MONITORING AND EVALUATION PRACTICES AND SUSTAINABILITY OF AGRICULTURAL PROJECTS IN KIAMBU COUNTY, KENYA

[1] Nyatichi Henry Doreen, [2] Dr. Mose Thomas, PhD

[1] Masters Student, Jomo Kenyatta University of Agriculture and Technology

[2] Lecturer, Jomo Kenyatta University of Agriculture and Technology

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ABSTRACT

This research sought to address this gap by examining the effectiveness of monitoring and evaluation practices on sustainability of agriculture projects in Kiambu County, Kenya. The study was guided by the following specific objectives; to determine the influence of strategic planning on sustainability of agriculture projects in Kiambu County, Kenya; and to examine the influence of monitoring and evaluation training on sustainability of agriculture projects in Kiambu County, Kenya. The study targeted all 63 management level employees from the Ministry of Agriculture in the county government of Kiambu. Due to the small size of study population, the study used census sampling approach. The primary data for this analysis was collected via a questionnaire. The data obtained was quantitative as well as qualitative. The Statistical Package for Social Scientists (SPSS) was used to generate frequencies, descriptive and inferential statistics from the quantitative data; the findings were presented in tables and figures. Qualitative data was analyzed using content analysis and presented in prose form. The study concludes that that strategic planning has a significant effect on sustainability of agriculture projects in Kiambu County, Kenya. The study also concludes that monitoring and evaluation training has a significant effect on sustainability of agriculture projects in Kiambu County, Kenya. The study recommends that Kiambu County should; establish formal mechanisms for involving a diverse range of stakeholders, including farmers, local communities, government agencies, NGOs, and businesses in project planning, implementation, and evaluation. In addition the county should conduct regular stakeholder meetings, workshops, and consultations to gather input, address concerns, and foster a sense of ownership among participants

Background of the Study

Agriculture holds a central position in Kenya's economy, serving as a cornerstone for development, poverty reduction, and food security (Mose et al., 2020). The sector employs a significant portion of the population, especially in rural areas, and contributes substantially to the country's Gross Domestic Product (GDP) (World Bank, 2019). However, the sustainability of agriculture projects has emerged as a pressing concern amid increasing challenges, including climate change, natural resource depletion, population growth, and market volatility (African Development Bank, 2018).

Sustainable agriculture is an essential paradigm shift that focuses on balancing economic prosperity, social well-being, and environmental conservation (Ruto et al., 2021). It entails adopting practices that promote long-term productivity while preserving natural resources, conserving biodiversity, mitigating climate change impacts, and ensuring food security for future generations. As the global community intensifies its efforts to achieve Sustainable Development Goals (SDGs), sustainable agriculture has gained prominence as a critical pathway for addressing complex agricultural and environmental issues in Kenya (FAO, 2020).

In this context, Monitoring and Evaluation (M&E) practices have emerged as powerful tools to assess and enhance the effectiveness of agricultural projects in achieving sustainability goals (Swallow et al., 2019). M&E in agriculture involves the systematic collection, analysis, and interpretation of data to measure project performance, track progress towards objectives, and assess the impact of interventions on the environment, society, and the economy (AfDB, 2020). By providing feedback loops and evidence-based decision-making, M&E can significantly influence the success and sustainability of agriculture projects.

The prominence given to aid effectiveness and results-based development compels practitioners to empirically work towards manifestation of impacts of their projects and programs resulting in a shift of focus regarding Monitoring and Evaluation from a concentration on inputs and outputs to a concentration on outcomes and impacts (Keita et al 2019). The aim of Monitoring and Evaluation practices is to heighten the chances of project success. Project success can be regarded as having been achieved once sustainability of the project has been realized. Nuguti (2019) states that in developing countries getting to the level of sustainability of a project is immensely difficult, owing to inherent challenges. However, even with these challenges, almost all developed countries see Monitoring and Evaluation practices as important tools for line management within individual government ministries, and for enhancing sound accountability and surveillance in relationships between the government, Parliament and civil society (Mackay, 2018).

Despite the growing importance of sustainable agriculture and the increasing integration of M&E practices in development projects, there is a paucity of comprehensive research that specifically examines the impact of M&E on the sustainability of agriculture projects in Kenya. Existing studies have predominantly focused on evaluating individual projects' outputs, often overlooking the long-term sustainability implications. This research gap hinders a comprehensive understanding of the interplay between M&E practices and project sustainability, impeding informed policy formulation and resource allocation.

Statement of the Problem

Monitoring and evaluation (M&E) are integral tools for managing and assessing the efficiency and effectiveness of investments in agricultural projects. However, monitoring and evaluation of agricultural project performance, outcomes, and impact has been a significant challenge in Kenya. In many organizations, project monitoring and evaluation is activity seen as a donor requirement rather than a management tool (Babbie & Mouton, 2020). For this reason, organizations implement project M&E just to cope with demands and pressures from funding agencies rather than as a measure to contribute to project performance (Kusek & Rist, 2018). The effectiveness of

Monitoring and Evaluation (M&E) practices on the sustainability of agriculture projects in Kenya, remains a critical area of concern (Mbachu & Nkando, 2019).

A survey conducted by the International Food Policy Research Institute (IFPRI) in Kenya revealed that only 27% of agriculture projects effectively utilized M&E data for decision-making, while 45% faced challenges in measuring project outcomes (IFPRI, 2020). Additionally, a study by the Food and Agriculture Organization (FAO) found that agriculture projects with robust M&E systems were 35% more likely to achieve sustainable outcomes compared to projects without such systems (FAO, 2019). This emphasizes the importance of effective M&E practices in enhancing the long-term sustainability and impact of agriculture projects. Furthermore, a report by the Ministry of Agriculture in Kenya highlighted that project with strong M&E frameworks experienced a 20% reduction in post-harvest losses, leading to improved food security and income generation for farmers (Ministry of Agriculture, Kenya, 2018). This demonstrates the role of M&E in identifying and addressing challenges to enhance project sustainability.

Several studies have been undertaken on monitoring and evaluation on project performance. For instance, Rogito (2020) carried out research on the influence of monitoring and evaluation on YEDF projects and found out that projects are poorly implemented because few implementers have trainings in M&E, poorly done baseline survey study leading to the failure of the project. Ong'ong'a. (2018) study on LATF showed that there was no Monitoring and Evaluation department in Local Authority Councils to follow project implementation even if an M&E framework as part of strategic management existed and suggested further research on how to strengthen Monitoring and Evaluation in the local authorities to effectively carry out their projects. Munyao (2018); Abdi & Kimutai (2018); Ndedi (2017); Cavens, Christopher & Harriet (2017); studies done elsewhere based on various study variables such as M&E resource allocation, management commitment, M&E staff training, technical expertise, design/approach, stakeholder participation, M&E feedback, planning, supportive supervision, financial management, and leadership revealed to have a constructive and remarkable influence on feasibility of a project.

While some studies have evaluated the effectiveness of M&E practices in other sectors, a comprehensive examination of how M&E contributes to the sustainability of agriculture projects in Kenya, especially Kiambu County remains largely unexplored. This research sought to address this gap by examining the effectiveness of monitoring and evaluation practices on sustainability of agriculture projects in Kiambu County, Kenya.

LITERATURE REVIEW

Resource-Base Theory

Resource-Based Theory, introduced by Jay B. Barney in 1991, is a management theory that focuses on a firm's internal resources and capabilities as the primary sources of competitive advantage (Barney, 1991). According to RBV, a firm's unique resources, such as technology, knowledge, skills, reputation, and culture, can enable it to create value, achieve superior performance, and outperform competitors in the long run. It explains that not all resources are equally valuable, and that sustainable competitive advantage comes from possessing resources that are rare, valuable, inimitable, and non-substitutable (Barney, 1991). These resources, referred to as strategic resources, provide a firm with a sustainable competitive edge and are difficult for competitors to replicate. The theory has been widely used in strategic planning and has influenced how organizations approach resource allocation, strategic decision-making, and competitive

positioning. RBV has been applied in various industries to identify and leverage core competencies and critical resources that can drive sustained organizational success (Grant, 1991).

Critiques of Resource-Based View Theory include debates over the exact criteria for identifying strategic resources and difficulties in empirically measuring the impact of resources on firm performance (Wernerfelt, 1984). Some critics argue that the theory may overlook the influence of external market dynamics and industry factors in shaping a firm's competitive advantage (Priem & Butler, 2001).

In this study, Resource-Based View (RBV) Theory can provide valuable insights into how agricultural projects can leverage their unique resources to achieve sustainability and competitive advantage. By understanding their internal resources, such as technology, knowledge, and skills, agriculture projects can identify their core competencies and strategically align them with external opportunities and challenges. Applying RBV Theory in this study can help assess how agricultural projects in Kiambu County utilize their internal resources to enhance their monitoring and evaluation practices. Projects with strong internal resources may be better positioned to invest in monitoring and evaluation training, technology, leading to more effective and sustainable practices (Peteraf, 1993).
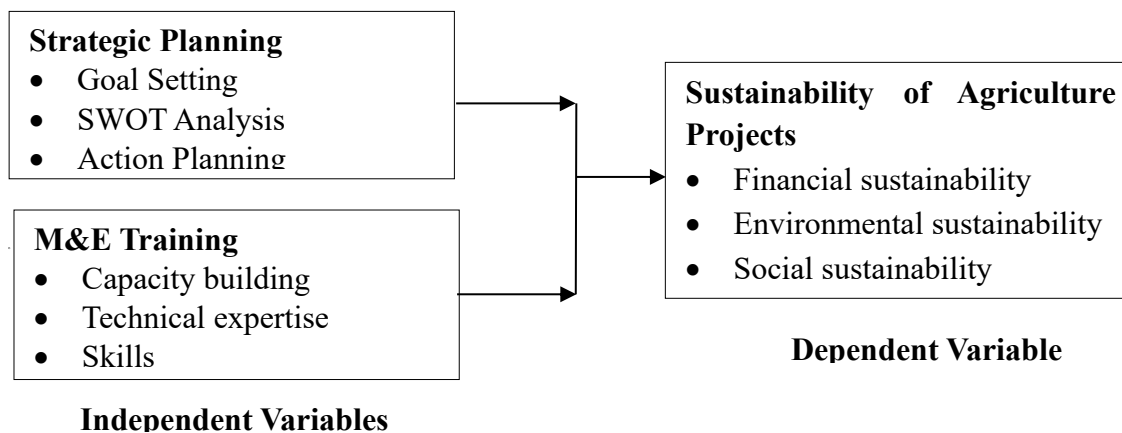
Control Theory

Control Theory originated from the work of James G. March and Herbert A. Simon in the 1950s (March & Simon, 1958). The theory focuses on how organizations establish control mechanisms to maintain stability, regulate behavior, and achieve their goals in dynamic environments. It explains that organizations face uncertainties and complexities in their external environment, and they strive to maintain stability and achieve desired outcomes through feedback and control mechanisms. These mechanisms involve monitoring performance, comparing it to established standards or goals, and taking corrective actions to keep the organization on track.

The theory has been used to understand how organizations cope with changes and adapt to their environment. Control Theory is often applied in the context of organizational behavior and decision-making, particularly in situations where feedback loops are essential for maintaining effective control over organizational processes (Meyer & Goes, 1988). Critiques of Control Theory include concerns about its assumptions regarding rationality and the ability to fully predict and control organizational behavior. Some critics argue that organizations are complex and adaptive systems, and control mechanisms may not always capture the full dynamics of their operations (Thompson, 1967).

Control Theory offers valuable insights into how monitoring and evaluation serve as control mechanisms in project management (Lorsch, 1985). Monitoring and evaluation activities provide feedback on project progress and outcomes, enabling project managers to compare actual performance with established goals and make necessary adjustments.

By applying Control Theory in this study, the research can explore how monitoring and evaluation practices are used as feedback mechanisms to regulate behavior and decision-making in agriculture projects. Additionally, the theory helps to understand how monitoring and evaluation activities contribute to maintaining project stability, ensuring adherence to planned objectives, and enhancing the long-term sustainability of agricultural initiatives in the region.

Conceptual Framework

Strategic Planning • Goal Setting • SWOT Analysis • Action Planning	→	Sustainability of Agriculture Projects • Financial sustainability • Environmental sustainability • Social sustainability
M&E Training • Capacity building • Technical expertise • Skills	→	

Independent Variables   **Dependent Variable**

Strategic Planning

Strategic planning is a fundamental variable in the context of agriculture projects and organizational management. It refers to the process of formulating and implementing long-term strategies and action plans to achieve specific goals and objectives (Mintzberg, 2019). Strategic planning involves analyzing the organization's internal strengths and weaknesses, as well as external opportunities and threats, to develop a clear roadmap for future actions. Effective strategic planning is crucial for the success and sustainability of agriculture projects. It provides a structured approach for organizations to align their resources and efforts with their mission and vision, guiding decision-making and resource allocation (Nagji & Tuff, 2018). Through strategic planning, agriculture projects can proactively respond to challenges, capitalize on opportunities, and adapt to changing circumstances.

A well-defined strategic plan outlines the organization's goals, identifies key performance indicators, and specifies the actions required to achieve these objectives (Mintzberg, 2019). Strategic planning also helps in setting priorities and resource allocation, ensuring that efforts are focused on the most critical activities to achieve the desired outcomes. Furthermore, strategic planning facilitates effective communication and coordination among project stakeholders. It provides a shared vision and direction, enhancing collaboration and creating a sense of purpose among team members, donors, beneficiaries, and other relevant parties (Bryson, 2018).

However, strategic planning is not without challenges and criticisms. The process can be time-consuming and resource-intensive, especially in rapidly changing environments where plans may quickly become outdated (Bryson, 2018). Moreover, the success of strategic planning largely depends on effective execution, which can be hindered by organizational resistance, lack of buy-in, or insufficient implementation capacity (Mintzberg, 2019). Despite these challenges, strategic planning remains an essential variable for guiding agriculture projects toward success. It enables organizations to anticipate and adapt to external trends, identify potential risks, and capitalize on opportunities for innovation and growth (Nagji & Tuff, 2018). Therefore, strategic planning provides a framework for effective decision-making, resource allocation, and goal achievement. By formulating and executing well-designed strategic plans, agriculture projects can enhance their sustainability, resilience, and overall impact on communities and the environment.

Monitoring and Evaluation Training

Monitoring and evaluation training refers to the process of providing knowledge, skills, and tools to individuals and teams involved in monitoring and evaluation activities. Effective training ensures that project personnel are equipped with the necessary competencies to conduct systematic data collection, analysis, and interpretation for evidence-based decision-making (Phiri, 2017). The importance of monitoring and evaluation training lies in its role in enhancing project performance and impact. Well-trained personnel are better equipped to design and implement monitoring and evaluation frameworks, leading to improved data quality, accuracy, and relevance (World Bank, 2018). Training also empowers stakeholders to use monitoring and evaluation findings to inform adaptive management strategies and drive continuous improvement. Comprehensive monitoring and evaluation training covers various aspects, including data collection methods, data analysis techniques, result-based management, and the use of monitoring and evaluation tools (UNICEF, 2020). A well-rounded training program ensures that participants understand the significance of monitoring and evaluation in project success and are capable of applying these skills in real-world scenarios.

Moreover, monitoring and evaluation training plays a pivotal role in building a culture of learning and accountability within organizations (Rogers, 2020). Trained staff are more likely to embrace a results-focused approach and actively participate in ongoing performance assessments, which fosters a learning-oriented organizational environment. There are however some challenges that may arise in delivering effective monitoring and evaluation training. These challenges can include limited resources for training programs, time constraints for staff, and resistance to change within organizations (Bamberger, 2020). Addressing these challenges requires thoughtful planning, stakeholder engagement, and continuous support from organizational leadership. Therefore, by investing in comprehensive training programs, organizations can build capacity, foster a culture of learning, and harness monitoring and evaluation practices to drive evidence-based decision-making and continuous improvement.

Sustainability of Agriculture Projects

Sustainability in the context of agriculture projects refers to their ability to maintain and enhance positive impacts over the long term while minimizing negative environmental, social, and economic consequences (FAO, 2018). A sustainable agriculture project should be capable of meeting the needs of the present without compromising the ability of future generations to meet their own needs.

Assessing the sustainability of agriculture projects is vital as it has broader implications for achieving development goals and addressing global challenges. Sustainable agriculture projects play a pivotal role in promoting food security, poverty reduction, environmental conservation, and social well-being (FAO, 2018). By prioritizing sustainability, projects can create lasting benefits for communities, enhance their resilience to external shocks, and promote the responsible use of natural resources. Measuring the sustainability of agriculture projects encompasses three key dimensions: financial sustainability, environmental sustainability, and social sustainability.

Financial sustainability refers to the project's ability to generate adequate revenue and manage financial resources efficiently (FAO, 2018). A financially sustainable project can cover operational costs, maintain necessary investments, and achieve positive financial outcomes. Environmental sustainability assesses the project's impact on ecosystems, biodiversity, and natural resources (UNEP, 2017). Projects should strive to minimize negative environmental impacts and adopt

practices that conserve and regenerate natural resources. Social sustainability considers the project's contribution to social equity, community well-being, and local empowerment (FAO, 2018). Socially sustainable projects engage and benefit local communities, respect cultural values, and promote inclusivity.

Evaluating the sustainability of agriculture projects is essential for understanding their long-term effectiveness and impact. Monitoring and evaluation practices play a crucial role in assessing project sustainability by providing evidence on progress, outcomes, and areas for improvement (IFAD, 2002). By analyzing the three dimensions of sustainability, the study can provide valuable insights into the extent to which monitoring and evaluation practices influence the long-term success and resilience of agriculture projects in Kiambu County, Kenya.

Empirical Literature Review

Strategic Planning

Dwikat, Arshad, and Mohd Shariff (2022) examined the influence of systematic strategic planning and strategic business innovation on the sustainable performance of manufacturing SMEs: The case of Palestine. Based on a sample of 377 manufacturing SMEs in Palestine, 245 valid surveys have been subjected to Partial Least Squares Structural Equation Modeling for analysis using Smart PLS 3.0 software. The results show that various factors can enhance manufacturing SMEs' sustainability performance, such as adopting a supporting national policy to enhance the concept of sustainability at the policy level. However, implementing proper systematic strategic planning (SSP) and strategic business innovation (SBI) in a collaborative culture and a participatory management style at the firm level in manufacturing SMEs positively influences and enhances the sustainable performance of those firms.

Bazina, A. (2021) did a study on strategic planning and its impact on persistent profitability and productivity in African agriculture sector. Agriculture on the African continent is extremely important, as this sector is an important resource that can contribute to development. The African continent is rich in wealth and enormous wealth, and its inhabitants are closely related to agriculture. Therefore, in light of these huge agricultural potentials and resources, the continent can double its production if it establishes for itself a common African strategy and broadens the volume of investments as recommended by the Agricultural Development Program in Africa, which calls for ambitious investments. Strategic planning is the process by which the strategy is developed and includes strategic analysis, choosing the strategic direction, setting strategic goals and objectives, identifying alternatives, and is concerned with creating coherence and consistency between strategic, temporary and short-term goals, as well as coherence and consistency between goals and legislation. This research aims to provide an overview of agriculture in Africa and sought to present a strategic plan that can be applied in proportion to the status and potential of the African continent to ensure the continued profitability and productivity in the African agricultural sector.

Mihailović, Simonović and Brzaković, (2018) explored the agricultural potential of the municipality for Lajkovac and accordingly defined the development priorities and strategic measures of sustainable development in this area. The purpose of the research was to examine the real possibilities for the development of agriculture and rural areas of the Municipality. Consequently, the analysis focuses on the structure of the economy of the Municipality, the importance and role of agriculture and agro-industry in the municipal economy and the development priorities and strategic measures in the agriculture of the municipality. The research's results showed that the Municipality of Lajkovac has favorable factor conditions for the

development of agriculture. With regard to the development of Lajkovac agriculture in the coming period, it was important to develop the processing sector, that is, capacity building, especially in the small and medium enterprises in agriculture (SMEA) sector, in the feld of processing meat, milk, fruit and vegetables.

Monitoring and Evaluation Training

Phiri (2015) sought to assess the influence of Monitoring and Evaluation (M&E) on project performance at African Virtual University (AVU). In this study monitoring and evaluation was defined by its activities: M&E planning while project performance was considered as the degree of goal achievement. The objectives of the study were to establish how M&E plans influence project performance. Spearman correlation showed a positive relationship of 0.6 between M&E and project performance for both projects. Particularly, it showed that on average, M&E planning and M&E training had statistically significant correlation with project performance at 0.8 and 0.7 respectively. In conclusion, the study has shown that monitoring and evaluation has a directly proportional influence on project performance and that an M&E plan should be in place if a positive influence of M&E has to be seen.

Maendo, James and Kamau (2018) sought to establish the effects of project monitoring and evaluation on performance of road projects. The study was carried out in the Lake Basin Region, Kenya. The study covered 41 road projects. The study concludes that project monitoring and evaluation training has a significant effect on performance of road projects. Simliarly, Ryman and Harries (2018) study established the constraints and problems that hamper Monitoring and evaluation of development projects. In order to achieve the intended objectives, data on 37 projects was used. The study found out that the role of monitoring and evaluation of projects can no longer be underestimated. The study results also showed the main constraints and problems that hampered monitoring and evaluation in development projects. They include; lack of commitment to conduct monitoring and evaluation, failure to carry out, discuss, share and incorporate the results of monitoring and evaluation activities. Other constraints found out from the study were: shortage of trained staff for monitoring and evaluation and limited training opportunities.

Maritim (2019) undertook an investigation in Bureti Constituency to establish the factors that had an influence CDF projects implementation. To achieve this, one of his objectives was to investigate the extent to which training influences CDF projects implementation in Bureti Constituency. The study adopted a descriptive survey research design and targeted the Projects Management Committee Members. Stratified random sampling was used. He concluded that the PMCs faced various challenges which included low level of education and training, and this negatively influenced the implementation of Constituency Development funded projects. The researcher opines that training is only important if it is relevant and economical. However, his study was limited to the implementation phase and there is therefore need to establish whether these findings can be replicated in the projects' M & E phase. The current study focused on how staff training in M & E influences performance of CDF projects in Kuria West Constituency.

RESEARCH METHODOLOGY

Research Design

The overall plan or strategy for data collection, calculation, interpretation, and use in order to obtain desired and reliable information that is sufficiently detailed and accurate is referred to as research design (Tsikriktsis, 2015). A descriptive design was used in this research. A descriptive

survey research design, according to Lavrakas (2008), is a comprehensive research method for gathering data from a representative sample of people using instruments such as closed-ended and/or open-ended questions, observations, and interviews. A descriptive survey design, according to Orodho (2014), is one that aims to accurately represent the characteristics of a specific person, situation, or group. The design included in the study because it helps to explain the current situation. Earlier studies, such as those by Afroze and Khan (2017) and Affare (2018), used a descriptive research design.

Target Population

According to Nassiuma (2010), population exists in both space and time, and researchers clearly define population in terms of category and geographical space. A population may also be thought of as the complete set of elements from which the research wants to draw conclusions (Mugenda & Mugenda, 2014). The study targeted all 63 management level employees from the Ministry of Agriculture in the county government of Kiambu (County Government of Kiambu, 2023). Management employees were selected as participants in this study due to their crucial role in overseeing and implementing agricultural projects in the region and their role in monitoring and evaluation practices.

Sampling Size and Sampling Techniques

A sample is a precise representation of the entire population to be tested (Hyndma, 2008). Sampling, on the other hand, is the method of selecting a pre-determined number of individuals from a target population in order to produce information about the entire population using statistical inferences from those individuals (Black & William, 2004). As a result, a good sample should be representative of the entire population; minimize sampling error; and be practical, cost-effective, and efficient, with results that can be generalized to the target population with a reasonable level of confidence (Kothari, 2011). The study used census method since the study population was small. According to Ngechu (2018), an appropriate sampling technique for a small sample size is census because it allows representation of the population.

Data Collection Instruments

The techniques used to collect data and how they are employed are referred to as data collection instruments. The primary data for this analysis was collected using a questionnaire. A questionnaire is a study tool that consists of a set of questions and other prompts designed to collect data from respondents (Lumpkin & Dess, 2001). Questionnaires are a collection of written questions aimed at eliciting responses on a specific subject. It is the medium of interaction between the researcher and the subject, according to Brace (2004), though it is often administered on the researcher's behalf. The main aim of the questionnaire is to clarify what is being asked of the respondents and to elicit the desired responses in order to achieve the study's objectives (Chandran, 2004). For the study, the researcher used both open-ended and closed-ended questionnaires as data collection instruments (Chandran, 2004).

Pilot Study

In social science research, the word "pilot study" has two meanings. It may refer to "feasibility tests," which are small-scale models, or "trial runs," carried out in advance of a larger study (Mugenda & Mugenda, 2014). A pilot study may reveal areas where the main research project may stagnate, such as where research procedures may not be followed or if proposed methods or

instruments are inadequate or overly complicated (Nassiuma, 2010). The questionnaire was pilot tested on 10% of study sample size. This therefore translates to a pilot test of 6 individuals. Because projects in Kiambu and Murang'a counties have similar characteristics, a pilot test was conducted in Murang'a County.

Data Presentation and Analysis

Data analysis is the process of using rationality to interpret data gathered with the aim of identifying consistent patterns and summarizing the pertinent information discovered during the investigation (Zikmund, Babin, Carr, & Griffin, 2010). The data obtained was quantitative as well as qualitative. The Statistical Package for Social Scientists (SPSS) was used to generate frequencies, descriptive and inferential statistics, as well as to draw conclusions and make recommendations based on the results of the analysis.

Frequencies, mean scores, and standard deviation were among the descriptive statistics used. Regression and correlation analysis was used to calculate the inferential statistic. The overall model significance was determined using analysis of variance (ANOVA). The overall significance of the model was determined using a critical p value of 0.05. The impact of each variable on performance was measured by the change in R-squared. Pearson regression coefficients were examined to see whether the communication management practices has an effect on the performance of projects. The significance of the individual variables was determined using a critical p value of 0.05.

Data Analysis and Findings

Response Rate

The sample size of the study was 63 respondents comprising of all management level employees from the Ministry of Agriculture in the county government of Kiambu. The questionnaires were dropped off and picked up later after they were filled by the respondents. Out of 63 questionnaires which were distributed, 56 were duly filled and returned. The drop-off and pick-up-later method yielded the high response rate of 88.9%. According to Babbie (2017), a response rate of 75 per cent is adequate for analysis as well as making conclusions and inferences about a population. In addition, Kumar (2019) indicates that a response rate of 60% and above is acceptable for analysis. Further, Egbert (2015) indicates that a response rate of 50% should be considered average, 60% to 70% considered adequate while a response rate of above 70% should be regarded as excellent. This implies that the response rate of 88.9% was adequate for analysis, drawing conclusions and reporting.

Descriptive Statistics

Sustainability of Agriculture Projects in Kiambu County, Kenya

The respondents were requested to indicate their level of agreement on various statements relating to sustainability of agriculture projects in Kiambu County, Kenya. A 5 point Likert scale was used where 1 symbolized strongly disagree, 2 symbolized disagree, 3 symbolized neutral, 4 symbolized agree and 5 symbolized strongly agree. The results were as presented in Table 1.

From the results, the respondents agreed that the agriculture projects are designed with long-term sustainability in mind. This is supported by a mean of 3.968 (std. dv = 0.905). In addition, as shown by a mean of 3.859 (std. dv = 0.885), the respondents agreed that there is adequate funding allocated to support the maintenance and continuation of projects beyond their initial

implementation phase. Further, the respondents agreed that the engagement and involvement of stakeholders play a crucial role in enhancing the sustainability of projects. This is shown by a mean of 3.800 (std. dv = 0.605).

As shown by a mean of 3.785 (std. dv = 0.981), the respondents agreed that monitoring and evaluation practices are consistently applied to assess the progress and impact of projects. In addition, the respondents agreed that strategic planning is effectively integrated into the management of projects, ensuring their alignment with long-term goals and objectives. This is shown by a mean of 3.777 (std. dv = 0.878). The respondents also agreed that adequate training and capacity-building initiatives are provided to project staff to enhance their ability to maintain and sustain projects. This is shown by a mean of 3.678 (std. dv = 0.897).

Table 1: Sustainability of Agriculture Projects in Kiambu County, Kenya

	Mean	Std. Deviation
The agriculture projects are designed with long-term sustainability in mind.	3.968	0.905
There is adequate funding allocated to support the maintenance and continuation of projects beyond their initial implementation phase.	3.859	0.885
The engagement and involvement of stakeholders play a crucial role in enhancing the sustainability of projects.	3.800	0.605
Monitoring and evaluation practices are consistently applied to assess the progress and impact of projects.	3.785	0.981
Strategic planning is effectively integrated into the management of projects, ensuring their alignment with long-term goals and objectives.	3.777	0.878
Adequate training and capacity-building initiatives are provided to project staff to enhance their ability to maintain and sustain projects.	3.678	0.897
Aggregate	**3.792**	**0.832**

Strategic Planning and Sustainability of Agriculture Projects

The third specific objective of the study was to determine the influence of strategic planning on sustainability of agriculture projects in Kiambu County, Kenya. The respondents were requested to indicate their level of agreement on various statements relating to strategic planning and sustainability of agriculture projects in Kiambu County, Kenya. A 5-point Likert scale was used where 1 symbolized strongly disagree, 2 symbolized disagree, 3 symbolized neutral, 4 symbolized agree and 5 symbolized strongly agree. The results were as presented in Table 2.

From the results, the respondents agreed that strategic planning is a crucial factor in ensuring that projects have clear and achievable objectives. This is supported by a mean of 3.943 (std. dv = 0.986). In addition, as shown by a mean of 3.926 (std. dv = 0.840), the respondents agreed that the Ministry incorporates stakeholder inputs in the strategic planning process for agriculture projects. Further, the respondents agreed that adequate resources and support are provided to implement the strategic plans for agriculture projects. This is shown by a mean of 3.846 (std. dv = 0.879). The respondents also agreed that strategic planning helps in identifying potential risks and challenges in agriculture projects and develops appropriate mitigation measures. This is shown by a mean of 3.831 (std. dv = 0.904).

As shown by a mean of 3.816 (std. dv = 0.789), the respondents agreed that the Ministry regularly reviews and updates the strategic plans to adapt to changing circumstances and priorities. Further, the respondents agreed that strategic planning ensures that agriculture projects are aligned with national and county development goals. This is shown by a mean of 3.796 (std. dv = 0.937). The

respondents also agreed that effective strategic planning contributes significantly to the long-term sustainability and success of projects. This is shown by a mean of 3.689 (std. dv = 0.876).

Table 2: Strategic Planning and Sustainability of Agriculture Projects

	Mean	Std. Deviation
Strategic planning is a crucial factor in ensuring that projects have clear and achievable objectives.	3.943	0.986
The Ministry incorporates stakeholder inputs in the strategic planning process for agriculture projects.	3.926	0.840
Adequate resources and support are provided to implement the strategic plans for agriculture projects.	3.846	0.879
Strategic planning helps in identifying potential risks and challenges in agriculture projects and develops appropriate mitigation measures.	3.831	0.904
The Ministry regularly reviews and updates the strategic plans to adapt to changing circumstances and priorities.	3.816	0.789
Strategic planning ensures that agriculture projects are aligned with national and county development goals.	3.796	0.937
Effective strategic planning contributes significantly to the long-term sustainability and success of projects	3.689	0.876
Aggregate	**3.791**	**0.893**

M&E Training and Sustainability of Agriculture Projects

The fourth specific objective of the study was to examine the influence of monitoring and evaluation training on sustainability of agriculture projects in Kiambu County, Kenya. The respondents were requested to indicate their level of agreement on various statements relating to monitoring and evaluation training and sustainability of agriculture projects in Kiambu County, Kenya. A 5 point Likert scale was used where 1 symbolized strongly disagree, 2 symbolized disagree, 3 symbolized neutral, 4 symbolized agree and 5 symbolized strongly agree. The results were as presented in Table 3.

From the results, the respondents agreed that adequate training in monitoring and evaluation enhances the ability of project teams to effectively track project progress and performance. This is supported by a mean of 3.891 (std. dv = 0.865). In addition, as shown by a mean of 3.818 (std. dv = 0.945), the respondents agreed that the Ministry provides regular and relevant training opportunities to staff involved in monitoring and evaluation of agriculture projects. Further, the respondents agreed that monitoring and evaluation training equips project teams with the necessary skills to identify and address potential challenges and bottlenecks in agriculture projects. This is shown by a mean of 3.808 (std. dv = 0.611). The respondents also agreed that training in monitoring and evaluation improves the accuracy and reliability of data collection and analysis in agriculture projects. This is shown by a mean of 3.721 (std. dv = 0.908).

As shown by a mean of 3.661 (std. dv = 0.776), the respondents agreed that staff who have received monitoring and evaluation training are better equipped to make informed decisions and recommendations for project improvements. From the results, the respondents agreed that monitoring and evaluation training contributes to greater accountability and transparency in the implementation of projects. This is supported by a mean of 3.654 (std. dv = 0.967). In addition, as shown by a mean of 3.621 (std. dv = 0.786), the respondents agreed that the knowledge and expertise gained from monitoring and evaluation training positively influence the overall sustainability and impact of projects.

Table 3: M&E Training and Sustainability of Agriculture Projects

	Mean	Std. Dev
Adequate training in monitoring and evaluation enhances the ability of project teams to effectively track project progress and performance.	3.891	0.865
The Ministry provides regular and relevant training opportunities to staff involved in monitoring and evaluation of agriculture projects.	3.818	0.945
Monitoring and evaluation training equips project teams with the necessary skills to identify and address potential challenges and bottlenecks in agriculture projects.	3.808	0.611
Training in monitoring and evaluation improves the accuracy and reliability of data collection and analysis in agriculture projects.	3.721	0.908
Staff who have received monitoring and evaluation training are better equipped to make informed decisions and recommendations for project improvements.	3.661	0.776
Monitoring and evaluation training contributes to greater accountability and transparency in the implementation of projects.	3.654	0.967
The knowledge and expertise gained from monitoring and evaluation training positively influence the overall sustainability and impact of projects.	3.621	0.786
Aggregate	**3.721**	**0.808**

Inferential Statistics

Inferential statistics in the current study focused on correlation and regression analysis. Correlation analysis was used to determine the strength of the relationship while regression analysis was used to determine the relationship between dependent variable (sustainability of agriculture projects in Kiambu County, Kenya) and independent variables (strategic planning and monitoring and evaluation training).

Correlation Analysis

The present study used Pearson correlation analysis to determine the strength of association between independent variables (strategic planning and monitoring and evaluation training) and the dependent variable (sustainability of agriculture projects in Kiambu County, Kenya). Pearson correlation coefficient range between zero and one, where by the strength of association increase with increase in the value of the correlation coefficients.

Table 4: Correlation Coefficients

		Project Sustainability	strategic planning	M&E Training
Project Sustainability	Pearson Correlation	1		
	Sig. (2-tailed)			
	N	56		
	N	56		
strategic planning	Pearson Correlation	.827**	1	
	Sig. (2-tailed)	.002		
	N	56	56	
M&E Training	Pearson Correlation	.872**	.278	1
	Sig. (2-tailed)	.000	.076	
	N	56	56	56

Further, the results revealed that there is a very strong relationship between strategic planning and sustainability of agriculture projects in Kiambu County, Kenya (r = 0.827, p value =0.002). The relationship was significant since the p value 0.002 was less than 0.05 (significant level).The findings are in line with the findings of Wenbo and Qin (2020) that there is a very strong relationship between strategic planning and project sustainability.

The results also revealed that there was a very strong relationship between monitoring and evaluation training and sustainability of agriculture projects in Kiambu County, Kenya (r = 0.871, p value =0.000). The relationship was significant since the p value 0.000 was less than 0.05 (significant level). The findings are in line with the results of Otim (2017) who revealed that there

Regression Analysis

Table 5: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.931	.857	.858	.10428

a. Predictors: (Constant), strategic planning and monitoring and evaluation training

The model summary was used to explain the variation in the dependent variable that could be explained by the independent variables. The r-squared for the relationship between the independent variables and the dependent variable was 0.857. This implied that 85.7% of the variation in the dependent variable (sustainability of agriculture projects in Kiambu County, Kenya) could be explained by independent variables strategic planning and monitoring and evaluation training).

Table 6: Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	141.081	4	35.270	248.38	.000[b]
1	Residual	7.254	51	.142		
	Total	148.335	55			

a. Dependent Variable: sustainability of agriculture projects
b. Predictors: (Constant) strategic planning and monitoring and evaluation training

The ANOVA was used to determine whether the model was a good fit for the data. F calculated was 248.38 while the F critical was 2.553. The p value was 0.000. Since the F-calculated was greater than the F-critical and the p value 0.000 was less than 0.05, the model was considered as a good fit for the data. Therefore, the model can be used to predict the influence of strategic planning and monitoring and evaluation training on sustainability of agriculture projects in Kiambu County, Kenya.

Table 7: Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.239	0.061		3.918	0.000
	strategic planning	0.357	0.098	0.356	3.643	0.002
	monitoring and evaluation training	0.375	0.099	0.376	3.788	0.001

a Dependent Variable: sustainability of agriculture projects

The regression model was as follows:

$$Y = 0.239 + 0.357X_1 + 0.375X_2$$

Furthermore, the results revealed that strategic planning has significant effect on sustainability of agriculture projects in Kiambu County, Kenya, $\beta_1 = 0.357$, p value= 0.002). The relationship was considered significant since the p value 0.002 was less than the significant level of 0.05. The findings are in line with the findings of Wenbo and Qin (2020) that there is a very strong relationship between strategic planning and project sustainability.

In addition, the results revealed that monitoring and evaluation training has significant effect on the sustainability of agriculture projects in Kiambu County, Kenya, $\beta_1 = 0.375$, p value= 0.001). The relationship was considered significant since the p value 0.001 was less than the significant level of 0.05. The findings are in line with the results of Otim (2017) who revealed that there is a very strong relationship between monitoring and evaluation training and project sustainability.

Conclusions

Further, the study concludes that strategic planning has a significant effect on sustainability of agriculture projects in Kiambu County, Kenya. The study findings revealed that goal Setting, SWOT Analysis and action Planning influences sustainability of agriculture projects in Kiambu County, Kenya.

The study also concludes that monitoring and evaluation training has a significant effect on sustainability of agriculture projects in Kiambu County, Kenya. The study findings revealed that capacity building, technical expertise and skills influence sustainability of agriculture projects in Kiambu County, Kenya.

Recommendations

The study recommends that Kiambu County should define clear, specific, and measurable goals for each agriculture project in Kiambu County. These goals should align with the overall sustainability objectives of the projects. Involve stakeholders in the goal-setting process to ensure that their perspectives and priorities are considered. In addition, develop a comprehensive capacity-building program for project staff, farmers, and local communities focused on monitoring and evaluation (M&E) techniques, data collection, analysis, and reporting. Provide regular training sessions, workshops, and mentoring opportunities to build the skills and knowledge necessary for effective M&E.

Suggestions for Further Studies

This study was limited to performance of the effectiveness of monitoring and evaluation practices on sustainability of agriculture projects in Kiambu County, Kenya, hence the study findings cannot generalize to sustainability of private projects in Kenya. The study therefore suggests further studies on the effectiveness of monitoring and evaluation practices on sustainability of private projects in Kenya.

Further, the study found that the independent variables (strategic planning and monitoring and evaluation training) could only explain 85.7% of sustainability of agriculture projects in Kiambu County, Kenya. This study therefore suggests further research on other factors affecting sustainability of agriculture projects in Kiambu County, Kenya.

References

Abdi, I. (2019). *Influence Of Stakeholders Participation in Performance of Agricultural Projects in Wajir County, Kenya: A Case Of Kenya Climate Smart Agriculture Project* (Doctoral dissertation, UoN).

Atuahene-Gima, K., & Murray, J. Y. (2017). Exploratory and Exploitative Learning in New Product Development: A Social Capital Perspective on New Technology Ventures in China. *Journal of International Marketing*, 15(2), 1-29.

Bamberger, M. (2020). Integrating Quantitative and Qualitative Research in Development Projects. *World Bank Policy Research Working Paper*, 2397.

Bazina, A. (2021). Strategic planning and its impact on persistent profitability and productivity in African agriculture sector. *Multi-Knowledge Electronic Comprehensive Journal for Education and Science Publications*.

Black, P., & William, D. (2004). *Inside the Black Box: Raising Standards Through Classroom Assessment*. London: Granada Learning.

Brace, N. (2004). *Questionnaire Design: How to Plan, Structure, and Write Survey Material for Effective Market Research*. London: Kogan Page.

Donaldson, T., & Preston, L. E. (1995). The Stakeholder Theory of the Corporation: Concepts, Evidence, and Implications. *Academy of Management Review*, 20(1), 65-91.

Dwikat, S. Y., Arshad, D., & Mohd Shariff, M. N. (2022). The influence of systematic strategic planning and strategic business innovation on the sustainable performance of manufacturing SMEs: The case of Palestine. *Sustainability*, *14*(20), 13388.

Freeman, R. E. (1984). *Strategic Management: A Stakeholder Approach*. Boston, MA: Pitman.

Gĩtũ, W., Gĩthae, W., & Muthee, W. (2019). Factors Influencing the Performance of Dairy Farmers in Kiambu County, Kenya. *International Journal of Economics, Commerce and Management,* 7(12), 202-220.

Government of Tanzania (2019). *Monitoring and Evaluation Policy*. Dar es Salaam: Government of Tanzania.

IFAD. (2002). *Project Performance Assessment Report: Kenya Dairy Development Project (KDDP).* International Fund for Agricultural Development.

International Institute for Environment and Development. (2016). *Using Technology for Monitoring and Evaluation.* Nairobi: IIED.

Kenya School of Government. (n.d.). *Monitoring and Evaluation Training Programs*. Retrieved from https://www.ksg.ac.ke/programmes-and-courses/monitoring-and-evaluation

Kothari, C. R. (2011). *Research Methodology: Methods and Techniques*. New Delhi: New Age International.

Lavrakas, P. J. (2008). Encyclopedia of Survey Research Methods. SAGE Publications.

Lorsch, J. W. (1985). *Organizational Design: A Situational Approach*. Boston, MA: Harvard Business Review Press.

March, J. G., & Simon, H. A. (1958). *Organizations*. New York, NY: John Wiley & Sons.

Ministry of Planning, Ghana. (2015). *National Monitoring and Evaluation Policy Framework.* Accra: Government of Ghana.

Mintzberg, H. (2019). *The Rise and Fall of Strategic Planning: Reconceiving Roles for Planning, Plans, Planners.* Free Press.

Mitchell, R. K., Agle, B. R., & Wood, D. J. (1997). Toward a Theory of Stakeholder Identification and Salience: Defining the Principle of Who and What Really Counts. *Academy of Management Review*, 22(4), 853-886.

Mose, G. N., Gichunge, C. M., & Choge, S. K. (2020). Contribution of Agriculture to Economic Growth in Kenya: A Time Series Analysis (2001-2018). *International Journal of Business and Management Review*, 8(3), 22-36.

Mugenda, O. M., & Mugenda, A. G. (2014). *Research Methods: Quantitative and Qualitative Approaches.* Nairobi: Acts Press.

Nagji, B., & Tuff, G. (2018). Managing Your Innovation Portfolio. *Harvard Business Review,* 90(5), 68-74.

Ochunga, F. O. (2016). *Influence of stakeholder participation on sustainability of community development projects implemented by plan international in Homa bay town sub-county* (Doctoral dissertation, University of Nairobi).

Office of the Vice President of Nigeria. (2017). *National Monitoring and Evaluation Policy.* Abuja: Government of Nigeria.

Olusola, S. (2013). Multiple Regression Analysis of Corporate Environmental Responsibility and Sustainable Economic Growth: Evidence from Nigerian Manufacturing Firms. *European Journal of Business and Management,* 5(13), 163-170.

Orodho, J. A. (2014). Techniques of Writing Research Proposals and Reports in Education and Social Sciences. Maseno: Kanezja Publishers.

Ouchi, W. G. (1980). Markets, Bureaucracies, and Clans. *Administrative Science Quarterly,* 25(1), 129-141.

Priem, R. L., & Butler, J. E. (2001). Is the Resource-Based 'View' a Useful Perspective for Strategic Management Research? *Academy of Management Review,* 26(1), 22-40.

Richey, R. G., King, N. J., & Jeong, S. (2017). R&D Project Selection Using the Analytic Hierarchy Process. *IEEE Transactions on Engineering Management,* 54(4), 697-706.

Rogers, P. J. (2020). Using Programme Theory to Evaluate Complicated and Complex Aspects of Interventions. *Evaluation,* 16(8), 935-952.

Ruto, S. J., Garrod, G. D., & Scarpa, R. (2021). Valuing preferences for farm animal welfare: A choice experiment approach to African agriculture. *Journal of Agricultural Economics,* 72(1), 131-149.

Swallow, B. M.,

The Presidency of the Republic of South Africa. (2021). *National Evaluation Policy Framework.* Pretoria: Government of South Africa.

Thompson, J. D. (1967). *Organizations in Action.* New York, NY: McGraw-Hill.

Tsikriktsis, N. (2015). A Review of Techniques for Risk Management in Projects. International Journal of Project Management, 33(4), 735-746.

UNEP. (2017). *Guidelines for the Integrated Management of the Watershed.* United Nations Environment Programme.