Int Journal of Social Sciences Management and Entrepreneurship 8(4): 392-408 2024

ISSN 2411-7323

www.sagepublishers.com

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PROJECT MANAGEMENT PRACTICES AND PERFORMANCE OF AGRICULTURAL PROJECTS IN NANDI COUNTY, KENYA

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ABSTRACT

The agriculture sector has faced several challenges such as declining productivity and competitiveness, growing poverty, and food insecurity. Multiple underlying factors were behind the poor performance including pervasive governance problems, weak infrastructure and economic services and policy, and legal and regulatory constraints. Agriculture is one of the most essential factors of Nandi's economy although susceptible to risk of change and variability. Most small-scale farmers depend on natural resources for their production which affects them. There is reliance on rains for agricultural production and barely 3% of the households practice irrigation due to the lack of infrastructure and high implementation costs. Project management practices are routine ways of carrying out management, administrative activities, and decisions that are the usual or expected ways of directing and coordinating project resources to achieve project performance by completing a project within the constraints of time, budget, and quality. The general objective of the study was to examine the influence of project management practices and the performance of agricultural projects in Nandi County. Specifically, the study sought to examine the influence of project planning; to determine the influence of monitoring and evaluation on the performance of agricultural projects in Nandi County. The study was guided by the theory of constraints and the theory of scheduling. This study adopted a correlational design. The study targeted 60 agriculture projects implemented in Nandi County between the year 2017 and 2021. The study also observed a sample of 160 respondents using a census from the various agriculture projects implemented in Nandi County. The study used a questionnaire to collect primary data. The questionnaire was pilot-tested with 16 respondents representing 10% of the study sample to check for validity and reliability. The questionnaire was tested for content, face, and construct validity. The study analyzed the data descriptively and also inferentially. The study found that the joint variables of project management practices had a strong correlation (r =.853) and explained 72.7% variation in the performance of agricultural projects. The study found all the independent variables to significantly influence the performance of agricultural projects in Nandi County. The study concluded that project planning practices significantly influence project performance; and project monitoring significantly influence project performance. The study recommends for effective implementation of project management practices to ensure the successful delivery of projects. The study also recommends further studies to account for the 27.3% variable in project performance from the other project management practices not in the study. The findings were presented in tables and discussed. The findings will be useful to project practitioners, stakeholders, county governments, and government agencies as well as scholars.

Key Words: Project Management Practices, Performance of Agricultural Projects, Project Planning, Monitoring and Evaluation

Background of the Study

The agricultural sector continues to play a critical role in Kenya accounting for approximately 33% of the Gross Domestic Product (GDP) and 27% indirectly through its linkages with other sectors (USAID, 2023). The sector also employs over 40% of the total population and more than 70% of the rural population. Agriculture is the key sector for economic growth and poverty reduction in Kenya. It plays a pivotal role in employment creation, food security, exports, and sustainable development (Central Bank of Kenya, 2023). The agriculture sector has faced several challenges such as declining productivity and competitiveness, growing poverty, and food insecurity. Multiple underlying factors were behind the poor performance including: pervasive governance problems, weak infrastructure and economic services and policy, legal and regulatory constraints (World Bank, 2018)

Over the years, the Government of Kenya has developed strategies to reverse those trends and revitalize the economy. The Economic Recovery Strategy for Wealth and Employment Creation (ERSWEC) created in 2003 identified agriculture, trade and industry, and tourism as the key sectors to drive the recovery process and contribute to improving food security and rural poverty. In 2004, the Government launched the Strategy for Revitalizing Agriculture (SRA) as a follow-up to the ERS to provide an enabling environment for increasing agricultural productivity, promoting investments, and encouraging private sector involvement in agriculture. Implementation of the SRA between 2004 and 2007 was generally successful and saw a reduction of food insecurity by 12% and poverty by over 10%. This growth trend was interrupted by external forces including the post-election violence, global food price crises, escalating fuel prices, and global financial meltdown. In 2008, the Government launched the Kenya Vision 2030 as the new long-term development blueprint for the country. Vision 2030 identified agriculture as one of the priority economic sectors. This was later followed by the Agricultural Sector Development Strategy (2010-2020) which sought to reduce unemployment and poverty, and poverty and spur agriculture back to growth trends (Government of Kenya, 2019).

The Government is currently implementing the Agricultural Sector Transformation Growth Strategy (ASGTS). This 10-year strategy (2019-2029) is aimed at transforming Kenya's agricultural sector and making it a regional powerhouse. The Agricultural Transformation Office (ATO) will be responsible for coordinating ASGTS activities and will be reporting to the Cabinet Secretary, Ministry of Agriculture, Livestock and Development. To implement these strategies, the Government relies primarily on public-private partnerships for up to 80% with the rest coming from government and development partners.

As project management evolved, the best practices for project management also changed over the years. People learned from both the failures and successes of projects in contrast to the early years where the best practices were from success. The best practices in project management included project team integration, scope management, project leadership, risk management, use of tools and techniques, standardization of procedures, cost management, and adoption life cycle phases. A practice is a technique, process, activity, or method that is deemed to be more effective in delivering outcomes in a project as compared to other approaches that provide the desired outcome with fewer complications and unseen problems (Kerzner, 2018). The PMI(2017) defined practice as a specific type of professional or management activity that contributes to the execution of a process and that may employ the adoption of a plan, technique, and tools. The practice has four primary reasons which include improving efficiency, effectiveness, standardization, and consistency.

Project management practices are the techniques, processes, procedures, and guidelines used in project management (Mugo, 2021). Ramadhan and Yusuf (2019) defined project management practices as routine ways of carrying out management, administrative activities, and decisions that are the usual or expected ways of directing and coordinating project resources to achieve project performance by completing a project within the constraints of time,

budget, and quality. In this study, the project management practices include project planning, project monitoring, and schedule managment.

Statement of the Problem

Agriculture has played a key role in revising the national account estimates to contribute to the growth of GDP where agriculture's share was at 21.2% of nominal GDP in 2019. The agricultural sector contributed about 21 percent of the total GDP and grew at 4.8 percent in 2020 (The world Bank, 2021). Smallholder-based agriculture production accounts for 78% of the total agriculture production and about 70% of commercial production. However, it is associated with challenges such as access to credit, limited improved inputs in production practices, and lack of value addition (Agriculture Council of Kenya, 2022). About 75% of Nandi County households engage in farming while 54% labour force is engaged in agriculture. Despite too many initiatives by both county and national governments to improve food security, the poverty rate is still at 47%. Approximately 83% of farmers are affected due to change climate risks (KNBS, 2019) and only a few farmers use modern technologies due to a lack of linkages to facilitate demand-driven innovation and this has constrained agricultural productivity. Poor road access also has hindered market access. Poverty has also constrained the farmers since they cannot afford fertilizers, vaccines, and improved seeds. Yet the national government, the county governments, and other international donors are implementing projects that are meant to improve the situation to increase agricultural production (MoALF, 2021).

An assessment carried out by Nandi County for the financial year 2017/2018 found that the majority of the projects did not achieve the planned target. The food crop development program achieved a 12% increase in food crops against the planned 15% thus achieving 80% of the planned target. The Annual County Development Plan reports show that under the food crop development program, the County achieved an increase of 20 hectares of land under cash crop against the targeted 100 hectares, thus meeting only 20% of the planned objective. Programmes in Livestock development faced a similar challenge with livestock enterprises development achieving only 25% of the planned target while veterinary services projects achieved between 33% and 66% of the planned target. Aquaculture development projects achieved a mere 8% of the planned target while projects under cooperative development achieved only 20% of the total target. For the financial year 2018/2019, out of a total of 102 projects, 24 projects were completed and are operational.

In the financial year 2020/2021, capital projects in the livestock sector experienced cost overruns by 8% while other capital projects did not absorb the planned cost. An example is a livestock sector development project that absorbed only 39% of the planned budget. In the year 2019/2020, 44 projects that were to be implemented were delayed and were rolled over to the financial year 2020/2021.

The county government has encouraged farmers to join agro-based cooperatives though the cooperative movement is weakened due to poor regulatory framework, poor leadership, and high cost of credit facilities (County Government of Nandi, 2018). To deal with the climate-related risks the county government partnered with ACRE Africa to insure farmers against crop damage and unfavourable weather however, the is uptake of insurance due to the depressed income of the smallholder farmers. The use of subsidies is a brilliant idea yet the county government lacks funds to subsidize all areas of agriculture such as crop farming, milk coolers, and seedlings. The county government also needs partners for building water pans and even subsidizing production factors (County Governement of Nandi, 2020). Some of the major challenges in the implementation of climate adoption practices include a lack of resources for the purchase and establishment of infrastructure needed for the process. Funds are also needed for the implementation of M&E systems to ensure continuity in the implementation of mitigation practices.

There is evidence of poor project management practices even though funds are channelled to projects and new projects are initiated. The impact of the projects is yet to be seen since some

of the projects are not operational. Thus, effective project management practices will help deal with the current issues in Nandi County. The study thus sought to examine the influence of project management practices on the performance of agricultural projects in Nandi County. This study therefore seeks to fill those gaps by examining the influence of project management practice on the performance of agricultural projects in Nandi County.

Objectives of the Study

The general objective of the study was to examine the influence of project management practices and the performance of agricultural projects in Nandi County.

Specific Objectives

i. To examine how project planning influences performance on agricultural projects in Nandi County;
ii. To determine the influence of monitoring and evaluation on the performance of agricultural projects in Nandi County.

LITERATURE REVIEW

Theoretical Review

Theory of Constraints

The theory was conceived by Eliyahu Goldratt in 1984. The theory aims to address constraints to an extent that it doesn't limit achievement. In project management, the TOC is an approach for identifying the limiting factors also called constraints that hinder the achievement of goals. Identifying the bottleneck of a system is associated with finding the weak link in a chain. For any complex system that consists of multiple related activities, the weak link has the potential to disrupt the system (Goldratt, 1990).

The specific methodology provided by the TOC for identification and elimination of constraints in the system is in five implementation steps. Every system has at least one constraint thus, it is necessary to identify the constraints. The constraints can be a physical, material, inefficient procedure, or even a managerial weakness. In project management, a project is always constraint using the iron triangle of cost, time, scope, and even quality (Dobson & Feickert, 2007). Planning should be done on how the identified constraint should be leveraged depending on its nature. The activities are then reorganized to match the constraint to maximize throughput. The constraint is elevated by increasing the capacity of that constraint e.g. additional resources or even manpower in the project (twproject, 2022).

There is a need to exploit the constraint and adjust scheduling and resource usage. The theory of constraint has been applied in different fields including project management where in project management it mostly applies in scheduling and allocating of project resources (Steyn, 2002). Critical chain project management (CCPM) is a method that was devised to respond to poor performance in projects such as cost overruns, quality extended timelines, and missed deadlines. In CCPM in determining the critical path in the project, the method offers estimation of task duration and redistributing task safety time. Uncertainty in activity duration is considered to be the major driver of delays in projects and unsatisfactory outcomes. According to Steyn (2002), good allocation of resources is obtained due to extended duration, and high cost of delays. Further, an extension of project duration leads to cost overruns and may lead to scope changes and eventually scope creep.

TOC helps emphasize the improvement of processes which leads to increased profit, enhancement of the system, reduction of delivery times, and reduction of inventory. With the adoption of TOC in projects, system productivity is increased and the project is also delivered on time and within the planned budget. (twproject, 2022). This theory linked project planning practices with the performance of agricultural projects in Nandi County.

Theory of Scheduling

The theory of scheduling originated from Putnam-Norden-Rayleigh Model which was developed by Putnam in 1978 (Moore, 1999). Putnam proposed an analytical formula for scheduling labor cost rates over time for software development projects (Boehm, 1981). Project scheduling theory encompasses the scheduling of project tasks and activities based on the preference or resource limitations (Herroelen, 2005). This theory is based on three concepts: planning, the dispatching model, and the thermostat model (Koskela & Howell, 2002). The dispatching model adopts that planned tasks and activities can be implemented by a notification of the start of the task to the project leader. This theory is therefore important to the study since it demonstrates a strong causal relationship between scheduling and project deliverables (Koskela & Howell, 2002). This theory was useful in explaining project planning practice, and the performance of agricultural projects in Nandi County.

Conceptual Framework

A conceptual framework is a graphical representation of the interdependence of variables that depicts a phenomenon (Creswell & Creswell, 2018). In this study, the independent variables are project planning, and M&E. The dependent variable is the performance of agricultural projects. Figure 2.1 is the conceptual framework.

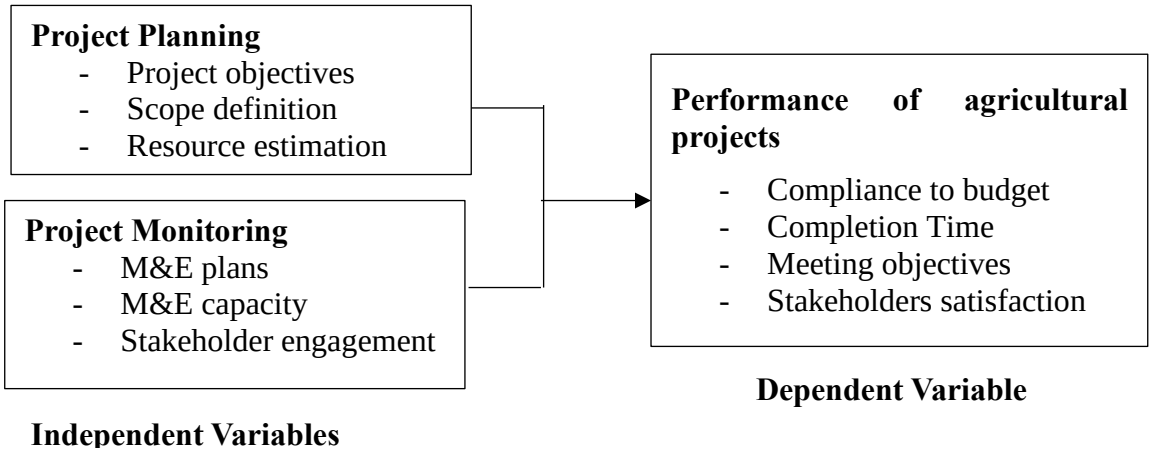

Figure 2.1: Conceptual Framework

Project Planning

Project planning is the process of establishing as well as maintaining the project scope definition, the procedures and tasks to be performed, time and cost estimates, and the roles and responsibilities (Association for Project Management, 2018). The Work Breakdown Statement (WBS) is an outcome-oriented analysis of the project work and also defines the entire project scope. The WBS provides the basis for project planning and also the management of the project budget, project schedule, and change requests. The WBS is an important planning tool as it helps the project manager describe the nature of work to be performed and other planning elements of planning including budgeting, implementation, scheduling, and resource planning. The end products of project planning are numerous project plans that represent defined strategies to achieve defined project objectives (PMI, 2017).

The project objectives are the descriptions of the intended results of the project. Project success is measured in terms of the achievement of project objectives. In project delivery, project objectives are the focal point of every effort and activity. Project objectives are important in planning because project plans are derived from them. In project planning, project objectives are first defined; thereafter the strategies to achieve them are formulated and presented as project plans and these are used in evaluating the achievement of the objectives. Project planning can therefore be regarded as the process of defining project objectives, determining

the framework, methods, strategies, tactics, targets, and deadlines to achieve the objectives and the techniques of communicating them to project stakeholders (Kerzner, 2017).

The project scope statement provides a concise and accurate description of the expected project work and deliverables which includes all the included and not included in the project (PMI, 2017). The scope definition breaks down the major deliverables of the project into smaller manageable components for easier verification, development, and control. Poor scope definition has been linked to project failure as it negatively correlates to project performance and has long been recognized as a significant problem. If boundaries are not appointed, final project costs tend to be higher because of changes that interrupt project rhythm, cause rework, increase project time, and lower productivity as well as the morale of the fieldwork (Kerzner, 2017). The problems that may arise with the project scope are the unclear definition of scope, incomplete or partial scope, not finalizing scope documents, and not sharing scope statements. When planning in any of the project phases is short-changed, the foundational work of the project does not exist.

Resource Planning is the process of determining the resources required to deliver a project, allocating them, and scheduling the project work based on the capacity of the team (Stella Inabo, 2023). Resource planning is the process where tasks are allocated to project team members based on their skill sets, capacity, and best fit for the job. Resource planning is used in determining and identifying an approach that will ensure resources are available for effective successful project completion (Dopson, 2020). Effective resource planning should put into consideration and plan for the availability of scarce resources (PMI, 2017).

Resource planning helps project teams monitor progress, track capacity, and keep projects on budget. A project manager must develop a good human resource plan to help guide the process of managing human resources in the identification of roles, responsibilities, skills, and reporting relationships (PMI, 2017). The use of planning tool resources by the project manager helps in minimizing time and overutilization of resources which may lead to costly and negative impacts to project success. The work Breakdown Structure (WBS) is one of the recognized planning tools used for estimating resource requirements, total project budget, and work schedule (Kimotho, Nyang'au, & Yusuf, 2023).

Project Monitoring

Monitoring is defined as the routine continuous tracking of the key elements of project performance that is: inputs (resources, equipment, etc) activities, and outputs, through record keeping and regular reporting (Association for Project Management, 2018). The purpose of monitoring is to ensure that performance is moving according to plans and if not the project manager takes corrective action. It is the control function of project management. Monitoring enhances project management decision-making during the performance hence increasing the chances of good project performance. Monitoring also aids early identification of problems before they get out of hand since it is a continuous (Ramadhani & Yusuf, 2019).

According to Muchelule et al (2017), monitoring and evaluation facilitate transparency and accountability of the resources to the stakeholders including donors, project beneficiaries, and the wider community in which the project is implemented. Monitoring however tracks and documents resource use throughout the performance of the project. This enhances accountability in that it facilitates the demonstration of resource use throughout the performance of the project. Monitoring also facilitates evaluation of the project meaning that in a well-designed monitoring and evaluation system, monitoring contributes greatly towards evaluation. Information from monitoring feeds into the evaluation process (Muchelule, Iravo, Odhiambo, & Shalle, 2017).

Monitoring and evaluation (M&E) planning is a systematic process that lays the groundwork for effectively tracking and assessing project progress, outcomes, and impacts. It involves careful consideration of key elements, including objectives, indicators, data collection methods, and evaluation frameworks. According to the United Nations Development Programme (UNDP), M&E planning is an essential component of project management, providing a structured approach to gathering and analyzing data to ensure accountability, learning, and evidence-based decision-making (UNDP, 2019). A well-designed M&E plan helps organizations identify early warning signs of potential challenges, measure the project's achievements, and identify areas for improvement, ultimately enhancing project success.

M&E outcomes are muchly influenced by the presence of human resources with the appropriate knowledge and skills to ensure the successful implementation of projects. It is crucial to have effective PM&E experts in the organization. There is a great demand for organizations to have professionals who are skilled enough and with the capacity on M&E systems, well trained, and have technical abilities (Matyoko, 2019). According to UNDP (2019), it is very significant to have an M&E expert to ensure effective M&E project outcomes. Staff working in different project levels should have practical expertise in M&E to ensure there is quality M&E. NGOs have developed numerous training manuals, toolkits, and handbooks to enhance result-based management through strengthening awareness in M&E (UNDP, 2019).

Monitoring and evaluation facilitate transparency and accountability of the resources to the stakeholders including donors, project beneficiaries, and the wider community in which the project is implemented (Kibe, 2018). Monitoring however tracks and documents resource use throughout the performance of the project. This enhances accountability in that it facilitates the demonstration of the resource use throughout the performance of the project. Monitoring also facilitates evaluation of the project meaning that in a well-designed monitoring and evaluation system, monitoring contributes greatly towards evaluation. Information from monitoring feeds into the evaluation process (Lensinko, 2018).

Project Performance

Project performance can be measured by the successful execution of the project objectives such as social goals, economic goals, and environmental goals. The capacity to achieve project goals within budget and time and maintain the outcome of an intervention over time (Mensah, 2019). These objectives can be determined by triple constraint. A triple constraint is a triangle of time, cost, and scope that bounds the project environment (Association for Project Management, 2018). The benchmark for measuring project performance includes factors such as time, cost, quality, and production efficiency (PMI, 2017).

Agricultural projects have multiple stakeholders with different views on the project's purpose and different expectations of what the project must achieve. These stakeholders might include the people who originally identified the need for the project, those who fund the project and those who stand to benefit from the project, the people who are impacted by the project and its outputs, the project team members, and the people who have to oversee the project (Kerzner, 2017). Each has a vested interest in the project's outcome, with different expectations and perceptions. Generally, the most used measures of evaluating project performance include achievement of objectives, timely completion, cost of the project, and user satisfaction (Doval, 2019). Lamprou and Vagiona (2018) argued, that assessing the accomplishment of a project should consider the viewpoints of varied stakeholders like clients, users, contractors, project managers, or the community. Hence, a project may be perceived as successful by some parties while others may perceive it as a failure.

Lack of proper planning is a major determinant of project failures in many organizations. In Ghana, Bunyaminu and Mahama (2018) opine that poor planning doesn't provide a coherent mechanism for implementing the project. Thus, project stakeholders including the project team

do not have a clear direction on what, when, and how to do it. Project cost and project schedule are two main factors that contribute to project performance (Widowati & Rachmawati, 2020).

Monitoring and evaluation facilitate transparency and accountability of the resources to the stakeholders including donors, project beneficiaries, and the wider community in which the project is implemented (Kibe, 2018). Monitoring however tracks and documents resource use throughout the performance of the project. This enhances accountability in that it facilitates the demonstration of the resource use throughout the performance of the project. Monitoring also facilitates evaluation of the project meaning that in a well-designed monitoring and evaluation system, monitoring contributes greatly towards evaluation. Information from monitoring feeds into the evaluation process (Lensinko, 2018).

Empirical Review

Project Planning and Project Performance

Muute and James (2019) explored project planning practices and the performance of construction projects in Nairobi County. Specifically, the study examined the material usage planning, human resource planning, financial resources planning, and time management on the performance of construction projects in Nairobi County. The study targeted 125 construction projects where semi-structured questionnaires were used for data collection. The study established a strong correlation between the joint variables of project planning practices (r = .913) and could explain 83.4% variation in project performance. The study established that human resource management was considered an important function for improving the performance of construction projects. The study found financial resource planning to highly influence the performance of construction projects (beta = .210, Sig = .0285), human resource planning (beta = .172, sig = .0276), time management (beta = .148, Sig = .0249), and material usage planning at (beta = .067, sig = .0202). The study targeted construction projects in Nairobi County while the current study was on agricultural projects in Nandi County.

Mwanza, Namusonge, and Makokha (2020) in investigating the influence of project planning practice on the performance of construction projects in Kenya adopted a mixed research design that included a census, correlation, and descriptive survey. The study targeted 1761 respondents and a sample of 313 was used. The study found a negative significant influence on performance of construction projects. However, it was found that planning gives the direction for the project activities to be done on time and also reduces mistakes. The study recommended competent project managers in construction projects to ensure timeliness of activities, reduction of mistakes, and effective utilization of resources. (Mwanza, Namusonge, & Makokha, 2020). The study addressed only project planning practices and also targeted construction projects. The current study targets agriculture projects in Nandi County. Mwakio, Oyoo, and Onyiego (2020) found a strong positive significant correlation (r = .717, Sig = .000) between project planning practice and the performance of public housing construction projects in Mombasa County. The study also found project planning significantly influences project performance of public construction projects by 18.3% (Beta = .183, sig = .000).

Project Monitoring and Project Performance

Hussein (2020) studied the influence of monitoring practices on the project performance of the water sector trust fund. The study specifically focused on monitoring planning, monitoring tools, adoption of monitoring practices, and monitoring techniques. The study targeted 275 respondents from various departments at the water sector trust fund. A descriptive survey design was employed and primary data was collected using a semi-structured questionnaire. The study found all the independent variables had significant relationship with project performance. (Hussein, 2020). The study however targeted projects under the water trust fund while the current study was on agricultural projects in Nandi County.

Mkutano and Sang (2018) examined the influence of project management practices and the performance of NGO projects in Nairobi County. A descriptive research design was adopted. The target population was 201 NGOs and 100 were sampled. They also sought to assess the influence of M&E practice on the performance of NGO projects. The study was guided by the agency theory and contingency theory. The study found a strong positive correlation (r = .673, sig = .000) between M&E and the performance of NGO projects in Nairobi County. The study also established a direct significant relationship between project M&E practice and performance of NGOs project (beta = .206, sig = .039) (Mkutano & Sang, 2018). The study however was on NGO projects in Nairobi while the current study was on agricultural projects in Nandi County.

Wandiri and James (2020) examined project management practices on the performance of rural road construction projects in Machakos County Kenya. The study conducted a census of 100 respondents that were involved in 18 rural road construction projects. Both descriptive and causal research designs were adopted. The study objectives included to determine project planning practices, project execution practices, and project monitoring and control practices on the performance of road construction projects. The study found project monitoring and control have a significant influence on the performance of road construction projects (β = .206, sig = .0000) (Wandiri & James, 2020). The study however differs in context and content as it targets project management practices on the performance of road construction projects in Machakos County while the current study was on agricultural projects in Nandi County.

RESEARCH METHODOLOGY

This study adopted a correlational design. In this study, the target population involved 60 agricultural projects implemented by Nandi County. The unit of observation included project implementation team members from the County including project committee members at the county level including Project Managers (5), monitoring team (5), and project committee members (5) from 30 Wards thus, 160 respondents were administered with a questionnaire. Since the population is adequate and manageable a census was adopted. The sampling frame for this study was the agricultural projects undertaken by Nandi County with 160 project representatives comprising project managers, an implementation team, and a monitoring team involved. The research data was collected by the use of primary data through questionnaires using a nominal scale. Data collected was standardized using various control measures, including checking for completeness and consistency before the data entry process. Questionnaires were coded and each questionnaire was given a unique identification number before data entry. These numbers were entered and used as a checkout for any inconsistencies in the data. Quantitative data was analyzed using descriptive and Inferential analysis techniques assisted by Statistical Packages for Social Sciences (SPSS Version 26) while Qualitative data was organized in short paragraphs. Descriptive analysis encompassed median scores, percentages, standard deviations, frequencies, and mean while inferential statistics incorporated correlation and multiple regression analysis to assist in the estimation of the level of relationship between the variables.

RESEARCH FINDINGS AND DISCUSSION

The questionnaires were administered to a population of 160 respondents in Nandi County who are involved in agricultural projects. A total of 142 questionnaires were dully filled and returned giving a response rate of 88.8% which is considered to be excellent as recommended by Kothari and Garg (2014) who opined that a response rate of greater than 60% is sufficient to draw meaningful conclusion in a study.

Descriptive Statistics

The respondents were requested to indicate their level of agreement with the statements that measured the various study objectives. The 5-point Likert scale was used to describe the responses. The mean, standard deviation, and percentages were used to describe the patterns of the responses. In this study 1- 2.6 represented disagreement while 2.7- 3.4 represented neutral, and 3.5 – 5 indicated agreement. A standard deviation of 2 and above indicated the responses varied to a great extent. In this study, the percentages were used to explain the level of agreement while the mean and standard deviation were used to indicate the variation of the responses from the average of the variable. A mean greater than the general average is an indication that the statement has a positive influence on the variable and the vice versa is true. A standard deviation of 2 and above indicates a larger variation of the responses from the mean.

Project Planning Practices

The first objective was to 'examine how project planning influences performance on agricultural projects in Nandi County'. The study aimed to answer the research question 'What is the influence of project planning on the performance of agricultural projects in Nandi County?' The indicators for the planning practices included project objectives, scope definition, and resource estimation activities. The average mean for project planning was 3.26 (Std dev = 1.049). The average corresponds to neutral from the Likert scale range indicating no clear evidence from the statistics to describe the status of responses relating to project planning activities for the agricultural projects in Nandi County. As for the specific statements, Table 4.14 shows the statistics.

Table 1: Project Planning Practices

Project Planning Practices	SD %	D %	N %	A %	SA %	MN	STD
The agricultural projects have developed project management plans to be used for managing the project performance.	12	38	15.5	17.6	16.9	2.89	1.308
The WBS is the main document used for the development of the project management plans.	9.9	20.4	20.4	26.8	22.5	3.32	1.296
The planning practices are effective for identifying project goals and objectives for agricultural projects	9.9	21.1	23.2	23.9	21.8	3.27	1.288
Scope definition describes the boundaries of the project to be translated into actionable plans	7.7	17.6	23.2	26.8	24.6	3.43	1.251
The scope statement provides a concise and accurate description of the expected project work and deliverables for the agricultural projects	9.9	23.2	19	23.9	23.9	3.29	1.324
Resource estimation is used for development of the resource plans for determining and identifying the resources available for agricultural projects.	9.9	20.4	17.6	26.8	25.4	3.37	1.324
Average Project Planning Practices						**3.26**	**1.049**

From the Table above all the statements had a mean ranging from 2.89 to 3.43 indicating most of the respondents were neutral in general. This means they were not convinced to give a clear opinion on the various statements measuring project planning practices. However, the percentages from the frequencies might show the level of response to each statement. Regarding the first statement on whether the agricultural projects have developed project plans for managing project performance, the majority of 50% disagreed with the statement while 34.5% affirmed the statement and 15.5% were undecided. The mean (2.89) and standard deviation (1.308) indicate that the respondents were neutral this is also supported by the standard deviation of 1.309> 1.049 and the Mean (2.89< 3.26) indicating the statement doesn't positively contribute to project planning practices of agricultural projects.

For the second statement, it was agreed by majority of the respondents (49.3%) that the WBS is WBS is the main document used for the development of the project management plans. Contrary to the statements 30.3% and 20.4% were neutral. The mean (3.32) > 3.26 indicates that the statement slightly contributes positively to project planning practices though in general, the reaction is still neutral. In the third statement on the effectiveness of the project planning practices in identifying the project goals and objectives for agricultural projects, the majority of the respondents (47.1%) affirmed the statement 31% had a contrary opinion while only 23.2 were undecided. However, the mean (3.27) though still indicating the average response to be neutral, slightly indicates the statement has a positive influence on project planning practices.

In the fourth statement, whether the scope definition describes the boundaries of the project to be translated into actionable plans, 51.6% agreed 23.2% were neutral and 25.3% disagreed. The mean (3.43) indicates slight agreement with the statement and also shows that the statement positively influences project planning practices since the mean (3.43) > the average (3.26). Still, on scope, a majority of the respondents (47.8%) agreed that the statement provides a concise and accurate description of the expected project work and deliverables for the agricultural projects. However, 33.1% disagree with the statement and 19% are neutral. The mean (3.29) indicates on average the respondents were neutral about the statement though the statement slightly influences project planning practices positively since the mean 3.29> 3.26. The last statement, 52.2% affirmed that the resource estimates are used for the development of the resource plans for determining and identification of the resources available for the agricultural projects. About 30.3% disagreed with the statement and 17.6% were not sure. The mean (3.37) still indicates that on average the responses were neutral regarding the statement though the statement being greater than the average project planning practices (3.26) indicates a positive influence on the statement.

Based on the findings all the indicators didn't provide clear and significant evidence on the performance of the indicators measuring project planning practices. This implies that project planning practices in agricultural projects need significant improvement to ensure they positively influence the performance of projects. Thus, planning for project objectives, scope definition, and resource estimation activities need to be considered by the project manager to ensure the agricultural projects are successfully implemented in Nandi County.

What is the project planning practice for the agricultural projects in Nandi County?

The respondents were asked about the project planning practices for the agricultural projects in Nandi County, the answers focused on the indicators for project planning practices which included project objectives, scope definition, and resource estimation activities. The respondents had varied opinions though it was clear that the project planning practice is not effective. Most of the respondents explained that though they were involved in a project they had little knowledge of project planning practices or project management in general. Others who knew project management opined that implementation of the planning practices was tedious and since they knew the outcomes of the projects, they found ways to achieve that by excluding formalities and procedures. However, they believe that with effective planning better project performance will be achieved though the stakeholders in the agricultural projects need to be realistic in their expectations from those projects. The plans are just on paper but

implementation is by default. The PMI (2017) noted that the end products of project planning are numerous project plans that represent defined strategies to achieve defined project objectives. Kerzner (2017) further added that the project objectives are the descriptions of the intended results of the project. Project success is measured in terms of the achievement of project objectives. In project delivery, project objectives are the focal point of every effort and activity. Project objectives are important in planning because project plans are derived from them.

Project Monitoring Practices

The second objective was 'to determine the influence of monitoring and evaluation on performance of agricultural projects in Nandi County.' The study attempted to answer the question 'What is the influence of monitoring and evaluation on the performance of agricultural projects in Nandi County?'. The indicators for the project monitoring practices included M&E plans, M&E capacity, and stakeholder engagement in project monitoring. The average mean for project monitoring practices was 3.39 (Std dev = .908). The average corresponds to neutral from the Likert scale range indicating the respondents were not convinced with a statement on project monitoring practices for the agricultural projects in Nandi County. As for the specific statements, Table 2 shows the statistics.

Table 2: Project Monitoring Practices

Project monitoring Practices	SD %	D %	N %	A %	SA %	MN	STD
The agricultural projects have M&E plans in place to ensure the effectiveness of the monitoring practice.	9.2	19.7	16.2	30.3	24.6	3.42	1.301
The monitoring activities for the project are conducted frequently as outlined in the plans.	4.2	16.9	23.9	28.2	26.8	3.56	1.176
The agricultural projects have enough individuals to monitor their projects.	11.3	17.6	24.6	21.8	24.6	3.31	1.322
The M&E team is skilled and experienced enough to handle the monitoring process.	24.6	10.6	18.3	26.8	19.7	3.06	1.469
As a good monitoring practice, there is participatory M&E for agricultural projects where all the project stakeholders are involved.	8.5	12	19	33.1	27.5	3.59	1.244
The project team reviews the baselines regularly to keep track of the projects.	9.9	19	16.2	34.5	20.4	3.37	1.274
Average Project Monitoring						**3.39**	**.908**

The study found that 54.9% agreed that the agricultural projects have M&E plans in place to ensure the effectiveness of the monitoring practice. The mean (3.42) indicates slight agreement and supports the statement. It was also found that the monitoring activities for the project are conducted frequently as outlined in the plans as agreed by 55% of the respondents. It was also supported by the mean (3.56) which indicates agreement from the Likert scale range.

The agricultural projects have enough individuals to monitor their projects. This was agreed by 46.4% of the respondents against 28.9% who disagreed. The mean (3.31) indicates neutral agreement with the statement. The statement doesn't positively influence project monitoring practices. The study also found that the M&E team was skilled and experienced enough to

handle the monitoring process. This statement was agreed by 46.5% against 35.2% who disagreed. However, the statement doesn't positively influence project monitoring practices since its mean is below the average of 3.39.

As a good monitoring practice, there is participatory M&E for the agricultural projects where all the project stakeholders are involved this was agreed by 60.6% of the respondents and further supported by the mean (3.59). The study also established that the baselines are regularly reviewed by the project teams to keep track of the project. The findings are supported by a majority of 54.9% of the respondents against 28.9% who disagreed. However, the mean (3.37) doesn't support the statistics and further doesn't positively influence project monitoring practices.

From the statistics, there was evidence of adherence to project monitoring practices though in some instances, the statistics could support that. There is a need for improvement in project monitoring practices for agricultural projects in Nandi County. Having proper M&E plans in place, having enough personnel with the capacity to conduct monitoring of the projects, and ensuring a participatory process of all the stakeholders in monitoring the projects will ensure improved performance. Ramadhani and Yusuf (2019) opined that monitoring enhances project management decision-making during the performance hence increasing the chances of good project performance. It ensures that performance is moving according to plans and if not the project manager takes corrective action. Muchelule et al (2017) posited that monitoring facilitates transparency and accountability of the resources to the stakeholders including donors, project beneficiaries, and the wider community in which the project is implemented. Matyoko (2019) argued that M&E outcomes are muchly influenced by the presence of human resources with the appropriate knowledge and skills to ensure the successful implementation of projects. It is crucial to have effective PM&E experts in the organization.

In what ways do the project monitoring practices for the agricultural projects in Nandi County influence their performance?

In response to that question, respondents argued that project monitoring practices are essential in project management since they provide an approach for gathering and analyzing data for accountability, learning, and evidence-based decision-making. Respondents further added that project monitoring helps ensure the implementation of the projects is as per the plans. The respondents also argued that through monitoring there is accountability of resources to the various stakeholders in the project. With good monitoring practices, the agricultural projects will ensure they achieve their objectives. The sentiments are also supported by Kibe (2018) and Lensinko (2018) that project monitoring ensures there is transparency and accountability among the project stakeholders and beneficiaries.

Performance of Agricultural Projects

The main objective of the study was to examine the influence of project management practices and the performance of agricultural projects in Nandi County. In measuring the performance of the agricultural projects, the study looked at compliance with budget, timeliness in the completion of the project, meeting objectives, and stakeholders' satisfaction. Table 3 below the average of 3.31 didn't provide clear evidence of how project management practices influenced the performance of agricultural projects in Nandi County.

Table 3: Performance of agricultural projects

Performance of agricultural projects	SD %	D %	N %	A %	SA %	MN	STD
Agricultural projects are delivered in compliance with the specifications and standards on quality anticipated.	14.1	17.6	19	31.7	17.6	3.21	1.315
Agricultural projects are delivered on time, by the project schedule.	14.8	11.3	19	31	23.9	3.38	1.357
Agricultural projects are delivered within their prescribed budgets.	9.2	16.9	21.8	26.8	25.4	3.42	1.285
Agricultural projects have minimal risks due to good risk management practices.	11.3	21.1	17.6	26.8	23.2	3.30	1.336
The deliverables for the agricultural projects are satisfactory to the stakeholders.	10.6	18.3	21.8	25.4	23.9	3.34	1.309
The agricultural projects adhere to the project management plans and there is successful delivery of the projects.	10.6	20.4	26.8	24.6	17.6	3.18	1.247
Average Performance of Projects						**3.31**	**1.014**

The study established that 49.3% of the respondents agreed that the agricultural projects are delivered in compliance with the specifications and standards of quality anticipated. The mean (3.21) however indicates that the statement doesn't positively influence project performance. The study also found that agricultural projects are delivered on time, by the project schedule. This was agreed upon by 54.9% against 40.2% of the respondents. The mean (3.38) indicates slightly the statement positively influences the performance of projects. The study also found that the agricultural projects were delivered within their prescribed budgets as agreed by 52.2%. The mean (3.42) also indicates slight agreement and the statement positively influences project performance.

It was agreed by 50% of the respondents that agricultural projects have minimal risks due to good risk management practices. However, the mean (3.30) doesn't support the findings. It was also established that the project deliverables for the agricultural projects are satisfactory to the stakeholders as agreed by 49.3%. The mean (3.34) indicates to some extent the statement positively influences project performance. Finally, 42.2% agreed that the agricultural projects adhere to the project management plans and therefore this ensures the successful delivery of the projects. However, 31% disagreed and the mean (3.18) further doesn't support the statement.

It is evident from the statistics that there is a mixed indication of how project management practices influence the performance of agricultural projects in Nandi County. Though some statements were positive in indicating the influence of project performance, they didn't exhibit total agreement or disagreement with the various indicators of performance. From the mean (3.31) there was no statistical evidence to suggest whether project management planning has significantly influenced the performance of agricultural projects in Nandi County.

Correlation Analysis

Correlation analysis is a technique for determining the presence and strength of a linear relationship between two variables. The correlation coefficient, denoted by the symbol (r), is a measurement used to determine the strength of the linear relationship between variables in a correlation analysis. It is typically a number without units ranging from 1 to -1. A low

correlation indicates a weak association, whereas a high correlation suggests a strong relationship. Table 4 shows the correlation matrix.

Table 4: Correlation Coefficients

		Project performance	PPP	PMP
Performance of Agricultural projects	Pearson (r)	1	.790**	.745**
	Sig		.000	000
	N	142	142	142
Project Planning Practices	Pearson (r)	.790**	1	.778**
	Sig	.000		.000
	N	142	142	142
Project Monitoring Practices	Pearson (r)	.745**	.778**	1
	Sig.	.000	.000	
	N	142	142	142

The study found project planning practices to have a positive significant correlation with the performance of agricultural projects (r = .790, sig = .000). This indicates that there is a likelihood that a unit increase in project planning practices may lead to a positive increase in project performance by 0.790. Project planning practices also strongly correlate with the performance of agricultural projects in Nandi County. The study coincides with the findings by Muute and James (2019) who found a strong positive and significant correlation (r = .913) and the performance of construction projects in Nairobi County. Similarly, Mwakio et al (2020) found a strong positive significant correlation (r = .717, Sig = .000) between project planning practice and the performance of public housing construction projects in Mombasa County. Kwizera and Ogbe (2022) found a project planning practices had a strong positive significant correlation with the performance of NUDOR projects (r =.596, sig = .000).

The study also found project monitoring practices to have a positive significant correlation with the performance of agricultural projects (r = .745, sig = .000). This indicates that there is a likelihood that a unit increase in project monitoring practices may lead to a positive increase in project performance by 0.745. Project monitoring practices also strongly correlate with the performance of agricultural projects in Nandi County. The findings are supported by Mkutano and Sang (2018) who established a strong positive correlation (r = .673, sig = .000) between M&E and the performance of NGO projects in Nairobi County. Wandiri and James (2020) also found a strong positive correlation between project monitoring and control with the performance of rural road construction projects in Machakos County Kenya. Kwizera and Ogbe (2022) found a monitoring and evaluation practices had a strong positive significant correlation with the performance of NUDOR projects (r =.601, sig = .000).

Inferential Analysis

Regression analysis is a statistical technique for estimating the relationship between a dependent variable and one or more independent variables. It is also used to forecast future relationships between variables and measure such associations' strength. The study used the model summary, Analysis of Variance, and model fitting to explain the relationship between variables.

Table 4: Regression Coefficients

Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
		B	**Std. Error**	**Beta**		
1	(Constant)	-.637	.264		-2.415	.017
	Project planning Practices	.303	.079	.313	3.825	.000
	Project monitoring Practices	.413	.085	.370	4.848	.000

a. Dependent Variable: Performance of Agricultural Projects

The first objective was to examine how project planning practices influence the performance of agricultural projects in Nandi County. The study found a direct significant relationship between project planning practices (β_1 = 303, sig =.000). It was also found that t-calculated (3.825) > t-critical (+/- 1.977). The correlation of .313 indicates that project planning practices influence the performance of agricultural projects by 31.3%. For a unit of performance, .303 units of project planning practices are needed. In attaining the first objective, the study finds project planning practice to have a direct significant association with the performance of agricultural projects in Nandi County.

The findings are supported by previous studies on project planning practices on the performance of projects. Mwakio et al (2020) found project planning to be positively and significantly associated with the performance of public housing projects in Mombasa County (β =.169, sig =.000). Project planning practices through planning tools, resource allocation, resource allocation, the use of contingency plan, and monitoring and communication explained 18.3% variation in project performance. MKaluai (2020) found a direct significant association (β =.260, sig =.007) between project planning as a project management practice and the performance of projects under the women and girl economic empowerment programme in Kiambu and Nairobi Counties in Kenya. Project planning practices explained a 23.5% variation in performance.

The second and final objective was to determine the influence of project monitoring practices on the performance of agricultural projects in Nandi County. The study found a direct significant relationship between project monitoring practices (β_4 = .413, sig =.000). It was also found that t-calculated (4.848) > t-critical (+/- 1.977). The correlation of .370 indicates that project monitoring practices influence the performance of agricultural projects by 37%. For a unit of performance, .413 units of project planning practices are needed. In attaining the fourth objective, the study finds project monitoring practices to have a direct significant association with the performance of agricultural projects in Nandi County.

Previous studies have also found a relationship between project monitoring practices and project performance. Hussein (2020) found that monitoring planning, the use of monitoring tools, and the effective use of monitoring techniques ensure improved performance of projects at the water sector fund in Kenya. Kaluai (2020) found a direct significant association (β =.234, sig =.009) between monitoring and evaluation practices as a project management practice with the performance of projects under the women and girl economic empowerment programme in Kiambu and Nairobi Counties in Kenya. Monitoring and evaluation practices explained a 20.3% variation in performance. Mkutano and Sang (2018) also found a positive significant association between monitoring and evaluation practices with the performance of NGO projects in Nairobi County (β =.206, sig =.039). Monitoring and evaluation practices explained a 9.8% variation in the performance of NGO projects. The study by Ngwai et al (2019) found a direct association between project monitoring and construction cost control of projects in Mombasa County (β =.252, sig =.009). Project monitoring practices explained 51.3% of the variation in construction cost control of projects. Through the use of project appraisals, effective quality management approaches, reduction of wastage, and ensuring training to enhance skills and experience in projects ensured improved construction cost control of projects in Mombasa County.

Conclusions

The first objective was to examine the influence of Project planning practices on the performance of agricultural projects in Nandi County. The study found that Project planning practices had a significant influence on the performance of agricultural projects in Nandi County. The study concludes that Project planning practices significantly influence the performance of agricultural projects in Nandi County. Planning for project objectives, definition of scope, and proper estimation of resources will help ensure effective planning of agricultural projects in Nandi County.

The second objective was to determine the influence of project monitoring practices on the performance of agricultural projects in Nandi County. The study found that project monitoring practices had a significant influence on performance of agricultural projects in Nandi County. The study concludes that project monitoring practices significantly influence the performance of agricultural projects in Nandi County. Planning for monitoring, having enough capacity for monitoring, and not forgetting the involvement of stakeholders in monitoring activities will ensure an effective monitoring process.

Recommendations

The first objective was to examine the influence of Project planning practices on the performance of agricultural projects in Nandi County. The study found that Project planning practices had a significant influence on performance of agricultural projects in Nandi County. The study recommends enhancement of the project planning practices in agricultural projects to ensure they positively influence the performance of projects. Thus, planning for project objectives, scope definition, and resource estimation activities need to be considered by the project manager to ensure the agricultural projects are successfully implemented in Nandi County.

The second objective was to determine the influence of project monitoring practices on the performance of agricultural projects in Nandi County. The study found that project monitoring practices had a significant influence on performance of agricultural projects in Nandi County. The study recommends detailed monitoring plans for the projects. The project should also ensure it has enough human resource capacity for monitoring the project activities. While recruiting the project monitoring team they should consider the skill gaps and the experience needed to make the process successful.

Recommendation for Further Studies

The study aimed at examining the influence of project management practices on the performance of agricultural projects in Nandi County, Kenya. The study targeted agricultural projects in Nandi County in Kenya. The study was also specific to project management practices namely project planning practices, and project monitoring practices. Thus, a similar study should be done in other areas with different project management practices. The study also found that the joint project management practices only explained 72.7% of the variation in the performance of agricultural projects in Nandi County, Kenya. Thus, in this study, the 27.3% variability in the performance of agricultural projects in Nandi County, Kenya is contributed by other project management practices that are beyond this study. Thus, a similar study is highly recommended to identify them.

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