shows fitness of the model after adding the moderating variable. The significance level was also at 0.000 ($p < 0.05$), which revealed a major role of the moderating variable, PMIS, improving the model fit.

Therefore, from the discussion above, we can conclude that the study gave coefficients of estimates for moderating the effect of PMISs on the relationship between Project

resource mobilization and NARIGP performance.

Table 4.232: Coefficients for Moderating Effect of PMISs on the Relationship between Project Resource Mobilization and NARIGP Performance

Coefficients							
Model				Unstandardized Coefficients		Standardized Coefficients	
				B	Std. Error	Beta	t Sig.
1	(Constant)			1.126	0.199		5.647 0.000
	Project Resource Mobilization			0.663	0.066	0.673	10.08 0.000
							2
2	(Constant)			1.235	0.181		6.831 0.000
	Project Resource Mobilization			0.306	0.089	0.310	3.450 0.001
	PRM_PMIS			0.097	0.018	0.488	5.432 0.000

a Dependent Variable: NARIGP performance

The results in Table 4.32 revealed that PMIS has a moderating influence on the relationship between project resource mobilization and NARIGP performance ($\beta = 0.488$, $p = 0.000$). Thus, the null hypothesis H05 was rejected, which stated that PMIS does not moderately relate to the connection between project resource mobilization and NARIGP performance. The positive value of Beta indicates that for every one unit increase in the interaction of project resource mobilization and PMIS, the NARIGP performance would increase by 0.097. This implies that PMIS plays a major role in the intensification of the power of project resource mobilization to affect the performance of NARIGP projects.

This result agrees with the findings of Retnowardhani and Suroso (2019), who evaluated five cases and concluded that PMIS has several advantages, such as the improvement of decision-making and performance through enhanced communication. The visibility of performance results through the application of PMIS allows project managers to make decisions quickly and efficiently, thus improving project resource

mobilization. This shows that the effective use of PMIS can contribute to the maximization of the performance of the NARIGP projects. According to Kostalova, Tetreanova, and Svedik (2015), PMIS can make the project management process more efficient and effective. It can help project managers to simplify and automate a number of project management tasks, which reduces the time spent on these activities. This allows the project managers to focus more on important areas, such as innovation, creativity, stakeholders, and other critical success factors. By improving the role of PMIS in project management, the performance of the NARIGP projects can be increased.

The development of PMIS, as well as the growing need for more integrated systems, has led to the creation of more complex project management information systems. These systems have evolved from simple scheduling and resource planning systems to comprehensive solutions that support project management and project portfolio management at all levels (Teixeira et al., 2016). This development has allowed project managers to have greater control and management over all aspects of the project, which has enhanced the power of project resource mobilization to affect the performance of NARIGP projects. According to the PMBOK Guide (2017), PMIS consists of various processes and is comprised of several supporting areas that aid the project management process. These areas consist of scheduling processes and software, cost control processes and software, resource management processes and software, document management processes and software, and other project management processes and software that support communication among the stakeholders. It can be concluded that the use of PMIS can drastically increase the performance of the NARIGP projects. Based on the above results, the following regression model was derived:

$$Y = 1.235 + 0.306x_3 + 0.097x_3 * Z + \epsilon. \dots\dots\dots\text{Model 4.3}$$

Where;

- Y = NARIGP performance
- X₃ = Project resource mobilization
- Z = PMISs

ε = error term

This, therefore, justifies the undisputed position of PMISs in moderating relationship between Project resource mobilization and NARIGP performance in table

4.11.5 Moderating Effect of PMISs on the Relationship between Project Monitoring and NARIGP Performance

The study used hierarchical regression analysis to check for the moderated effect of PMISs on the relationship between project monitoring and NARIGP performance. The findings are presented in Tables 4.33.

Table 4.243: Model Summary for Moderating Effect of PMISs on the Relationship between Project Monitoring and NARIGP performance

Model	Model Summary				Change Statistics				
	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.684a	0.467	0.463	0.55084	0.467	107.917	1	3	0.000
2	.721b	0.521	0.513	0.52476	0.053	13.53	1	2	0.000
a Predictors: (Constant), Project Monitoring									
b Predictors: (Constant), Project Monitoring, PM*PMIS									

The results presented in Table 4.33 demonstrate that for Model 1, the R-squared of 0.467 implies that 46.7% of the variation in the level of NARIGP performance can be explained by the influence of project monitoring on its implementation. At the same time, the results show that when Project Management Information Systems (PMISs) are incorporated, the R-squared increases to 0.521. This demonstrates that 52.1% of the variation in NARIGP performance can be explained by the impact of project monitoring, PMISs, and the interaction between these two variables. Thus, it can be stated that the inclusion of PMISs into the model improved the result of the regression by 5.3% (R^2 change = 0.053). This outcome highlights the significant contribution of

PMISs to the optimization of project monitoring processes and the level of NARIGP performance. In addition, the results prove that the F Change is 13.53, with the significance level of 0.000, which implies that changes in the model are significant. Therefore, the results suggest that the inclusion of PMISs into the model provides significant improvement in the ability to predict the NARIGP performance level based on the influence of project monitoring on its implementation.

As a result, the study provided the coefficients of estimates used to moderate the influence of PMISs on the relationship between project monitoring and the level of NARIGP performance, as presented in Table 4.34.

Table 4.254: Coefficients for Moderating Effect of PMISs on the Relationship between Project Monitoring and NARIGP Performance

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.347	0.173		7.771	0.000
	Project Monitoring	0.544	0.052	0.684	10.388	0.000
2	(Constant)	1.580	0.177		8.934	0.000
	Project Monitoring	0.190	0.108	0.239	1.751	0.083
	PM*PMIS	0.083	0.023	0.501	3.678	0.000

a Dependent Variable: NARIGP performance

The results contained in Table 4.34 indicate that Project Management Information Systems moderate the relationship between project monitoring and NARIGP performance, as evidenced by the standardized coefficient, $\beta = 0.501$, $p = 0.000$. With these results, we reject the null hypothesis H05b that PMIS does not moderate the association between project monitoring and NARIGP performance. The results further imply that a unit increase in the interaction between project monitoring and PMIS increases NARIGP performance by 0.501. The results are an indication of the importance of moderate project monitoring through the use of PMIS to improve resource mobilization performance. The results therefore imply that increased use of PMIS not only improves project monitoring but also enhances the overall performance

of resource mobilization, which in turn boosts overall project performance. According to Project Management Knowledge (2010), PMISs facilitate project implementation, control, and closure to meet the initial requirements set by time, budget, quality, and scope. As such, through ensuring the appropriate allocation and integration of project processes and resources while at the same time minimizing risks, PMISs improve data management related to project performance planning and monitoring, which ultimately increases competitiveness and project performance (Teixeira et al., 2016). The results therefore concur with previous research findings to show that the use of PMIS improves project monitoring and performance. According to Retnowardhani and Suroso (2019), who evaluated 5 different case study scenarios, PMIS offers several benefits in project management including aiding effective decision making through provision of information concerning project performance and promoting better project performance outcomes through enhanced communication. Another benefit identified by Kostalova, Tetreova, and Svedik (2015) regarding the implementation of PMIS in an organization is the automation of several tasks, thus allowing the project manager to perform more strategic activities such as fostering innovation and managing relationships with stakeholders. It is therefore of paramount importance that project managers take up PMIS in order to increase their competitiveness and overall project performance. It is also important for project managers to note that PMIS has evolved over the years and currently covers a lot more than just the planning and allocation of resources, as it was initially used for many years ago (Teixeira et al., 2016).

This evolution signifies the growing importance of PMIS in modern project management, emphasizing its capacity to adapt to technological advancements and address the increasing complexity of project portfolios. Based on the above results, the following regression model was derived:

$$Y = 1.580 + 0.190x_4 + 0.083x_4 * Z + \epsilon \dots\dots\dots\text{Model 4.6}$$

Where;

- Y = NARIGP performance
- X₃ = Project monitoring
- Z = PMIS
- ε = error term

This, therefore, justifies the undisputed position of PMISs in moderating relationship

between Project resource mobilization and NARIGP performance in table 4.34

4.12 Optimal Model of the Study

Table 4.35 shows the results of the hierarchical regression analysis performed to assess the moderating role of project management information systems, PMIS, in the relationship between project management practices and the performance of the National Agricultural and Rural Inclusive Growth Programs, NARIGP, in Kenya. Three models were generated. In model 1, project management practices were regressed against the performance of NARIGP to establish their direct relationships. In model 2, project management information systems were added as a moderating variable. In model 3, the interactions between project management information systems and project management practices were introduced to determine the nature of the moderation of PMIS on the project management practices-performance relationship.

Table 4.265: Optimal Hierarchical Regression

	Model 1 β (se)	Model 2 β (se)	Model 3 β (se)
Stakeholders' participation (SP)	0.407 (0.072) **	0.199 (0.053) **	-0.135 (0.057) *
Project planning (PP)	0.243 (0.069) **	0.107 (0.050) *	0.042 (0.111)
Project resource mobilization (PRM)	0.244 (0.062) **	0.182 (0.044) **	0.061 (0.065)
Project monitoring (PM)	0.020 (0.058)	0.063 (0.041)	-0.156 (0.046) **
Moderator			
project management information systems (PMIS)	—	0.599 (0.043) **	-0.026 (0.080)
Interaction Effects			
SP*PMIS	—	—	0.517 (0.078) **
PP* PMIS	—	—	0.031 (0.152)
PRM* PMIS	—	—	0.245 (0.086) **
PM* PMIS	—	—	0.426 (0.062) **
Model Statistics			
R ²	0.517	0.755	0.864
ΔR^2	0.517	0.238	0.109
Adjusted R ²	0.508	0.749	0.858

Std. Error of Estimate	0.702	0.501	0.377
F-Statistic	53.338	122.301	137.297
Sig. (F Change)	0.000	0.000	0.000

The findings in Model 1 indicate that stakeholder participation ($\beta = 0.407$, $p < 0.01$), project planning ($\beta = 0.243$, $p < 0.01$), and project resource mobilization ($\beta = 0.244$, $p < 0.01$) had positive and statistically significant effects on the performance of National Agricultural and Rural Inclusive Growth Programs. However, project monitoring ($\beta = 0.020$, $p > 0.05$) had no statistically significant effect on program performance. The model explained 51.7% of the variation in program performance ($R^2 = 0.517$), indicating that project management practices were important determinants of program performance. The overall regression model was statistically significant ($F = 53.338$, $p < 0.001$), demonstrating that the project management practices jointly predicted program performance.

Project management information systems were introduced into the regression model. The results indicate that project management information systems had a strong positive and statistically significant influence on program performance ($\beta = 0.599$, $p < 0.01$). Stakeholder participation ($\beta = 0.199$, $p < 0.01$), project planning ($\beta = 0.107$, $p < 0.05$), and project resource mobilization ($\beta = 0.182$, $p < 0.01$) remained statistically significant, whereas project monitoring ($\beta = 0.063$, $p > 0.05$) remained insignificant. The inclusion of PMIS increased the explanatory power of the model from 51.7% to 75.5%, representing an increase of 23.8% ($\Delta R^2 = 0.238$). The model remained statistically significant ($F = 122.301$, $p < 0.001$), implying that PMIS substantially improved the prediction of program performance.

Introduced the interaction effects between PMIS and the project management practice dimensions. The results indicate that the interaction between stakeholder participation and PMIS was positive and statistically significant ($\beta = 0.517$, $p < 0.01$), suggesting that project management information systems strengthened the contribution of stakeholder participation towards program performance. Similarly, the interaction between project resource mobilization and PMIS was positive and statistically significant ($\beta = 0.245$, $p < 0.01$), while the interaction between project monitoring and

PMIS was also positive and statistically significant ($\beta = 0.426$, $p < 0.01$). However, the interaction between project planning and PMIS was not statistically significant ($\beta = 0.031$, $p > 0.05$), indicating that PMIS did not significantly strengthen the relationship between project planning and program performance. The inclusion of the interaction terms increased the explanatory power of the model to 86.4% ($R^2 = 0.864$), with the interaction effects accounting for an additional 10.9% of the variation in program performance ($\Delta R^2 = 0.109$). The model remained highly significant ($F = 137.297$, $p < 0.001$), confirming that PMIS significantly moderated selected relationships between project management practices and program performance.

The findings imply that project management information systems enhance the effectiveness of stakeholder participation, project resource mobilization, and project monitoring in improving the performance of National Agricultural and Rural Inclusive Growth Programs. Programs supported by effective project management information systems are likely to experience better coordination, timely communication, improved resource utilization, enhanced monitoring, and informed decision-making, thereby translating project management practices into superior program performance. However, project management information systems did not significantly strengthen the relationship between project planning and program performance, suggesting that the effectiveness of project planning may depend more on planning quality and managerial competence than on information systems alone. These findings support the Resource-Based View Theory and Project Management Theory, which posit that organizational resources, technological capabilities, and effective information systems improve the utilization of project management practices and ultimately enhance project performance. The results further suggest that organizations that effectively integrate project management information systems into project implementation are better positioned to coordinate stakeholders, mobilize resources efficiently, monitor project progress effectively, and achieve improved program performance. The final regression model is expressed as:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 (X_1 M) + \beta_6 (X_2 M) + \beta_7 (X_3 M) + \beta_8 (X_4 M) + \varepsilon$$

Where:

Y = Project Performance

X_1 = Stakeholder Participation

X_2 = Project Planning

X_3 = Resource Mobilization

X_4 = Project Monitoring

M = Project Management Information Systems (PMIS)

β_0 = Constant

β_1 – β_8 = Regression coefficients

ε = Error term

The results of Table 4.26 demonstrate that all independent variables jointly explain a significant proportion of project performance, given the coefficient of determination, especially for the R^2 indicator. This outcome proves that project management practices have the most significant influence on the performance of the NARIGP.

The interaction terms reveal that PMIS magnifies the impact of stakeholder participation, resource mobilization, and project monitoring on project performance, while its mediation on project planning is less evident.

Therefore, it can be concluded that the studied practices applied together with digital systems contribute to achieving higher performance than separate practices, and in systems thinking frameworks, project management practices have the ability to make a project deliverable more successful (Kerzner, 2022; PMI, 2021).

Discussion of Study Findings

This section discusses the results of the study in relation to the study objectives, empirical literature, and underlying theories. The discussion is based on the regression

results, correlation analysis, and moderator analysis.

Stakeholder Participation and Project Performance

The study established that stakeholder participation had a positive and significant effect on the performance of the National Agricultural and Rural Inclusive Growth Project which show a significant coefficient (β , $p < .05$). The results in Table 4.24 further indicate that stakeholder participation had a positive correlation with project performance.

The results are consistent with the views of Freeman et al. (2020) and World Bank (2023) on the stakeholder theory, which suggest that stakeholder participation promotes transparency, accountability, ownership and sustainability of projects. The results also support the Stakeholder Theory by demonstrating that the active involvement of stakeholders in the planning and implementation of the NARIGP contributed to improved performance. This was achieved by providing a platform for sharing of information, feedback collection, consultation, decision-making and collaboration, which enhanced project inclusiveness, ownership and accountability.

However, the results further demonstrate that stakeholder participation had a negative moderation effect on the relationship between project characteristics and project performance as indicated by the results in Table 4.28 and 4.29. This is consistent with the views of Bridoux and Stoelhorst (2022), who argue that increased stakeholder participation can lead to complexity, especially where there is multiple stakeholder groups involved, as was the case with the NARIGP. The results in Table 4.28 and 4.29 further show that the Project Management Information System (PMIS) played a crucial role in promoting effective communication, information exchange, and coordination of stakeholders, which reduced the negative influence of increased stakeholder participation on project performance.

Project Planning and Project Performance

The study further established that project planning had a positive and significant effect on the performance of the NARIGP. This was evident from the results in Table 4.27,

which show a significant coefficient (β , $p < .05$) for project planning. The results in Table 4.24 further indicate that project planning had a positive correlation with project performance.

The results are consistent with the views of Kerzner (2022) and PMI (2021), who argue that project planning is one of the most critical aspects of project management, which, if performed effectively, can have a positive effect on project performance. The results further support the views of Critical Path Theory and Risk Management Theory regarding the importance of project planning in promoting effective time management, budgeting, and risk management, thus improving project implementation. According to the results, project planning activities helped promote the efficient use of resources, reduce project risks, and ensure proper scheduling of project activities, which improved project performance.

However, the results in Table 4.30 and 4.31 show that the moderating influence of PMIS on the relationship between project planning and project performance was relatively low. This suggests that planning activities in the NARIGP were carried out using manual approaches, which did not fully leverage technology to promote effective planning. These results are consistent with the views of Too and Weaver (2021) on the limited role of technology in project planning, as well as the views of Flyvbjerg (2021), who argue that project planning in agricultural development programmes is often challenged by environmental, financial, governance, and institutional risks, which hinder effective implementation.

Project Resource Mobilization and Project Performance

The study further established that project resource mobilization had a positive and significant effect on project performance which show a significant coefficient (β , $p < .05$). The results further indicate that project resource mobilization had a positive correlation with project performance, thus supporting the Resource-Based View of project management.

The results are consistent with the views of Barney (1991) and Marnewick (2020), who argue that firms with access to valuable, rare, costly to imitate, and non-substitutable resources are able to achieve superior performance. According to the results, project resource mobilization was critical in ensuring that appropriate resources were identified, acquired, allocated, and utilized to achieve the set objectives. The results further support the views of Patanakul and Milosevic (2019),

who argue that the lack of adequate resources is one of the main challenges facing project implementation, particularly in the public sector.

The results in Table 4.32 and 4.33 further indicate that PMIS played a significant role in enhancing the relationship between project resource mobilization and project performance. This further implies that the use of PMIS promoted efficient resource tracking, allocation, expenditure tracking, and accountability, thus improving project performance. On the other hand, the results do not support the views of the Resource-Based View of project management, particularly when considering the moderating role of PMIS. According to Priem et al. (2018), the success of an organization depends on its ability to use resources to meet its goals. As evident by the results, challenges such as governance problems, budget delays, institutional constraints, and policy limitations can hinder the effective utilization of available resources, thus negatively affecting project performance.

Project Monitoring and Project Performance

The study further established that project monitoring had a positive and significant effect on project performance. This was evident from the results in Table 4.27, which show a significant coefficient (β , $p < .05$), as well as the results in Table 4.24, which indicate that project monitoring had a positive correlation with project performance. The results are consistent with the Theory of Constraints and Systems Theory, which emphasize the importance of project monitoring and evaluation in promoting continuous improvement of project performance (Rahman, 2019; Koskela et al., 2019).

According to the results, project monitoring activities such as project cost tracking, schedule adherence, performance assessment, and project progress reporting had a positive effect on project performance by promoting accountability, quality control, and informed decision-making. The results in Table 4.34 and 4.35 further indicate that PMIS played a significant moderating role in the relationship between project monitoring and project performance. This further implies that the use of PMIS promoted effective progress reporting, continuous performance improvement, and enhanced performance reporting, thus improving project performance. These results

are consistent with the views of World Bank (2023) and UNDP (2020), who emphasize the importance of using information communication technology (ICT) in promoting transparency and informed decision-making in development programmes. However, the results further show that the lack of appropriate technologies can render project monitoring ineffective, as explained by Marnewick (2020).

Moderating Role of Project Management Information Systems (PMIS)

The study further established the moderating role of Project Management Information Systems (PMIS) in the relationships between project management practices and project performance. The results in Table 4.28 and 4.29 indicate that PMIS plays a significant moderating role in the relationship between stakeholder participation and project performance, while the results in Table 4.32 and 4.33 show that PMIS further plays a significant moderating role in the relationship between project resource mobilization and project performance. The results in Table 4.34 and 4.35 further indicate that PMIS also moderated the relationship between project monitoring and project performance. The results in Table 4.30 and 4.31, however, show that PMIS had a relatively low moderating role in the relationship between project planning and project performance.

The results are consistent with the views of Systems Theory on the importance of effective information exchange and communication in promoting performance improvement in organizations. According to the results, PMIS promoted effective coordination of project stakeholders, communication of project-related information, and information exchange, thus enhancing project performance. In addition, the results are consistent with the views of PMI (2021) and Marnewick (2020), who argue that project management information systems play a crucial role in improving project performance by promoting information exchange and project monitoring. According to the results, PMIS further promoted the efficient use of resources by providing the necessary project-related information required for effective decision-making in relation to resource allocation, financial management, and project monitoring.

On the other hand, the results further explain the limited moderating role of PMIS in the relationship between project planning and project performance. This further implies that the use of PMIS in project planning activities was limited, thus reducing its ability to moderate the relationship between project planning and project performance. This can be attributed to inadequate technological infrastructure, skills, and institutional capacity to support the use of PMIS in project planning activities. This is further supported by the views of World Bank (2023) on the limited role of technology in public sector projects.

Integrated Interpretation of Findings

The results in Table 4.25 and 4.26 show that project management practices significantly predicted the performance of the NARIGP. Collectively, the results indicate that stakeholder participation, project planning, project resource mobilization, and project monitoring all had significant and positive effects on project performance, thus supporting Hypotheses 1, 2, 3, and 4. As a moderating variable, PMIS played a significant role in enhancing the relationships between stakeholder participation and project performance, project resource mobilization and project performance, as well as project monitoring and project performance. However, the moderating role of PMIS in the relationship between project planning and project performance was relatively low, thus partially supporting Hypothesis 5.

Overall, the results indicate that the performance of the NARIGP was determined by the collective influence of a combination of project management practices. The results further indicate that stakeholder participation, project planning, project resource mobilization, and project monitoring contributed to improved project performance by promoting inclusiveness, project efficiency, effective use of resources, and enhanced accountability in project implementation, respectively. In addition, PMIS played a crucial role in strengthening the collective influence of the project management practices by promoting collaboration, communication, information exchange, monitoring, and informed decision-making to improve project performance.

4.13 Summary of the Hypothesis Testing

Summary of the hypotheses that were evaluated by the study, as indicated in Table 4.36, shows that all the null hypotheses were rejected.

Table 4.276: Summary of Hypotheses Testing Results

Hypothesis Formulated					R ²	Beta	ρ – values	Decision
H₀₁:	Stakeholder participation does not significantly influence on the performance of NARIGP				0.713	0.311	0.000	Rejected
H₀₂:	Project planning does not significantly influence on the performance of NARIGP					0.218	0.004	Rejected
H₀₃:	Project resource mobilization does not significantly influence on the performance of NARIGP.					0.293	0.000	Rejected
H₀₄:	Project monitoring does not significantly influence on the performance of NARIGP					0.208	0.007	Rejected
H_{05a}:	PMISs do not have a significantly moderating influence on the relationship between stakeholder participation and the performance of NARIGP				0.070	0.449	0.000	Rejected
H_{05b}:	PMISs do not have a significantly moderating influence on the relationship between project planning and the performance of NARIGP				0.000	0.047	0.776	Rejected
H_{05c}:	PMISs do not have a significantly moderating influence on the relationship between project resource mobilization and the performance of NARIGP				0.107	0.488	0.000	Rejected
H_{05d}:	PMISs do not have a significantly moderating influence on the relationship between project monitoring and the performance of NARIGP				0.053	0.501	0.000	Accepted

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter contains a summary of the research findings on the effect of project management practices on the performance of the National Agricultural and Rural Inclusive Growth Project. The chapter also provides the conclusions and recommendations based on the research findings, research questions, objectives, and hypotheses. Besides that, the chapter highlights the study's contributions, suggestions for further research, and final summary.

5.2 Summary of Findings

The study aimed to determine the influence of stakeholder participation, project planning, resource mobilization, and project monitoring on the performance of the NARIGP in Kenya. The research findings were presented under descriptive, inferential, and qualitative analysis.

5.2.1 Stakeholder Participation and NARIGP Performance

The results established that stakeholder participation had a positive and significant influence on NARIGP performance. This was evident from the regression analysis that revealed a standardized coefficient of $\beta = 0.311$ with $p = 0.000$. The findings further revealed that the null hypothesis that stakeholder participation had no significant influence on NARIGP performance was rejected. This was because increased stakeholder participation led to improved project performance through information sharing, feedback, consultation, participation in decision making and collaboration thus enhancing inclusiveness, ownership and accountability. However, the qualitative results indicated that stakeholder participation practices were inadequate to facilitate stakeholder involvement in project realization.

5.2.2 Project Planning and NARIGP Performance

The results revealed that project planning had a positive and significant influence on NARIGP performance. This was evident from the regression analysis that revealed a standardized coefficient of $\beta = 0.218$ and $p = 0.004$. In addition, the study established that the null hypothesis that project planning had no significant relationship with NARIGP performance was rejected. The findings further showed that project planning facilitated appropriate scheduling, budgeting, and risk management thus enhancing efficient utilization of project resources. However, the study established that the use of project planning software in project planning was inadequate which limited the extent to which project planning contributed to project performance.

5.2.3 Project Resource Mobilization and NARIGP Performance

The results revealed that project resource mobilization had a positive and significant relationship with NARIGP performance. This was evident from the regression analysis that revealed $\beta = 0.293$ with $p = 0.000$, thus establishing that adequate project resource mobilization and utilization had a positive influence on project performance. The study further revealed that the null hypothesis that project resource mobilization had no significant relationship with NARIGP performance was rejected. The results showed that project resource mobilization ensured availability of financial, human and material resources that enhanced project implementation thus achieving desired performance. However, the qualitative results indicated that slow mobilization of resources constrained project performance which showed that resource mobilization was a significant performance factor that needed to be emphasized in project implementation.

5.2.4 Project Monitoring and NARIGP Performance

The results revealed that project monitoring had a positive and significant relationship with NARIGP performance. This was evident from the regression analysis that revealed $\beta = 0.208$ and $p = 0.007$, thus establishing that project monitoring had the highest correlation with NARIGP performance among the other project management practices examined in the study. The study further established that the null hypothesis

that project monitoring had no significant relationship with NARIGP performance was rejected. The findings showed that project monitoring ensured project accountability and improved project performance through evaluation of project progress, identifying project gaps and addressing them appropriately. However, the qualitative results indicated that monitoring systems and technical capacity were inadequate which limited the extent to which project monitoring could facilitate project performance.

5.2.5 Moderating Influence of Project Management Information Systems

The results revealed that PMIS moderated the relationship between stakeholder participation, project resource mobilization, project monitoring and NARIGP performance. However, PMIS had a minimal moderating influence on the relationship between project planning and NARIGP performance. The analysis thus established that PMIS enhanced coordination, communication, information exchange, project monitoring, resource mobilization and utilization thus facilitating decision making processes in the NARIGP projects. However, the qualitative results further showed that PMIS was not effectively used due to inadequate technical expertise and technological limitations to fully utilize the systems thus limiting the extent to which PMIS could moderate the relationship between project management practices and project performance.

5.2.6 NARIGP Performance

With regards to the dependent variable which was NARIGP performance, the descriptive findings indicated that the overall NARIGP performance was moderately achieved. This was evident from the mean scores for the indicators for NARIGP performance which included stakeholder satisfaction, project sustainability and livelihood improvement recorded moderate scores. This suggested that even though appropriate project management mechanisms were instituted in the NARIGP projects, performance was limited due to inadequate project management practices that could ensure community ownership of the projects after donor support. The inferential analysis further revealed that stakeholder participation, project planning, project resource mobilization and project monitoring collectively had a significant positive relationship with NARIGP performance. Project monitoring had the highest influence

on NARIGP performance among the project management practices examined in the study. Overall, the study established that NARIGP performance was primarily determined by the combined influence of the project management practices rather than the influence of each practice individually. The combined influence of the project management practices together with PMIS further enhanced project performance. The study thus established that even though the NARIGP had facilitated increased agricultural production, stakeholder satisfaction and livelihood improvement, sustainability of the benefits was at risk due to inadequate community ownership strategies.

5.3 Conclusions

Based on the research findings, the study concluded that project management practices significantly influenced the performance of the National Agricultural and Rural Inclusive Growth Project in Kenya. The study further concluded that stakeholder participation, project planning, resource mobilization, and project monitoring were critical to achieving project performance. The study also concluded that project monitoring was the most critical project management practice that predicted project performance.

The study further concluded that stakeholder participation was vital to project performance, as it enhanced ownership of the project, accountability, and sustainability. However, the study found that stakeholder participation was limited by the absence of appropriate strategies to increase stakeholder involvement in project planning, implementation, and monitoring. The study concluded that resource mobilization was a significant determinant of project performance, as it affected the availability of funds and resources required to implement the project activities. The study further concluded that the use of project management information systems (PMIS) was critical to achieving project performance as it enhanced coordination, communication, and accountability. Although the NARIGP had achieved significant improvements in agricultural production, stakeholder satisfaction, and livelihood development, the study concluded that the sustainability of the benefits derived from the project was at risk due to the lack of appropriate strategies to ensure community ownership of the project.

5.4 Recommendations

Based on the research conclusions, the following recommendations were proposed. The Ministry of Agriculture and Livestock Development, county governments, and development partners should consider adopting participatory governance mechanisms to increase stakeholder involvement in the project planning, implementation, and monitoring processes. The recommendations further suggest that the government and development partners should invest in capacity-building efforts to increase stakeholder participation in project planning, implementation, and monitoring. The study further recommends that the government and development partners adopt adaptive project planning to promote the relevance and sustainability of the NARIGP.

Besides that, the study recommends that the government and development partners invest in resource mobilization strategies to ensure the continuous availability of funds and resources required to implement the project activities. The study further recommends that the government and development partners adopt project monitoring and evaluation systems to enhance accountability and improve project performance continuously. The study further recommends that the government and development partners invest in project management information systems (PMIS) to improve coordination, communication, and accountability in the NARIGP.

5.4.1 Policy Recommendations

Based on the research recommendations, this study recommends that policymakers develop policies that promote the use of integrated project management approaches in implementing public projects. The policies should promote the use of project management information systems (PMIS) in public project management while enhancing accountability and transparency in public project management.

5.5 Contribution of the Study to Theory and Practice

This is where every research study is expected to produce some knowledge that contributes towards existing theories and offers practical solutions for a given field of study. Thus, this study contributes towards the existing body of knowledge that deals

with project management theories and practices, especially in the case of public agricultural development programmes in Kenya. This study contributes to the body of knowledge by establishing a firm relationship between project management practices and project performance while also establishing the moderating role of Project Management Information Systems. The study also aids in providing solutions for policy makers, project managers, implementing agencies, and donors in the management of development projects.

5.5.1 Contribution to Theory

This study contributes to the existing body of knowledge on project management by establishing the effect of project management practices on the performance of agricultural projects. The study further contributes to the Stakeholder Theory, Resource-Based View, Systems Theory, and Project Management Information System Theory by providing empirical evidence on the effect of stakeholder participation, resource mobilization, project planning, project monitoring, and the use of project management information systems on the performance of the NARIGP.

5.5.2 Contribution to Practice

This study provides practical implications for government agencies, county governments, development partners, project managers, and policymakers in improving the performance of public projects. The research findings highlight the significance of stakeholder participation, project planning, resource mobilization, project monitoring, and the use of project management information systems in public project management.

5.6 Suggestions for Further Research

This study provides empirical evidence on the effect of project management practices on the performance of the NARIGP in Kenya. However, future research should be conducted to establish the long-term effect of project management practices on the performance of the NARIGP. Further research should be conducted to establish the sustainability of donor-funded agricultural projects after the withdrawal of donor support.

Future research should also be conducted to establish the influence of project management practices on the performance of public projects in different sectors and counties in Kenya. Further research should be conducted to establish the factors that hinder the effective adoption of project management information systems in public project management. Future research should also focus on examining additional organizational practices that affect the performance of public projects.

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APPENDICES

Appendix 1: Introduction Letter

I am Rogers Wenga Wanyonyi, a Ph.D. student at Jomo Kenyatta University of Agriculture and Technology. This questionnaire has been developed to facilitate a study to establish Project management practices on the performance of national agricultural and rural inclusive growth programs in Kenya.

You have been identified as a critical player in this field, and your input in this would be most valuable. Kindly, therefore, respond to these questions as honestly and precisely as possible. For any queries you can liaise with or issues arising from participating in responding to these questionnaires, please don't hesitate to contact me using this No. 0710-944591 and my supervisors: Dr. Samuel Mokaya and Dr. Bernard Lango of JKUAT University.

All responses were treated as confidential and used for academic purposes only. Yours

Faithfully,

Rogers Wanyonyi HDE414-C008-1017/2019

Appendix II: Questionnaire

SECTION A: BACKGROUND

1. Kindly indicate your level of education (Tick as applicable)
University () masters () Ph.D. ()
2. Please indicate your working position in the organization accounting officers ()
Director of supply chain management ()
3. Please indicate the project you head
Health ()
Agriculture ()
Education ()
Public works ()
Natural Resources and Environment ()
4. Years of services /working period (Tick as applicable) Less than 1 year
1-5 years ()
6-10years () Over 10 years ()

SECTION A: STAKEHOLDER PARTICIPATION AND PERFORMANCE OF NARIGP

5. Do you agree that stakeholders' participation influences the performance of NARIGP? Strongly Disagree [] A g r e e []
Disagree [] Strongly agree [] Somewhat agree []
6. Indicate your level of agreement that the following aspects of stakeholders' participation have an influence on the performance of NARIGP. Use a scale of 1-5. Where 1-Strongly disagree, 2- Disagree, 3- Somewhat agree, 4- Agree, 5- Strongly Agree

No.	Stakeholders' Participation Indicators	1	2	3	4	5
6.1	Stakeholders are actively involved in the decision-making process of the project.					
6.2	Stakeholders have ample opportunities to provide feedback and suggestions for the project.					
6.3	Stakeholders are regularly updated on the progress and milestones of the project.					

6.4	Stakeholders are provided with the necessary information and resources to participate effectively in the project.					
6.5	Stakeholders' perspectives and concerns are considered and integrated into the project planning and execution.					
6.6	Stakeholders' contributions and inputs are acknowledged and valued by the project team.					
6.7	The project team actively seeks and encourages stakeholder engagement throughout the project lifecycle.					
6.8	Stakeholders have a sense of ownership and commitment to the project's success.					
6.9	The project team collaborates with stakeholders to address any issues or challenges that arise during the project.					
6.10	Stakeholders have a clear understanding of their roles and responsibilities in the project.					

7. In your own opinion is stakeholders' participation in NARIGP of greatest consideration? if yes

.....

SECTION C: PROJECT PLANNING AND PERFORMANCE OF NARIGP

8. Do you agree that Project Planning influences the performance of NARIGP?

Strongly Disagree [] Agree [] Disagree [] Strongly agree []

9. Indicate your level of agreement that the following aspects of Project Planning have an influence on the performance of NARIGP. Use a scale of 1-5. Where 1-Strongly disagree, 2- Disagree, 3- Somewhat agree, 4- Agree, 5- Strongly Agree

No	Project Planning Indicators	1	2	3	4	5
9.1	The project objectives and scope are clearly defined and communicated.					
9.2	The project plan includes well-defined tasks, deliverables, and Timelines.					
9.3	The project team has conducted thorough research and analysis to inform the planning process.					
9.4	The project plan considers potential risks and includes appropriate mitigation strategies.					
9.5	The project plan has been reviewed and approved by key stakeholders.					
9.6	The project plan allows for flexibility and adaptation as needed.					
9.7	The project plan aligns with the organization's overall strategic goals and objectives.					

10. What are the factors that are of greatest consideration for NARIGP project planning?

.....

SECTION D: RESOURCE MOBILIZATION AND PERFORMANCE OF NARIGP

11. Do you agree that Resource Mobilization influences the performance of NARIGP?

Strongly Disagree [] Agree [] Disagree [] Strongly agree []

12. Indicate your level of agreement that the following aspects of Resource Mobilization influence the performance of NARIGP. Use a scale of 1-5. Where 1- Strongly disagree, 2- Disagree, 3- Somewhat agree, 4- Agree, 5- Strongly Agree

No.	Resource Mobilization Indicators	1	2	3	4	5
12.1	The project team has effectively identified the resources required for project implementation (such as budget, equipment, and personnel).					
12.2	Adequate resources have been allocated to the project to ensure its successful execution.					
12.3	The project team has established precise mechanisms for acquiring and mobilizing the required resources.					
12.4	The project team actively monitors and manages resource utilization to ensure efficient and effective use.					
12.5	The project team proactively identifies and addresses any resource gaps or constraints that may impact project progress.					
12.6	The project team collaborates with relevant stakeholders to leverage additional resources and support when needed.					
12.7	The project team has a well-defined plan for resource allocation and prioritization.					

13. What are the factors that are of greatest consideration for NARIGP Resource Mobilization.....?

SECTION E: PROJECT MONITORING AND PERFORMANCE OF NARIGP

14. Do you agree that Project Monitoring influences the performance of NARIGP?
Strongly Disagree [] Agree [] Disagree [] Strongly agree []

15. Indicate your level of agreement that the following aspects of Project Monitoring influence the performance of NARIGP. Use a scale of 1-5. Where 1-Strongly disagree, 2- Disagree, 3- Somewhat agree, 4- Agree, 5- Strongly Agree

No	Project Monitoring Indicators	1	2	3	4	5
15.1	The project team has established clear monitoring Objectives and indicators to track project progress.					
15.2	The project team regularly collects and analyzes data to assess project performance against set targets.					
15.3	The project team effectively communicates project monitoring results to relevant stakeholders.					
15.4	The project team promptly identifies and addresses any deviations or issues detected through monitoring.					
15.5	The project team utilizes appropriate monitoring tools and techniques to ensure accurate and reliable data collection.					
15.6	The project team collaborates with stakeholders to obtain their input and feedback during monitoring.					
15.7	The project team conducts regular project review meetings to discuss monitoring findings and make necessary adjustments.					

16. What are the factors that are of greatest consideration for NARIGP Project Monitoring?

SECTION F: PROJECT MANAGEMENT INFORMATION SYSTEMS

17. Do you agree that Project Management Information System influences the performance of NARIGP?

Strongly Disagree [] Agree [] Disagree [] Strongly agree []

18. Indicate your level of agreement that the following aspects of the Project Management Information System influence the performance of NARIGP. Use a scale of 1-5. Where 1- Strongly disagree, 2- Disagree, 3- Somewhat agree, 4- Agree, 5- Strongly Agree

No.	PMIS Indicators	1	2	3	4	5
8.1	The project management information system (PMIS) effectively captures and stores project data and information.					
8.2	The PMIS provides timely and accurate reports and updates on project progress.					
8.3	The PMIS facilitates efficient communication and collaboration among project team members.					
8.4	The PMIS allows for easy access to project d documentation and relevant resources.					
8.5	The PMIS supports effective decision-making by providing reliable and relevant data and analysis.					
8.6	The PMIS is user-friendly and intuitive, requiring minimal training for team members to navigate and utilize its features.					
8.7	The PMIS ensures the security and confidentiality of project information and data.					

19. What are the factors that are of greatest consideration for NARIGP Project Management Information System.....?

SECTION G: PERFORMANCE OF NATIONAL AGRICULTURAL RURAL INCLUSIVE PROJECT

20. Indicate your level of agreement with the following aspects of the performance of NARIGP. Use a scale of 1-5. Where 1-Strongly disagree, 2- Disagree, 3- Somewhat agree, 4- Agree, 5- Strongly Agree

No.	NARIGP Performance Indicators	1	2	3	4	5
20.1	The project has achieved its intended goals and objectives.					
20.2	The project was completed within the allocated time frame.					
20.3	The project was completed within the allocated budget.					
20.4	The project deliverables meet the desired quality standards.					
20.5	The project outcomes have met or exceeded stakeholders' expectations.					
20.6	The project has effectively addressed identified risks and issues.					
20.7	The project has generated positive impacts or benefits for the organization or community.					

21. What can be done to improve the performance of NARIGP?

.....

Appendix III: List of Narigp

No.	NARIGP
1.	Construction of community cattle dips
2.	Maintenance of feeder Roads
3.	Construction of bridges
4.	Construction of new water springs and rehabilitation of existing ones
5.	Supporting food crops farming value chain (Maize,Tomatoes,beans,onion)
6.	Dairy farming
7.	Poultry farming
8.	Rehabilitation of water catchment dams
9.	Potatoes farming
10.	Banana's farming Pyrethrum Farming
11.	Aquaculture Farming
12.	Vegetable Farming
13.	Maize production and milling
14.	Bee farming
15.	Supporting Traditional artisanal and Blacksmith
16.	Bee farming
17.	Tea farming
18.	Coffee farming
19.	I Irish potatoes farming
20.	G-nuts faring and refineries

Source (NARIGP Report, 2022)

Appendix IV: Interview Guide

1. Section A: Stakeholder Participation

- How are beneficiaries involved in decision-making?

2. Section B: Planning

- What challenges occur during planning?

3. Section C: Monitoring

- How effective is monitoring?

4. Section D: PMIS

- What challenges exist in system use?

Appendix V: List of Counties the Project being Implemented

1. Turkana
2. Samburu
3. Makueni
4. Kitui
5. Embu
6. Meru
7. Kwale
8. Kilifi
9. Narok
10. Kirinyaga
11. Kiambu
12. Murang'a,
13. Nakuru
14. Bungoma
15. Trans Nzoia
16. Nandi,
17. Vihiga,
18. Kisii
19. Migori
20. Nyamira
21. Homa Bay

Appendix VI: NACOSTI Letter

 REPUBLIC OF KENYA	 NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION
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RESEARCH LICENSE	
	
This is to Certify that Mr. ROGERS WENGA WANYONYI of Jomo Kenyatta University of Agriculture and Technology, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Baringo, Bomet, Bungoma, Embu, Homabay, Kiambu, Kilifi, Kirinyaga, Kisii, Kitui, Kwale, Makueni, Meru, Migori, Muranga, Nandi, Narok, Nyamira, Samburu, Transzoia, Turkana on the topic: PROJECT MANAGEMENT PRACTICES AND PERFORMANCE OF THE NATIONAL AGRICULTURAL AND RURAL INCLUSIVE GROWTH PROGRAM IN KENYA for the period ending : 23/August/2024.	
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