MONITORING AND EVALUATION SYSTEM AND PROJECT PERFORMANCE: A CASE OF THE NANYUKI OILS LIMITED TEA TREE PRODUCTION IN LAIKIPIA EAST, KENYA

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DECLARATION AND APPROVAL

Declaration by the student

This research project is my original work and has never been presented for a degree in any other University or for any other award.

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Approval by the Supervisor

This research project has been submitted for examination with my approval as the University supervisor**.**

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DEDICATION

This project is dedicated to my husband Martin and our three sons James, Jude and Osvin for their support and patience during my academic journey.

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I acknowledge the Almighty God for granting me the strength and understanding needed to complete this work. I appreciate the contributions of my supervisor Prof. Kennedy Mutundu for his continued advice and guidance during the planning and design of this research project. My gratitude goes to my lovely mother Lucy and my late father Samuel for putting a desire for excellence and self-confidence in me.

ABSTRACT

Monitoring and Evaluation system in Tea Tree production projects are important to ensure targets are met objectively and for the sustainability of climate change resilient farming. In spite of the presence of M&E systems in agricultural projects, most organizations face challenges in performance, such as transparency, resource optimization, stakeholder satisfaction and project sustainability. The current research aimed to ascertain the influence of monitoring and evaluation system on the performance of Nanyuki Oils Limited Tea Tree production project in Laikipia Kenya. Specific objectives were to establish the effect of tools and technologies, M&E planning, M&E control and feedback mechanisms on performance of the project under investigation. The study was pivoted on the theory of change and communicative action theory. It utilized mixed research methods. The population under study was 731 individuals including farmers, project managers, M&E personnel, extension officers and senior leadership. The pilot study involved 25 respondents. A sample of 258 respondents was chosen. Data collection instruments were questionnaire and interview schedules. Data was analyzed using inferential and descriptive statistics, including multiple linear regression and coding of nodes. Reliability coefficient was computed using Cronbach's alpha method and the value obtained was 0.812. Findings implied that all the four M&E system elements had a meaningful positive correlation with the performance of Nanyuki Oils Limited tea tree production project. M&E planning showed the strongest correlation ($r=0.859$, $p=0.000$) followed by feedback mechanisms ($r=0.833$, $p=0.000$). M&E control also had a positive correlation ($r=0.825$, $p=0.000$) while tools and technologies had a correlation of ($r=0.793$, $p=0.000$). Regression analysis confirmed these correlations with M&E planning and feedback mechanism having the greatest effect on performance, while tools and technologies showed an insignificant effect. Based on these findings, it was suggested that organizations perform thorough baseline survey to feed into evaluation design and to validate relevance of indicators chosen during M&E planning. Monitoring and control processes should be strengthened through self-tracking activities and adaptive management. Feedback mechanisms should be reinforced and integrated into decision making processes, to ensure stakeholder input directly inform project implementation and adaptation. Theoretically, the research findings demonstrated support on how M&E enhances causal understanding of what components of the system works and why. Finally, M&E tools need to be upgraded to digital platforms for improved efficiency and accuracy. The insights gained from the research was relevant to policy creators to mandate stronger M&E frameworks by designing guidelines that promote the success and resilience of projects in the agricultural sector, ultimately benefiting the poverty alleviation landscape. The research findings laid a foundation for future studies aimed at identifying and implementing effective M&E strategies tailored to projects in the agricultural sector.

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LIST OF ABBREVIATIONS AND ACRONYMS

FGDs	Focus Group Discussions
KPIs	Key Performance Indicators
M&E	Monitoring and Evaluation
SPSS	Statistical Package for Social Sciences
ToC	Theory of Change
SDGs	Sustainable Development Goals
LOGFRAME	Logical Framework
NGOs	Non-Governmental Organizations
ICT	Information and Communication Technology
GIS	Geographical Information System
MDGs	Millennium Development Goals
ROI	Return on Investment
SPC	Statistical Process Control
PIMS	Project Implementation Management System
SOP	Standard Operating Procedure
ODK	Open Data Kit
MKU	Mount Kenya University
NOLIS	Nanyuki Oils Limited Information System

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Monitoring and Evaluation systems have been widely adopted in various fields such as private sectors and Non-Governmental Organizations, to ensure highly sustainable project outcomes are accomplished (UNDP, 2023). Monitoring and Evaluation (M&E) are crucial tools used in project management to measure the progress, effectiveness, relevance, efficiency and impact of a project (World Bank, 2019). As such, the tools help to assess performance outcomes and demonstrate overall results of development initiatives by assisting organizations to track if they are achieving their goals and making a positive impact.

In the agricultural industry, M&E systems provide organizations with structured approach to gather data, analyze outcomes and generate meaningful insights that inform decision-making (UNEP, 2022). Nevertheless, the M&E systems experience constraints in resource optimization and support for climate resilient farming. Most fail to offer clear direction for effective and sustainable land use by farmers through data driven management. This as noted by Okafor (2021) paralyses operational performance, accountability and sustainability of development initiatives, ultimately offering insufficient support for sustainable development goals (SDGs), which affects avenues of food security and alleviate poverty.

In the global arena as experienced by international institutions such as United Nations Environment Programme (UNEP, 2022) , M&E systems in agriculture are useful for tracking specific indicators such as economic growth, sustainable practices on environmental impact, crop yield and policy implementation. Leaders (2020) indicate that global M&E systems have been

designed as to answer specific questions such as: Is the project delivering on commitments and achieving stated targets, is there an enabling environment for successful implementation, is there consistency of planned interventions and better distribution of impacts. However, the systems face implementation obstacles such as poor planning and weak communication.

In countries such as Canada and China, robust integrated M&E frameworks have been successful in continuous learning, climate resilience and utilization of insights in evidence-based decision-making as shown by the impacts of World Bank Development Programs (Wong, 2012). However, projects implemented in the agricultural sector raise concerns on how much M&E data collected, managed and analyzed is intuitive and well understood for its relevance. Challenges have been progressively experienced including limited utilization of M&E findings in farm systems and lack of training on modern data management tools, which affect data quality. According to Douthwaite et al., (2023), the interplay between effective M&E plans and subsequent performance of organizations has not been fully explored. Therefore there are massive differences between the project's proposed benefits and their actual developmental outcomes.

Regionally, M&E systems in agricultural projects have played pivotal role in ensuring development projects are executed effectively, within budget and on schedule (AfDB, 2021). They are mainly developed with an aim to address the welfare and primary well-being of the citizens as well as reduce price volatility of products. Though experts and development consultants have participated in the framework design, varied experiences and challenges such as lack of transparency in processes have been revealed during project implementation as noted by Kanyamuna et al., (2021). In countries such as Zambia and Rwanda, organizations commit funds for M&E work plan implementation though implementing agencies implement relatively few projects (Kumar et al., 2017). Therefore, organizations are urged to develop clear M&E plans and

set up effective feedback mechanisms as means to strengthening the M&E framework (World Bank, 2022).

In Tanzania for instance, organizations face unpredictable operational landscape due to inadequate M&E systems as shown by Malley et al., (2017). Most studies focused on landscape management do not provide sufficient knowledge on how M&E systems succeed in achievement of objectives related to ecosystem conservation, agricultural production, and sustainable natural resource management as indicated by the author. M&E systems still grapple with efforts to streamline the projects, create collaboration networks and spell out the milestones reached by the implementing agencies as asserted by Busilie (2017). As a result, there is a 10% decrease in productivity curve every year leading to lack of diversification of exports of their produce to neighboring countries such as Kenya. This also leads to weakened regional cooperation and mitigation of external shocks.

Through its National Integrated Monitoring and Evaluation System (NIMES), Kenya has made massive efforts to reinforce M&E frameworks, but notable gaps still exist in its execution at the sub-county level (Republic of Kenya, 2021). Organizations in agricultural sector contain inconsistent M&E systems due to inadequate M&E plans, outdated tools and technologies and weak feedback mechanisms according to the national statistics. Therefore, projects performance is below expectation which is necessitated by inconsistent staff training and lack of adherence to corporate governance practices (AfDB, 2021). According to the report, 48% of Kenyan projects fail to produce expected outcomes, indicating a gap between the projected and actual impact.

World Bank (2021), propose that Kenyan institutions implementing agricultural projects need robust M&E frameworks and strategies, to measure progress and ensure compliance to set standards. Though adherence to policies guide improvement in organizational capacity to execute

projects, this is not always the case. The report indicate that in spite of funders and implementers prioritizing knowledge sharing and production of value for money, the outcomes do not meet the expected threshold. This calls for more targeted approaches to M&E activities to ensure achievement and sustainability of interventions.

Nanyuki Oils Limited (formerly Earthoil Extracts Ltd) is an organization located in Laikipia East Kenya that deals with planting, processing and sale of tea tree oil to Body Shop Company in UK. It owns 50-acre land within its premises and collaborates with over 700 out grower smallholder farmers. There has been continuous participatory learning and adaptation of M&E attributes such as baseline survey of tea tree yields, soil conditions and socio-economic status. Stakeholders are engaged in continuous data collection on weather conditions, fertilizer usage and pests' occurrences, tracking performance indicators such as reduced pests' infestations and yield per hectare per farmer per location. Leaders organize field trips for farmers to places where the program succeeded and engage local communities to gain insights on the project progress and assessment of feedback loop.

Tea tree plant (Melaleuca Alternifoli) is a shrub that was first discovered in Australia and used traditionally as herbal medicine and as an antiseptic. It thrives in temperate, warm regions with loamy soil that is well-drained and a pH between 5.5 and 7.0. Tea tree can withstand light frost, is drought tolerant once established and grows best in full sun or partial shade. It grows up to 6m tall, takes 15 months from planting to harvesting and can be harvested twice a year thereafter. A research done by Carberry, Keating, Bruce, and Walcott (2020) showed the leaves could be distillated through steaming to produce tea tree essential oil useful in treating fungal infections, insect bites repellant, oral health, hair and scalp care, eczema and acne treatment. Introduced in

Mt. Kenya at Laikipia and Kenyan Coast at Lunga Lunga, farmers embraced Tea Tree farming as a primary source of income. This climate change resilient crop has contributed to national and local economies in these semi-arid areas.

Nanyuki Oils Limited has a well-established M&E system for its projects though Tea Tree project performance has been declining by approximately 6% every year. The system was evidently ineffective seen with lack of improvement with subsequent projects (Nanyuki oils magazine, 2022). The system was experiencing various challenges such as under-resourcing the M&E unit in terms of finances and staff, inconsistent feedback loops and use of outdated data collection and analysis tools. This called for deeper investigation to explore to what extent the chosen elements of the system were effective in influencing overall project performance.

1.2 Statement of the Problem

The success and productivity of agricultural projects depend primarily on effective M&E system as asserted by Waithera and Wanyoike (2015). Despite integration of M&E into project management, the findings of a survey to improve farmer's livelihoods through conservation agriculture in Laikipia County show that only 35% of projects are successful (Ndah et al., 2020). In Nanyuki Oils Limited, it was evident from the organization statistics that the M&E system was not fully effective. This was observed from the overall Tea Tree project plan which offered insufficient attention to M&E unit hence it was under-resourced. As a result, the M&E system failed to guide adaptive management leading to poor project performance. Despite the presence of a well-established M&E system in Nanyuki Oils Limited, Tea Tree production project performance rate dropped year after another by approximately 6% (Organizational report, 2023).

A study by Nyakaru and Mungai (2022) on effects of M&E implementation on agricultural project success in Nyamira County indicated that M&E function is faced with many challenges such as ineffective flow of information to all stakeholders and inadequate budget for the M&E unit, and therefore a need to reinforce these areas to improve project performance. The author utilized a semi-structured questionnaire focusing on M&E practices including M&E communication advocacy and M&E financial capacity that are utilized by organizations to enhance project performance. A research by Njiiri (2015) on the influence of M&E strategies on achievement of agribusiness projects in Muranga County showed that M&E docket face challenge due to incompetent M&E personnel and complexity of indicators. The scholar used a survey and argued that knowledge sharing and promoting continuous learning have positive effect on the M&E docket. Njiiri's study focuses on strategies such as indicators, human resource and M&E findings recommending further research on other elements of the M&E framework design to improve performance. There were research gaps in the choice of items in the independent variables. The previous studies centered around design and implementation of M&E frameworks with a few focusing on how specific M&E components such as planning in M&E, tools and technologies, M&E control, as well as feedback mechanisms impact the overall success and sustainability of projects. This gap made it difficult for project managers and policy makers to understand which aspects of M&E systems are most critical for improving performance and under what conditions they are most effective. Prior research also used a single research instrument. The current study utilized mixed methodology to obtain information from the respondents since this offered validation of findings through triangulation. This study therefore addressed these gaps from organizational context perspective, specifically in Nanyuki Oils Limited by examining whether the selected components of the M&E system enhanced the performance of the Tea tree project.

1.3 Purpose of the Study

The study purpose was to analyze the influence of monitoring and evaluation system on project performance. It focused on a case of the Nanyuki Oils Limited Tea Tree production project in Laikipia East, Kenya.

1.4 Research Objectives

The study was pivoted upon the below listed objectives:

(i) To analyze the influence of M&E planning on the performance of the Nanyuki Oils Limited Tea Tree production project in Laikipia East, Kenya.

(ii) To ascertain the influence of M&E Control on the performance of the Nanyuki Oils Limited Tea Tree production project in Laikipia East, Kenya.

(iii) To establish the influence of M&E tools and technologies on the performance of the Nanyuki Oils Limited Tea Tree production project in Laikipia East, Kenya.

(iv) To investigate the influence of feedback mechanisms on the performance of the Nanyuki Oils Limited Tea Tree production project in Laikipia East, Kenya.

1.5 Research Questions

The following research questions were addressed:

(i) To what level does planning in M&E influence the performance of the Nanyuki Oils Limited Tea Tree production project in Laikipia East, Kenya?

(ii) How does Implementation of M&E control influence the performance of the Nanyuki Oils Limited Tea Tree production project in Laikipia East, Kenya?

(iii) To what range does M&E tools and technologies influence the performance of the Nanyuki Oils Limited Tea Tree production project in Laikipia East, Kenya?

(iv) What is the influence of feedback mechanisms on the performance of the Nanyuki Oils Limited Tea Tree production project in Laikipia East, Kenya?

1.6 Justification of the Study

An in-field examination in agricultural projects was important for addressing the knowledge gaps identified earlier in the problem statement. It was important to farmers for effective land use, utilization of available resources and contribution towards improved livelihoods. It was also serious for policy advocacy and formulation to improve implementation of agricultural projects for counties in Kenya. The present study was important for contribution towards improvement of design and research methodology, where other researchers can adopt and enhance its use.

1.7 Significance of the Study

The research offered a thorough and extensive analysis of how the elements of an M&E system influence the performance of projects. It shed light on progressive internal determinants that influence organizational success for agricultural projects in Kenya.

The research findings laid a foundation for further studies. It broadened the scope of knowledge and literature where other researchers can review and add onto their findings. The statistical insignificance of the tools and technologies variable on project performance set a basis for other researchers to explore with larger samples and different methodologies. Understanding the factors that influence effective project management set a basis for identifying and implementing effective agricultural projects, which was tailored to the needs of local farmers and institutions. The review helped project managers who oversee the integration of M&E systems into project management to

set clear objectives and monitor Key Performance Indicators (KPIs). It guided them in obtaining timely data driven information for adjustments and creating adaptive management strategies which improved overall project performance.

The insights gained from the research were relevant to policy makers. By understanding how M&E system elements contribute to better project performance, they were able to design guidelines and procedures that contributed to success and resilience in the agricultural sector. Using the study findings, the industry stakeholders formulated and advocated for practices that aligned with organizational needs, which ultimately benefited the agricultural industry in Kenya. For Nanyuki Oils Limited, utilization of the study findings helped increase yields per hectare, enhanced Tea Tree productivity and increased return on investment.

1.8 Scope of the Study

The study assessed the influence of M&E system on project performance in Laikipia Sub-County. It covered Tea Tree production project farmers in nine locations including Kithithina, Kamangura, Matanya, Gatuanyaga, Marura, Gitero, Kaaga, Mwireri and Mwiruti, operating under Nanyuki Oils Limited. The research specifically examined M&E system components including M&E planning, monitoring and control, tools and technologies as well as assessment of feedback loops with their influence on Tea Tree project performance. The time scope was from March 2025 to April 2025 for gathering data from respondents and report writing. Organizational information from January 2020 to December 2024 was utilized.

The geographic scope was limited to the semi-arid regions of Laikipia East, chosen due to the farmer's adoption of the Tea Tree crop and harsh climatic conditions. The study targeted 731 respondents including 689 smallholder farmers, 3 project managers, 12 M&E personnel, 24

extension officers and 3 members of the senior leadership including the finance director and Lead agronomist. It also focused on the performance of Nanyuki Oils Limited, the organization buying leaves for processing and sale. Data collection involved both quantitative (questionnaire) and qualitative (interviews) methods.

1.9 Limitations of the Study

The participants were reluctant in answering sections that exposed their weaknesses. The researcher assured them that research ethics such as secrecy would be adhered to throughout the study period, and the information would only be used for scholarly purposes. Most farmers were scattered across different locations and this posed transport and timing issues. Assisted by the M&E staff, the researcher took care of this by using readily available motorbikes, and making a schedule with timelines on when to visit each location for data collection.

Self-reported data was exaggerated which would affect study accuracy. The researcher used triangulation, combining the self-reported data with other sources such as observation to cross check and validate responses accordingly.

1.10 Delimitations of the Study

The study was delimited to the period March to April 2025 and focused exclusively on the influence of M&E system on Tea Tree project performance in Laikipia County Kenya. The study used mixed methodology with key tools as questionnaire and interview schedules. Quantitative data analysis was through SPSS software while qualitative data was analyzed using NVIVO software.

The target group included farmers, project managers, M&E personnel, extension officers and members of the senior leadership. Results were only generalized for Laikipia East in the county,

because Tea Tree farmers are concentrated around that area. The research utilized key informants for the interviews chosen through purposive sampling method. The farmers were randomly sampled.

1.11 Assumptions of the Study

The study was based on the assumptions that:

(i) The resources and timeframe apportioned for the research work was sufficient for its completion, and was confined to the objectives and scope of the study.

(ii) The sample size was a good reflection of the population of interest at Nanyuki Oils Tea Tree production project, and the data fetched via the selected research instruments was analyzed precisely and objectively.

(iii) All target respondents participated fully during the study and provided correct and valid information.

(iv) The observations of the study offered beneficial recommendations and insights that enhanced M&E practices at Nanyuki Oils Limited Kenya and other projects in the agricultural industry.

1.12 Operational Definition of Key Terms

Monitoring: It is supervising Tea Tree project activities in progress and biomass to ensure they remain on schedule and within budget during project implementation.

Evaluation: Is Nanyuki Oils Limited M&E staff assessing Tea Tree project to determine its worth and significance.

Development Consultant: These are professionals such as Project manager who have specialization in offering expert advice in M&E, designing systems and providing consultancy services in projects.

Key Performance Indicators: Refers to measurable components such as quantity, profit and sales in Nanyuki Oils Limited that can be tracked periodically to identify areas for improvement in project performance, adjust necessary changes and guide in decision-making.

Stakeholder: Is an individual, group or institution who have entrenched interest in a development project.

Baseline Survey: Refers to initial examination of Laikipia East sub- county situation to gather information on the starting point for a development intervention.

Project: An action with a start and a finish that is carried out to achieve a certain goal under predetermined time and financial constraints.

Biomass: Leaves and branches harvested and distillated using boilers to produce Tea Tree oil.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The analysis of existing literature covers scholarly articles related to the problem under investigation. The focus in reviewing empirical literature is looking into past studies that researched on the connection between the elements in the current research, guiding the identification of research gaps. It includes various theories that underpin this research and their relationship with the study variables. Conceptual framework**,** research gaps and literature review recap are presented.

2.2 Empirical Literature Review

2.2.1 Monitoring and Evaluation System and Project performance

An M&E system comprises several interrelated components that collectively enhance project oversight, learning, and accountability (Njeru, 2016). Key components include M&E planning, data collection tools and methods, institutional frameworks and feedback loops. In agricultural projects, these components ensure that interventions are tracked effectively and outcomes are measured against set goals. According to Sousa, Rodrigues and Basch (2020), a functional M&E system provides a framework for timely and reliable performance tracking, which is critical in agriculture where variables such as weather, input supply, and market conditions can rapidly change.

Koima and Mukulu (2020) define project performance as the assessment of the overall changes brought about by a project, against some predefined benchmarks. Metrics such as transparency, project sustainability and stakeholder satisfaction can be used to measure project performance.

Effective implementation of M&E system components has been shown to significantly improve agricultural project performance. For instance, strong indicator frameworks and baseline data allow for accurate assessment of crop yields, farmer income changes, and technology adoption rates. A study by Mwangi et al., (2015) revealed that agricultural projects in Kenya with structured M&E systems including regular monitoring tools, participatory evaluation methods, and ICT-based reporting achieved higher levels of efficiency and beneficiary satisfaction. Similarly, projects supported by organizations like UNEP and UNDP that integrated feedback mechanisms and adaptive planning tools were more responsive to emerging challenges, thus enhancing overall performance.

A comprehensive review of intervening variables that can affect both M&E system and project performance play a crucial role in shaping the study outcomes. According to Nduati et al., (2024), climatic stability significantly affects agricultural productivity and the reliability of project results, making it a critical contextual factor that M&E systems must account for in planning and performance assessments. Similarly as indicated by Soto, Vente and Padilla (2021), farmers expertise which encompasses knowledge, skills and capacity to interpret and apply project interventions, influence how effectively M&E findings translate into improved practices and outcomes. Without adequate expertise, even well-structured M&E systems may fall short of their potential impact. Additionally; Oino, Towett, Kirui and Luvega (2015) assert that access to markets determine the economic viability of projects, influencing farmers motivation and overall sustainability of projects benefits. Together, these intervening variables mediate the relationship between M&E systems and project success, underscoring the importance of context-sensitive and stakeholder-informed evaluation frameworks.

Despite their importance, many agricultural projects in developing contexts operate with fragmented or under-resourced M&E systems. Common gaps include inadequate M&E planning, lack of stakeholder involvement in evaluation, insufficient tracking of project activities and manual data handling tools and processes as noted by Oino et al., (2015). These weaknesses hinder the ability to track project effectiveness and make timely adjustments. According to World Bank (2012), without coherent M&E systems, agricultural projects may struggle with accountability, experience delays in implementation, and ultimately fall short of achieving their intended impacts. Strengthening each component of the M&E system from planning and tools to analysis and learning remains crucial for maximizing the performance of agricultural projects.

2.2.2 Influence of Monitoring and Evaluation Planning on Project Performance

Monitoring and Evaluation planning plays a critical role in enhancing the performance of projects. It involves the systematic development of tools, frameworks, indicators, and timelines to track project implementation and outcomes (Pellerin & Perrier, 2019). According to the author, an effective M&E plan enables project managers to identify progress, bottlenecks, and areas for improvement early on. Waithera and Wanyoike (2015) indicate that in the context of agricultural projects where timelines, environmental factors, and community engagement are crucial, a well-structured M&E plan is essential for providing clarity on responsibilities, data collection mechanisms, and feedback loops, ensuring that the project remains aligned with its objectives.

Empirical studies have shown that in most agricultural initiatives, strong M&E planning correlates with better resource utilization, accountability, and stakeholder participation. For example, research by Nduati et al., (2024) in Kitui County Kenya highlighted that counties and sub-counties with established M&E frameworks experienced more successful implementation of agricultural

inputs distribution, extension services, and farmer training programs. This success is often attributed to the clear articulation of indicators and regular monitoring schedules, which allow for adaptive management and timely decision-making. Furthermore, Mushori, Machira, and Matu (2020) note that participatory M&E planning, involving local farmers and stakeholders, enhances ownership and increases the likelihood of achieving intended project outcomes.

However, the literature also points to several challenges that undermine the effectiveness of M&E planning in organizations. These include poor baseline survey, weak institutional frameworks, and lack of clear guidelines (Maimula, 2017). M&E is often treated as an afterthought rather than being integrated from the planning stage, leading to poor data quality and weak evaluation practices. Addressing these gaps requires comprehensive baseline surveys, clear budget for M&E unit, and the mainstreaming of M&E in all phases of project development. In conclusion, while M&E planning significantly contributes to agricultural project performance, its success depends on how well it is institutionalized and implemented at the grassroots level.

2.2.3 Influence of Monitoring and Evaluation control on project performance

Monitoring and Evaluation control refers to the processes used to ensure that project activities are executed according to plan, standards are maintained, and deviations are addressed promptly as defined by Soto et al., (2021). In the agricultural sector, M&E control is vital for ensuring efficiency and effectiveness in project implementation. According to World Bank (2019), M&E control mechanisms such as performance audits, regular field inspections, and use of control indicators are essential for identifying risks early, minimizing resource wastage, and ensuring that

project deliverables are achieved within the set timelines. In decentralized settings, these controls provide local project teams with the structure and discipline required for optimal performance.

Research indicates that agricultural projects with strong M&E control frameworks demonstrate higher levels of accountability, transparency, and impact. A UNEP (2022) report showed that the presence of well-defined control procedures, such as regular supervision, compliance checks, and corrective action plans, contributed to timely input delivery, improved farmer satisfaction, and enhanced productivity. This concurred with a research by Ovcina and Kalajdzic (2024) whose findings indicated that M&E controls provide data for informed decision-making, enabling project managers to allocate resources more efficiently and respond to emerging challenges. The integration of technology in M&E control such as mobile data collection tools has also strengthened real-time monitoring and responsiveness in some sub-counties.

Despite these benefits, several challenges affect the effectiveness of M&E control. Common issues include limited risk mitigation strategies, inadequate staffing, unrealistic indicators, and lack of technical expertise to enforce accountability mechanisms (World Bank, 2019). In some cases, M&E control is undermined by poor coordination among implementing partners and the absence of standardized tools. To enhance the impact of M&E control, scholars such as Njuki et al., (2016) advocate for institutionalizing M&E functions, investing in staff training, and involving community stakeholders in oversight roles. Overall, strong M&E control is a crucial determinant of agricultural project success for organizations at the sub-county level, provided it is adequately supported and effectively executed.

2.2.4 Influence of Monitoring and Evaluation tools and technologies on project performance

The integration of Monitoring and Evaluation tools and technologies has become increasingly important in improving the performance of agricultural projects, particularly for organizations operating at the County and sub-county level where resources are often limited and localized decision-making is critical. According to Kumar et al., (2017), M&E tools such as logical frameworks, key performance indicators (KPIs), and data collection templates help structure the evaluation process and provide measurable outcomes for tracking project progress. These tools ensure that project objectives are clearly defined and that progress is systematically monitored, enabling timely interventions when necessary (Thambura, 2023). In agricultural settings, these tools assist in tracking input distribution, yield levels, and farmer outreach, thus contributing to overall project effectiveness.

Technological advancements have further enhanced the capacity of M&E systems to deliver timely and accurate information for decision-making. Tools such as Geographic Information Systems (GIS), mobile-based data collection apps (Google forms, Kobo Toolbox), and cloud-based dashboards have enabled real-time monitoring, improved data accuracy, and better visualization of project impacts (Kombian, 2021; Nduati et al., 2024). A research by Douxchamps et al., (2017) revealed that the use of digital M&E platforms significantly improved communication between field officers and management, facilitated rapid data analysis, and enhanced transparency in project reporting. Additionally, these technologies empower local stakeholders by providing platforms for participation and feedback, thereby fostering accountability and ownership.

Despite the growing benefits, the application of M&E tools and technologies faces several constraints in agricultural institutions. Challenges include limited internet connectivity, inadequate training, resistance to technology adoption, and budgetary limitations (Madamombe, Kasiroori & Pillay, 2024). Many agricultural departments still rely on manual or paper-based M&E systems, which are time-consuming and prone to errors. To overcome these barriers, there is a need for investment in digital infrastructure and the integration of user-friendly and context-appropriate technologies. When well-implemented, M&E tools and technologies have the potential to significantly improve agricultural project performance by enabling data-driven decision-making and more effective service delivery at the grassroots level.

2.2.5 Influence of feedback mechanisms on project performance

Monitoring and Evaluation feedback mechanisms play a crucial role in enhancing the performance of agricultural projects, especially in organizations where decision-making is closer to the beneficiaries. Feedback mechanisms as defined by Akoon (2023) refer to the processes through which information gathered from M&E activities is communicated back to stakeholders, including project implementers, beneficiaries, and policymakers. According to the scholar, timely and constructive feedback enables project teams to adjust activities, improve implementation strategies, and enhance responsiveness to emerging issues. In agricultural projects, this is particularly important for responding to farmers' needs, changing weather patterns, and resource constraints.

Empirical studies have shown that effective feedback mechanisms contribute to increased accountability, better stakeholder engagement, and improved project outcomes. For instance, a

study by Otundo (2024) found that feedback sessions such as farmer forums, field reports, and review meetings enabled implementers to understand local challenges and adapt interventions accordingly. These mechanisms also build trust among stakeholders, drive participatory decision-making, and help track progress against targets. When feedback loops are actively maintained, projects are more likely to meet performance expectations, as they become adaptive and aligned with the realities on the ground as noted by the author.

However, the effectiveness of feedback mechanisms is often limited by several challenges, including poor documentation, delayed reporting, weak communication channels, and minimal involvement of grassroots stakeholders. Studies such as those by Inisha and Elly (2022); Eitzinger et al., (2019) highlight that in many cases, feedback remains a one-way process, with limited attention paid to incorporating community input into project adjustments. To strengthen M&E feedback mechanisms, there is a need to institutionalize regular learning forums, invest in communication infrastructure and incorporate stakeholders concerns into decision-making. Proper documentation and report writing enhance the operation of feedback loops as noted by the scholars. Ultimately, when feedback mechanisms are well-established and inclusive, they significantly enhance the performance and sustainability of agricultural projects in decentralized settings.

2.3 Theoretical Literature Review

The current research examined the theory of change and the communicative action theory. The section critically scrutinized each theory while showing its link to the study variables.

2.3.1 Theory of Change

The project theory of change (ToC) originates from the field of evaluation driven by theories, which gained prominence in the mid-1990s (Coryn, Noakes, Westine & Schröter, 2011). It is

credited to the work of an American Sociologist Evaluator known as Carol Weiss, developed in 1995. Its proponents are Luis Serrat (2017), Reinholz & Andrews (2020) among others with different significant contributions. A theory of change states that steps and pieces useful in contributing to bringing about a given long-term goal should be clearly defined and conditions for success identified (Silva et al., 2014).

In the current research, ToC was relevant in mapping the logical linkages between Tea Tree project inputs, activities, outputs, outcomes and impacts which were essential components of the M&E system. By aligning M&E indicators with each stage of the ToC project teams can track progress and make evidence based decisions (Nkwake & Nkwake, 2020); (Thornton, 2017). Thus, the ToC enhances the strategic use of M&E systems to improve project design, implementation and performance (Lahey, 2015).

In spite of its relevance to the current study and the aforementioned importance in developing designs and approaches to agricultural projects, ToC has been criticized for a few shortcomings for instance; a survey by Carberry et al. (2020) showed that in most agricultural projects, 65% of experts have adopted the use of ToC. However, the adoption holds onto assumptions that farmers will adopt organic fertilizers and participate in sustainable practices if resources are available and training is provided. In reality, this doesn't always hold true since adoption rate depends on factors such as perceived risks, affordability and land tenure security as noted by Repar, Jan, Dux, Nemecek, and Doluschitz (2017).

The ToC informed both the determinant and resultant variables in this study as it depicted how planning in M&E help various stakeholders to develop plans and verify if the project is progressing as planned using tools and technologies. It therefore provided an overview in conceptualizing the

influence of M&E planning and control as well as adoption of tools and technologies on project performance in Nanyuki Oils Limited.

2.3.2 Communicative Action Theory

A German philosopher known as Jurgen Habermas in 1990 upheld the communicative action theory**.** It states that interactions between items in systems is based purely on human communication with the goal of achieving some established goals. The focus is not on individual gain but reaching mutual consensus, avoiding communication break offs and aligning stakeholder expectations (Honneth & Joas, 2015). Proponents include Axel Honneth, Nancy Fraser and Seyla Benhabib among others.

Besides focusing on tools, indicators, frameworks and methodologies, an effective M&E structure is shaped by human involvement in data collection, interpretation and use in decision-making as noted by Fraser (2015). This theory supports the idea that project performance improves when M&E processes are not merely technical but encourage transparency, learning and collaboration. Therefore, the theory provides a strong foundation for understanding how communicative practices within M&E systems can enhance accountability, responsiveness and overall project success.

Despite its relevant to this study and importance in effective project delivery, communicative action theory exposes inequalities in contribution to M&E practices limiting the ability of farmers to thrive equally due to power imbalances. According to Honneth and Joas (2015), the exclusion can also pose challenges to researchers in measuring effectiveness empirically, leading to difficulties in validating the theory.

The rationale behind this theory was that communication, mutual understanding and collaboration pivots M&E system components in contributing to performance improvement in agricultural projects. The theory informed the current study by emphasizing transparency, participation and dialogue among project stakeholders activating the planning, control and feedback mechanism of M&E system. It aided in the assessment of whether M&E system acted as a guiding tool in the project processes for improvement rather than a bureaucratic practice with less real impact.

2.4 Theoretical Framework

The theory of change anchored the independent variable which is M&E system from the study title. It provided a clear guide in M&E planning, control and evaluation of development projects towards desired outcomes (Reinholz & Andrews, 2020). It also encapsulated the utilization of M&E tools and technologies in tracking progress, measuring performance, assessing impacts and optimizing resources all geared towards performance improvement (Bradshaw et al., 2024).

The communicative action theory was fundamental to this study as it focused on the human component of both the dependent and independent variables. Communication not only offer information exchange, but also comprises mutual consent, coordinating actions and feedback mechanisms that are responsive to stakeholder's interests (Fraser, 2015). Effective communication during project implementation therefore ensures team members, decision makers and stakeholders are aligned on timelines, objectives and expectations (Thornton et al., 2017). The theory was found appropriate in linking both the dependent and independent variables from the study title. In their ideas, Honneth and Joas (2015) focused on how feedback mechanisms function to ensure M&E system align expectations with project objectives. This as asserted by Njuki et al., (2016) ensures

stakeholder engagement and satisfaction throughout the lifecycle of the project, leading to improved transparency and enhanced accountability.

The theories in this study depicted that M&E systems offer a solid framework for continuous learning, accountability and improvement. This makes it significant in achieving sustainable outcomes by ensuring projects meet their intended purpose efficiently and effectively (Lahey, 2015). They elaborated clearly how M&E function in agriculture influence the performance of projects. This research study provided an opportunity to challenge and test these empirical findings and developed frameworks. It verified their relevance and applicability, thus contributing to improvement and development of the theories further.

2.5 Conceptual Framework

The conceptual framework familiarizes the researcher with the interaction across different variables under study. It indicates the influence of the predictor variables on the outcome variable in a diagrammatic format. According to Mugizi (2019) a conceptual framework also known as a concept map, is a visual representation that shows the connections between various constructs, concepts or variables in a study. The independent variables in the framework fell under M&E system with the following elements: M&E planning, control, tools & technologies and feedback mechanisms. Project performance was the dependent variable.

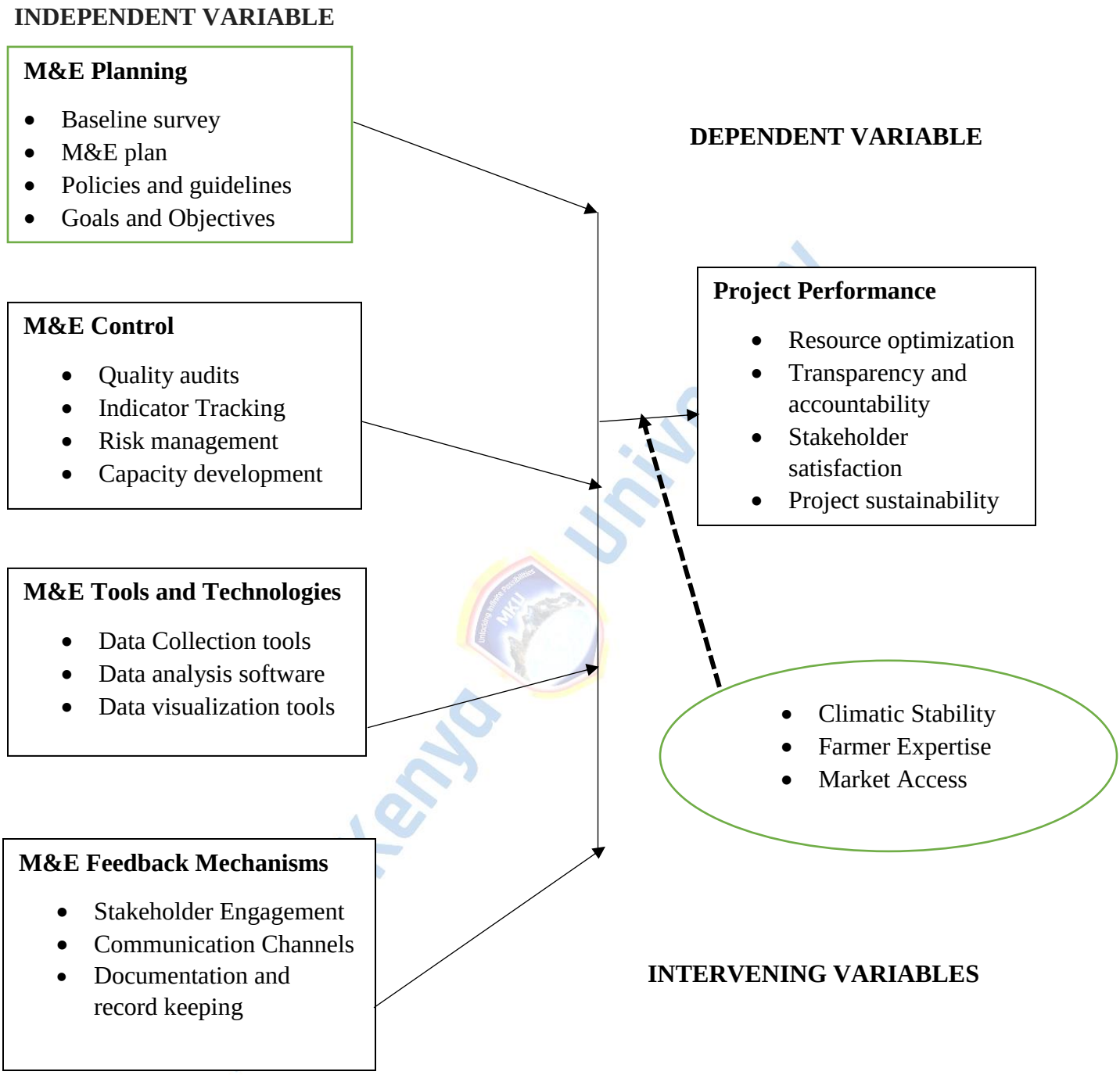


Figure 1: Conceptual Framework

Source: Researcher, 2025

2.6 Research Gaps

Scholarly work underscored the essence of this investigation that it was necessary to reinforce M&E systems, especially in the local contexts, to make guided decisions that ultimately improve project accountability, transparency and sustainability (Maimula, 2017). Encouraging all project stakeholders to participate in M&E planning and control to ensure the systems are rooted in real world experiences was one among the many ways through which this was achievable. Farmers are responsible for tracking agreed upon indicators and providing necessary feedback, which encourages ownership and local contextualization in evaluation of project outcomes (Inisha & Elly, 2022). Many researchers have therefore stressed the importance of an effective M&E system in its contribution to interventions in the agricultural sector (Madamombe et al., 2024; Nyakaru & Mungai, 2022; Thambura, 2023).

In their research, Mushori et al., (2020) exposed the challenges faced by consultants in developing M&E plans that link global M&E systems with local ones. There is a setback in designing frameworks that align with global technologies and are still applicable and practical to local contexts. Efforts have been directed to utilize latest M&E tools and technologies and enhance reporting systems to reflect local realities and maximize on overall performance as noted by Sousa et al., (2020), but there is still a knowledge gap since information on these elements is rare. There was therefore a need to research and analyze the influence of the selected components in project performance of the Nanyuki Oils Tea Tree production in Laikipia East, Kenya. This was the first study of its kind to be done in the local area.

2.7 Recap of Literature Review

The M&E system concept was reviewed in its totality noting the core function it has in upholding the productivity and effectiveness of produce for farmers. The section highlighted the challenges that farmers face, the roles of stakeholders and use of an effective system in settling the issues for optimum project performance. The selected components were analyzed with respect to their contribution to the enhancement of project performance. Established theories applicable to the study were also assessed, particularly the theory of change and the communicative action theory. Underexplored areas were outlined that provided a blue print and a justification for this investigation.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This section detailed the methodology, design, study locale, sampling procedures and sample size, target population, data gathering methods and instruments. It additionally covered the accuracy and dependability of research instruments, data analysis protocols and ethical considerations.

3.2 Research Methodology

This research utilized mixed methodology. Mackey and Bryfonski (2018) define mixed methodology as a technique that uses both numerical and descriptive methods in the same study. According to the author, the use of both methods ensures triangulation where weaknesses in one method can be neutralized by the other.

Quantitative research approach as defined by Mugizi (2019) focus on systematically investigating characteristics of a phenomenon using numerical datasets. The current study used close-ended questions in structured questionnaire on participants to collect data relating to M&E system components. As asserted by the scholar, quantitative methods are mostly used in modern research since they are powerful in studying larger groups by making generalizations from the sample under study.

The research also utilized qualitative research approach using interview method. This aided in comprehensively understanding the organizations M&E system in depth. It also provided rich information that aided in testing the appropriateness and applicability of theories in this study. William (2024) note that quality in-depth information aid in assessing the level of organization adoption and practices allowing for an inductive approach. According to Alamri (2019) the

strength of qualitative research lies in its ability to explain, investigate and address the 'how' and 'why' questions in a study. It focuses on interpretivism, which is based subjectively on how people give meaning to the world around them. Their views are generated from their knowledge, social phenomena or their own lived experiences (William, 2024). In the current study, interviews were utilized to capture qualitative responses.

3.3 Research Design

Descriptive research design aims at collecting and analyzing data systematically, then documenting findings with an intention of portraying the characteristics of a given situation or population (Sharma, Jha, Koirala, Aryal & Bhattarai, 2023). The researcher chose this design because it allows for a comprehensive qualitative and quantitative examination of the behaviors of specific groups and characteristics of phenomena. This facilitates collection of large amounts of data for analysis and clarity of concepts guiding further research studies. Borrowed from Funduluka et al., (2023) concurrent triangulation design was used to merge the data from both the numerical and descriptive analysis at the results level.

The descriptive design helped to describe how the independent variables including M&E planning, control, Feedback mechanisms as well as M&E tools and technologies affected the dependent variable which is project performance. The design was used to gather information on these components of M&E system in local organizations using the selected data collection instruments. The design guided in answering the question; how does M&E system affect the performance of Nanyuki Oils Tea Tree production project?

3.4 Location of the Study

The research was carried out in Nanyuki Oils Limited located in Nanyuki town, Laikipia East Sub-County in Laikipia County. The organization is located 850m from Nanyuki town which has been growing rapidly due to the many wildlife conservancies in the area attracting tourists and immigrants. The organization was selected because it was the first to adopt the growth and sale of tea tree in the Sub-County, and most livelihood improvements in this local area have been attributed to its intervention. The study covered farmers attached to Nanyuki Oils Limited who are the main project beneficiaries. Laikipia East sub county has a cool climate with mean annual temperatures which rises moderately between 22°C and 24° C fit for the growth of Tea Tree, which does best in temperatures between 14°C and 27°C. Laikipia East sub-county has a poverty index of 43.2%. This called for remedial actions especially approaches in reinforcing M&E systems in agricultural sector, specifically the growth of Tea Tree crop which is climate change resilient and which forms a major revenue stream leading to improved livelihood for locals.

3.5 Target Population

This comprises the entirety of stakeholders with information and characteristics the researcher aims to study (Cooper & Schindler, 2014). The target population for this study comprised 689 farmers, 3 project managers, 12 M&E personnel, 24 extension officers and 3 members of the senior leadership.

Table 1: Target Population

Categories	Target Population
Farmers	689
Project Managers	3
M&E personnel	12
Extension Officers	24
Senior leadership	3
Total	**731**

Source: (Organizational database, 2024)

3.6 Sampling Procedures and Sample Size

Sample selection as noted by Sharma (2017) refers to an approach used by investigators to deliberately select a few, yet representative members from the entire group in advance. According to the author, the selected subset serves as the source of data for experimentation based on the study objectives. The current study utilized both purposive and simple random sampling. Noor, Tajik and Golzar (2022) argue that in simple random sampling, each element of the homogenous population has equal chances of being selected without bias. According to Etikan, Musa, and Alkassim (2016), purposive sampling is a non-random sampling technique whereby the investigator selects the respondents depending on their knowledge or experience of their topic of interest.

Yamane formula was used for sample size calculation as indicated below:

$$n = \frac{N}{1 + [N\,(e)^2\,]}$$

Whereby:

n = No. of Samples

N = Total Population

e = Error Range = (0.05)

$$n = \frac{731}{1 + (731 * 0.05^2)}$$

n = 258

Table 2: Sample Size and Sampling Procedure

Categories	Target population	Sample size	Sampling procedure
Farmers	689	243	Simple random Sampling
Project Managers	3	2	Purposive Sampling
M&E personnel	12	5	Purposive Sampling
Extension Officers	24	7	Purposive Sampling
Senior leadership	3	1	Purposive Sampling
Total	**731**	**258**	

Source: (Researcher, 2025)

The sample size for this study as shown above was 258 respondents obtained through simple random sampling of 243 farmers and a purposive sampling of 2 project managers, 5 M&E

personnel (1 M&E specialist, 3 monitoring staff and 1 data analyst), 7 extension officers and 1 senior leadership (Lead Agronomist).

3.7 Construction of Research Instruments

The current research utilized interview schedules and a structured questionnaire to collect raw data in both qualitative and quantitative forms.

3.7.1 Questionnaire

A structured questionnaire allows data collection using closed questions from respondents. It is specific, clear and contain pre-determined enquiries (Taherdoost, 2022). According to the author, the questions have identical sequence and wording and are presented to all respondents uniformly. Questionnaires are easy to administer, reduce discrepancies and provide more reliable results enabling simplification of data management. The structured questionnaires are commonly coded and offer a distinct pattern hence utilized in various data collection procedures (Aung, Razak & Nazry, 2021). The questionnaires were targeted to Nanyuki Oils Limited farmers.

3.7.2 Interview Schedule

Alamri (2019) indicate that interview schedules are the most common instruments used to collect qualitative data since they offer structured general questions, themes and topics more freely. The open questions allow further probing guiding in-depth collection of data from the key informants. The scholar note that they offer improved focus on research objectives and provide easier comparison of responses guiding trend analysis. The interview schedules focused on senior leadership, project managers, M&E personnel and extension officers in the present study.

3.8 Testing for Validity and Reliability/ Trustworthiness

3.8.1 Testing for Validity

Validity as shown by Roebianto, Savitri, Aulia, Suciyana, and Mubarokah (2023) indicate the magnitude to which a research tool effectively measures the specific variable it's intended to assess. According to Sürücü and Maslakci (2020), content validity of a measuring instrument refers to an assessment that examines how well each item in the research instrument aligns with its intended purpose.

Piloting focuses on validating the research instruments in real scenarios as noted by Majid (2017). It is therefore used to ascertain the feasibility of the research instruments in the research process. The pilot study for the questionnaire involved 25 farmers, which was 10% of the sample used. It also involved 2 interviews, one from M&E personnel and another from an extension officer all chosen randomly. Only relevant questions that assessed the indicators of the study variables were utilized in the questionnaire and interview schedule. The participants in the pilot study were excluded in the main study.

Fernández et al., (2020) note that expert judgement can serve to measure content validity by use of a content validity index (CVI). As the CVI value approaches 1, it signifies a stronger consensus among the experts providing a greater justification to include components in the instrument. The current study utilized 2 expert judges obtained from Mount Kenya University supervisors in the M&E field and 2 respondents from the pilot study to assess content validity and integrated their feedback to refine the questions.

3.8.2 Testing for Reliability/ Trustworthiness

Reliability refers to consistency of results obtained from a measuring instrument, taken multiple times under identical conditions as noted by Sürücü and Maslakci (2020). According to the author, it focuses more on the dependability of the results obtained from the measuring tool rather than the quality of the instrument itself. Ghazali (2016) argue that internal consistency reliability aim at examining the correlation between all items within constructs. This guides the verification that the items are measuring the same concept or idea. The study used Cronbach's alpha coefficient to assess the questionnaires validity. (***a)*** was calculated from the pilot study and since it was 0.812 which is > 0.7, the tool was deemed sufficient for use as indicated by Roebianto et al., (2023). A coefficient of 0.7 or higher for each item indicated the instrument was valid as noted by Aung et al., (2021). In the current research, the pilot review of the research tool was replicated on the same participants (test-retesting method) after 5 days. The findings were used to verify whether the other instruments were consistent. Reliability was also observed by ensuring the questionnaires were legible, by use of simple understandable language and comprehensive data cleaning.

3.9 Data Collection Methods and Procedures

Quantitative data was gathered using a structured questionnaire, which collected close-ended questions allowing more flexibility in responses. Qualitative data was through interview schedule. The researcher obtained a letter of identification from MKU and an authorization letter from the National Commission for Science, Technology and Innovation (NACOSTI). The scholar shared questionnaires on email to farmers and hand delivered to those without email with the help of the M&E staff. They were given 7 days to fill and return them back. The researcher conducted the interviews in person and captured the responses from the participants. Research ethics were observed throughout the research process.

3.10 Data Analysis Techniques and Procedures

Once the data collection exercise was completed, the researcher checked the submission and completion of the data collection instruments. Quantitative analysis was through SPSS software (Version 22). Descriptive statistics was applied and data presented using frequency distribution tables, graphs and charts. This guided the development of indices that determined the predictable relationship of variables under study. Kaur et al., (2018) indicate that descriptive statistics guide the summarization of data in an orderly manner by explaining the interrelation of variables in a dataset.

The current study also utilized inferential statistics specifically multiple linear regression. Inferential statistics aim at linking a sample with the larger population from which it was obtained as noted by Farren (2018). According to the author, the researcher makes generalizations for the entire population using the sample findings, since they do not have the data for the whole population unless they are conducting a census where they study characteristics of the entire population. Uyanık and Güler (2023) indicate that regression analysis is a tool used to examine the relation between variables that have a causal relationship. According to the author, it utilizes one dependent variable and multiple independent variables. The regression model on the influence of M&E system on project performance was as follows:

$$Y=\beta_0 +\beta_1X_1+\beta_2X_2+\beta_3X_3+\beta_4X_4+e$$

Where:

β_0= Constant term

$\beta_{1....4}$= Beta Coefficients of the respective M&E system components

Y= Project Performance

X_1= Planning in M&E

X_2= M&E Control

X3= M&E Tools and Technologies

X_4= Feedback Mechanisms

e= Error term

The model utilized gauged the contribution of individual independent variables and investigated the extent to which each of them influenced the resultant variable.

Qualitative analysis was through NVIVO 15 software which involved categorization of responses into codes. Generated report was used to make thematic interpretations of the study findings.

3.11 Ethical Considerations

The researcher observed the ethical guidelines throughout the research process. He/she conducted his own original work based on their own capabilities and avoided using other researches without the owner's permission. The researcher also secured a letter from Mount Kenya University and a license from the NACOSTI as permission to conduct the research and obtain access to participants. To avoid biasness in the research process, he/she sampled farmers randomly and remained trustworthy and objective in reporting feedback from the respondents.

The researcher made the purpose of the investigation clear and ensured that the respondents participated willingly without being coerced. This was achieved through issuing them with a consent statement just before the exercise. He/she offered an assurance that personal information

obtained from them would not be exposed through any form of communication and would remain private. They ensured that the information would be utilized only for the purpose for which it was collected. The researcher also made sure the respondents remained unknown. This encouraged them to be transparent in their responses.

The researcher protected the unanticipated possibilities that could deter the authenticity and credibility of the study. He/ she took full responsibility of the data collected, analyzed and the outcomes of the research work. This was facilitated by the active participation and presence at every phase of the process. All the data collected was securely stored and prevented from unauthorized access by other users.

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSIONS

4.1 Introduction

This chapter deals with the analysis and interpretation of data regarding the influence of M&E system and project performance of Nanyuki Oils Limited Tea Tree production project. The section presents the questionnaire completion rate, descriptive statistics and the inferential analysis of selected variables under study. Additionally, it details the project performance rating, regression analysis and summary of findings with regards to literature review. This section also details interview transcripts analysis using matrix diagrams and mind maps which represents the thematic structure derived from the data. They illustrate the relationship between main themes and sub themes identified through thematic analysis. Triangulation with quantitative findings is covered. The outcomes are conveyed as per the objectives of the study using tables, charts, descriptive explanations and thematic interpretation.

4.2 Research Presentation, Interpretation and Discussions

4.2.1 Response Rate

The study's sample size for the questionnaire was 243 farmers. The overall response rate is presented in the figure below:

Figure 2: Response Rate

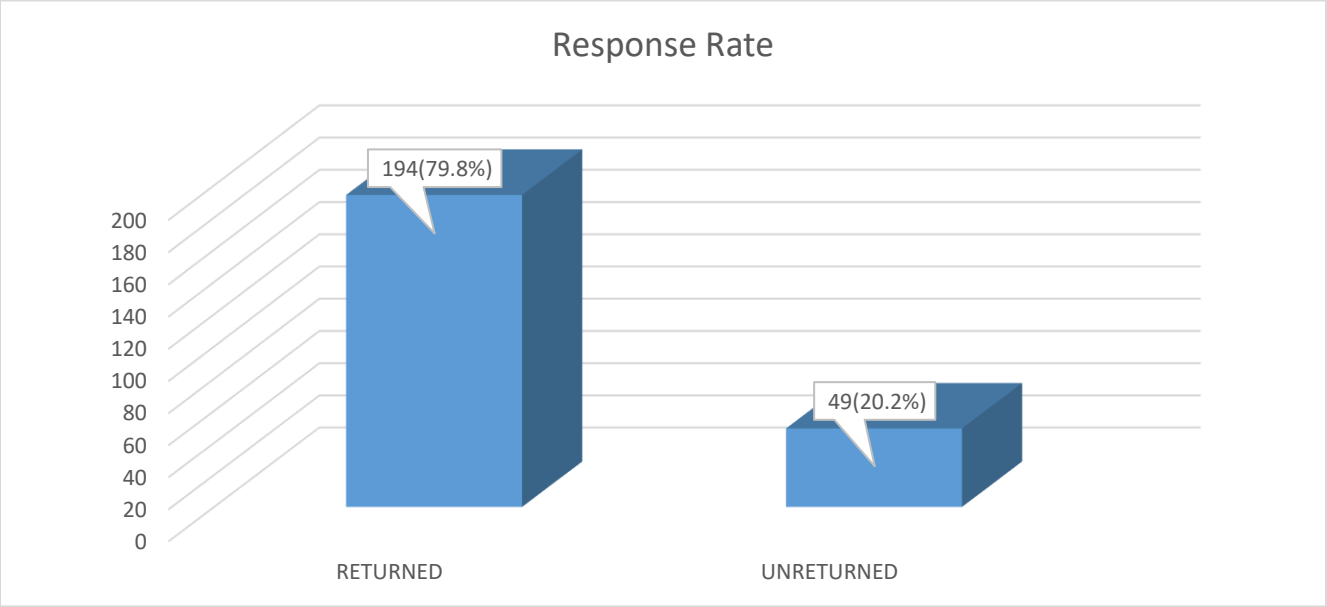


Figure 2 show that 243 questionnaires were sent to farmers and out of the total, 194 which accounted for a return rate of 79.8% were completed and returned. 49 questionnaires which registered a non-return rate of 20.2% were either incomplete or not returned. Bell, Harley and Bryman (2022) indicate that a response rate of 50% is acceptable, 60% is good and one exceeding 70% is excellent for analysis and publication. Thus, a response rate of 79.8% was considered sufficient for analysis since it provided a valid basis to draw conclusions.

4.2.2 Reliability Test

Table 3: Reliability of Study Variables

Items	Cronbach's alpha (***a***)
1. M & E Planning	0.854
2. M & E Control	0.782
3. M & E Tools and Technologies	0.708
4. Feedback Mechanisms	0.841
5. Performance of Tea Tree Project	0.873
6. **Survey Questionnaire (Aggregate**)	**0.812**

Source: Pilot Study (2025)

The overall reliability score summarizing all items used in the questionnaire was 0.812 as shown in table 3 above. Every variable's reliability test was >0.7, indicating that the questionnaire was reliable as noted by Kennedy (2022). The tool was therefore suitable in examining the effect of M&E system on the performance of the Nanyuki Oils Limited Tea Tree production project in Laikipia East, Kenya.

4.2.3 Demographic Information

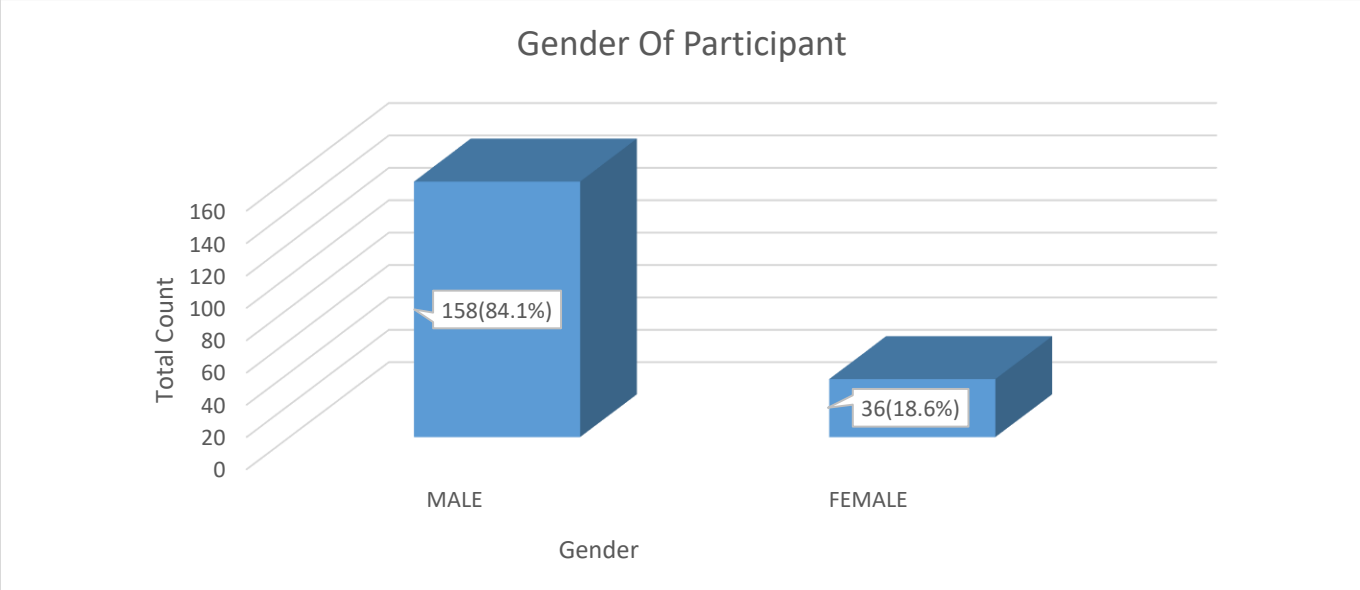
This sub-section outlines information on the demographic details of the study respondents including farmers attached to Nanyuki Oils Limited in Laikipia East, Kenya. Demographic information consisted of participant's age, gender, education level and household size. These factors provide a rich background for articulating the complexities of Tea Tree production project

within the scope of the study. The elements work together to provide an extensive analysis that guide decision-making process and offer more targeted interventions.

4.2.3.1 Gender of Respondents

Examining gender-based interactions ensures that inconsistencies and gender disaggregated characteristics on roles and experiences in a project are thoroughly analyzed.

Figure 3: Gender of Respondent



According to fig. 3, participant's gender analysis indicate that 84.1% (158) were male while 18.6% (36) were female. The study considered both genders since it was important to grasp their diverse viewpoints of aspects such as feedback mechanisms pertaining to this research. This was useful in capturing gender-specific experiences regarding Tea Tree project implementation. The finding show a huge gender imbalance indicating a need to formulate gender-sensitive policies in farm systems.

4.2.3.2 Education Level

Respondent's education level provide an overview into their knowledge and capacity in contributing information regarding the study variables.

Figure 4: Education Level

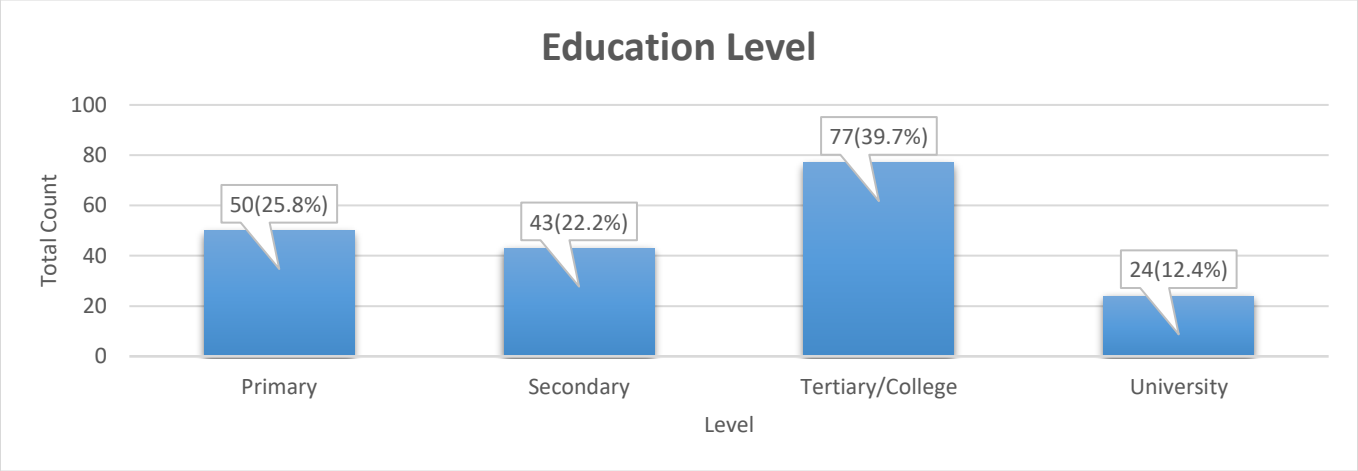
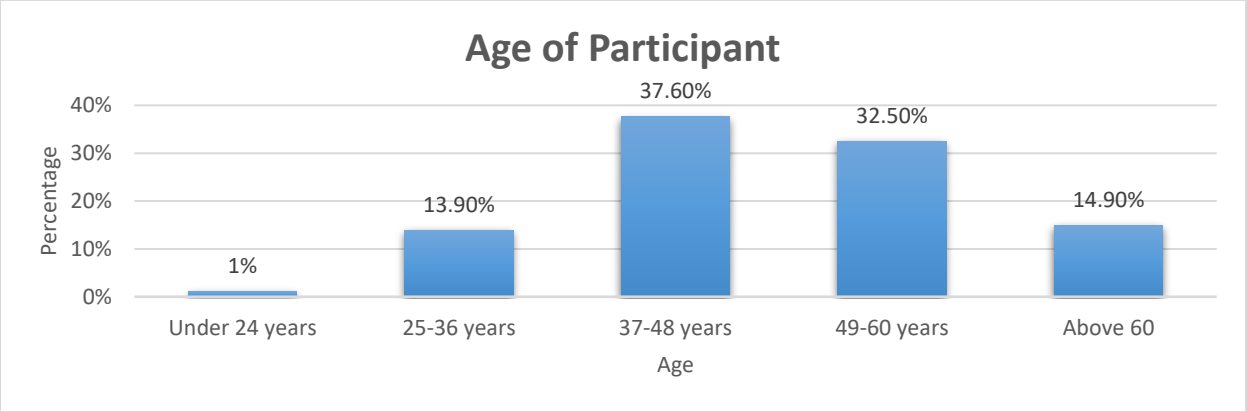


Figure 4 show that majority of respondents 77 (39.7%) stated that they had earned tertiary/college level knowledge, 43 (22.2%) attained secondary certification, 50 (25.8%) primary level while 24 (12.4%) were university graduates at the time of this study. The level of education can impact how participants perceive and implement M&E practices. Since majority had a solid educational background, it implied that they understood M&E system operation and strategies well enough to respond to each question from a point of information.

4.2.3.3 Age of Respondent

Participant's age provides a comprehensive project understanding through generational lens and offers diverse insights into demographic patterns in farm projects.

Figure 5: Age of Respondent

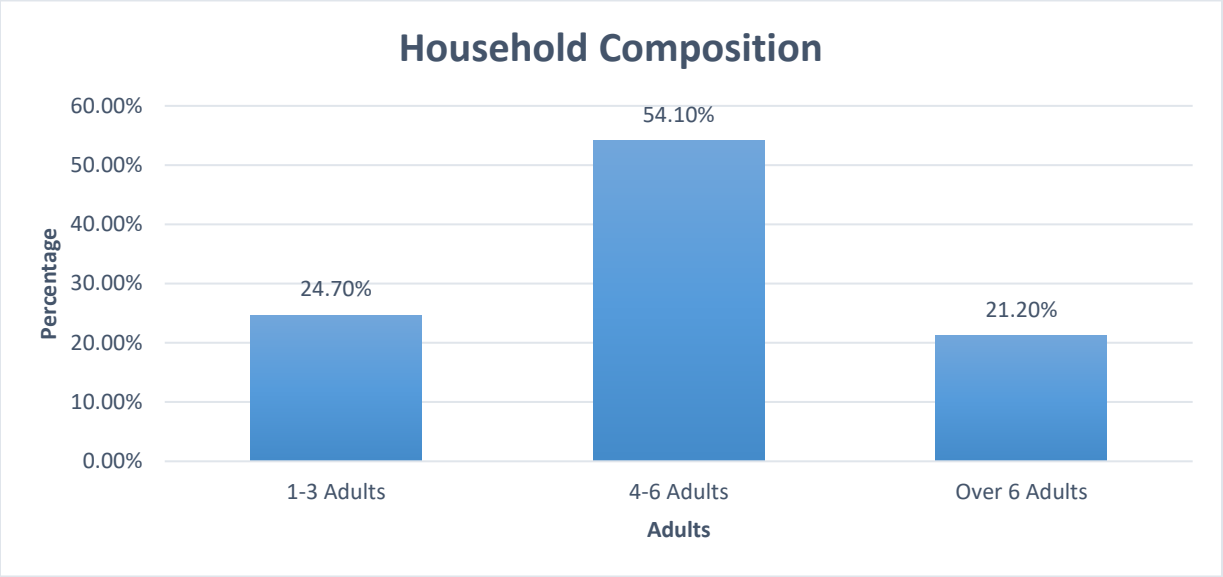


At the time of this study according to fig. 5, most respondents (37.6%) were in the 37 to 48 age bracket followed by participants aged between 49 to 60 (32.5%). Participants above 60 accounted for 14.9%, those between 26 to 36 comprised 13.9 % while those under 24 years were 2 (1.1%). This provided diverse sets of experiences regarding M&E system in Tea Tree project. The reality that middle-age cohort accounted for the higher percentage (37.6%) was a perfect indication of experience driven creativity in M&E activities for better project performance.

4.2.3.4 Household Composition

Household composition assesses the available labor during participation in farm monitoring activities.

Figure 6: Household Composition



According to fig. 6, family members in the household analysis indicated that 24.7% (48) were between 1-3 adults, 54.1% (105) were 4-6 adults while 21.2% (41) households had over 6 adults. Many household adults indicated a high level of participation in field monitoring activities pertaining M&E control element in this study.

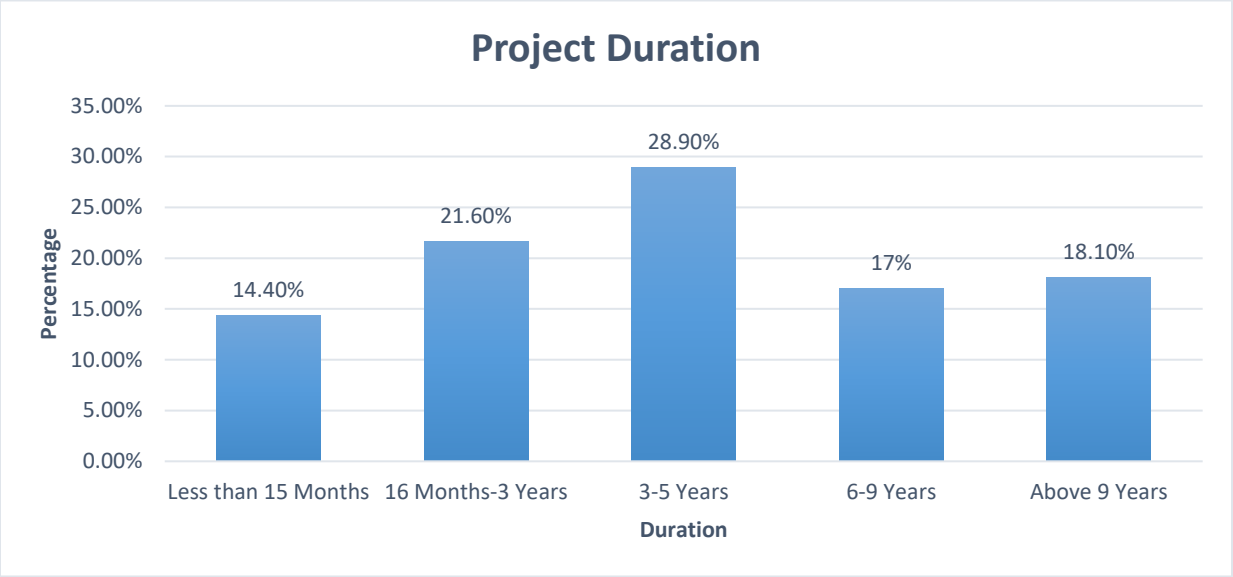
4.2.4 General Project Information

This section captured primary data on location of the farmers, status of the project, position of respondent in the farm and duration of engaging in the project. These elements offered a broad overview of project background and assured reliability of responses from the participants.

4.2.4.1 Project Duration

Amount of time within the project is imperative because it shows skill and experience of study participants and their interactions with M&E system elements over time.

Figure 7: Project Duration



At the time of this study as shown in fig. 7, 28.9% (56) of the participants had engaged in Tea tree project for a period ranging from 3 to 5 years, 21.6% (42) from 16 months to 3 years, 17.0% (32) from 6 to 9 years, 14.4% (28) for less than 15 months and 18.1% (36) for more than 9 years. This generated project-specific knowledge and multifaceted experiences over the years from the participants.

4.2.4.2 Title in the Farm

Participant's position in the farm provide confidence in the validity of study findings.

Figure 8 Respondents position in farm

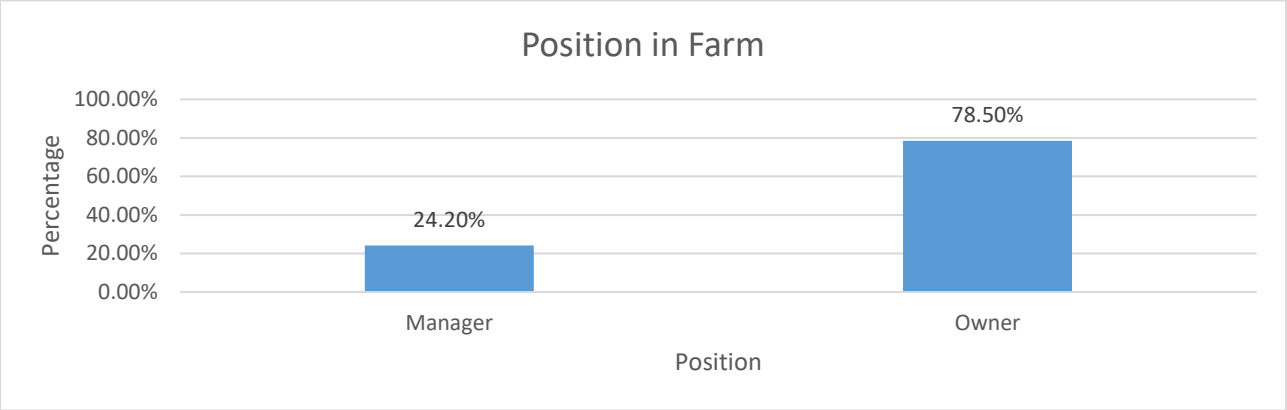


Fig. 8 depict that 75.8% (147) of the respondents owned the farm while managers constituted 24.2% (47). This offered a stable assurance that information provided by farm owners focused on Tea Tree project vision and long-term sustainability. The managers also provided information based on day to day project implementation and operational challenges. This offered an overhaul conceptualization of the Tea Tree project execution.

4.2.4.3 Location of the Farmers

Analyzing data according to location guides visualization of geospatial patterns which aid in monitoring project progress, development of targeted mitigation strategies and resource optimization.

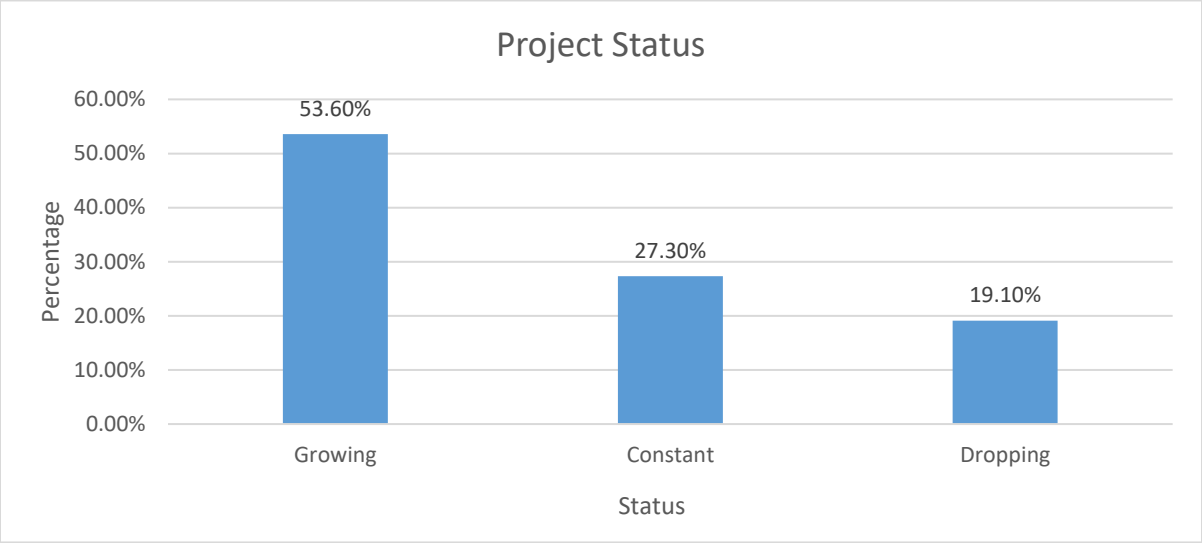
Figure 9: Location of the Farmers

Figure 9 presents findings on respondent's location. Sample analysis indicated that the respondents were distributed within project areas with 10.8% (21) from Kamangura, 19.1% (37) from Matanya, 8.2% (16) from Gatuanyaga, 10.8% (21) from Marura, 15.5% (30) from Gitero, 13.4% (26) from Kaaga, 6.7% (13) from Mwireri, 8.2% (16) from Kithithina and 7.2% (14) from Mwiruti. The blend of diverse locations necessitated collection of context-specific information which ensured inclusivity and provided a uniform representation of Tea Tree project population.

4.2.4.4 Project Description

Project status indicate the direction of the project informing decision-makers on areas needing improvement.

Figure 10: Project Description



According to fig. 10, 53.6% (104) of the respondents reported that the project was growing, 27.3% (53) reported it to be constant and 19.1% (37) felt it was declining at the time of this study. The mixed reactions signified that though the project implementers were putting much efforts towards better performance, most farmers lacked much of project information hence described it to be dropping.

4.3 Discussion of Individual Objective Results

4.3.1 Monitoring and Evaluation Planning and project performance

The study's first aim was to examine how M&E planning influenced the performance of Tea Tree production project of Nanyuki Oils Limited in Laikipia East. This section discusses the findings on the planning in M&E and its effect on project performance.

4.3.1.1 Descriptive Statistics on M&E Planning

Table 4 below gives an extensive summary of participant's views on several aspects of monitoring and evaluation planning concerning Tea Tree project in Nanyuki Oils Limited. The survey tool

fetched information on topics such as farmers' awareness of M&E strategies and procedures, clarity of project goals and objectives, baseline data collection and communication of policies and Tea Tree project standard operating guidelines. This comprehensive analysis offered useful insights about procedures and processes related to M&E planning.

Table 4: Rating of M&E planning in Tea Tree Project Performance

	Highly reject	**Reject**	**Neutral**	**Accept**	**Highly accept**	**Total**
	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)
Farmers are well trained on M&E procedures	0(0.0%)	7(3.6%)	47(24.2%)	140(72.2%)	0(0.0%)	194(100.0%)
Tea Tree project goals and objectives are clear	0(0.0%)	7(3.6%)	35(18.0%)	152(78.4%)	0(0.0%)	194(100.0%)
Baseline surveys are conducted	5(2.6%)	9(4.6%)	47(24.2%)	133(68.6%)	0(0.0%)	194(100.0%)
Budget and resources for M&E activities are available	0(0.0%)	7(3.6%)	37(19.1%)	150(77.3%)	0(0.0%)	194(100.0%)

In the examination of M&E planning in Tea Tree production project, majority of the participants (72.2%) agreed that farmers are well trained on M&E strategies and procedures, while 78.4% accepted that Tea Tree project goals and objectives are clear and understandable. Additionally, a significant proportion (68.6%) agreed that baseline surveys are conducted in time and the data obtained is utilized for progressive project monitoring and impact assessment. Lastly, in the investigation on whether Nanyuki Oils Limited communicates policies and project guidelines while incorporating farmers concerns, majority of the respondents constituting 77.3% offered a solid agreement. Generally, the responses provided positive indications and a broad agreement to

the influence M&E planning has on the performance of Nanyuki Oils Limited Tea tree production project in Laikipia East Sub-County.

Table 5: Descriptive statistics on M&E Planning

Descriptive Statistics			
Statement	**N**	**Mean**	**Std. Deviation**
Farmers are well trained on M&E procedures	194	3.69	.538
Tea Tree project goals and objectives are clear	194	3.75	.512
Baseline surveys are conducted	194	3.59	.702
Budget and resources for M&E activities are available	194	3.74	.517
Aggregate Mean and Standard Deviation	**194**	**3.69**	**.567**

The findings of table 5 indicated that the respondents generally attested that they are often trained on M&E procedures, as reflected by a mean of 3.69. This implied that Nanyuki Oils Limited consider farmers not just as beneficiaries but as active stakeholders who can contribute to monitoring Tea Tree project activities. There was low variation (standard deviation of 0.538). Similarly, the participants had varying opinions on clarity of project goals and objectives, as demonstrated by a mean of 3.75. This implied that there was a common understanding of what the project aimed to achieve holding teams accountable for results. The variation was also low (standard deviation of 0.512).

The participants confirmed that baseline surveys were conducted before project implementation, confirmed by a mean of 3.59. There was low variation (standard deviation of 0.702). This implied that the organization had a clear picture of initial conditions which informed project design to capture the real needs of the farmers, as well as conduct successful impact assessments. Additionally, budget and resources for M&E activities were available on need basis demonstrated by a mean of 3.74. The variation was low (standard deviation of 0.517). This means that the organization performs realistic planning of activities leading to project cost effectiveness.

With an aggregate mean of 3.69 and a low variation (standard deviation of 0.567), the findings indicated strong agreement on the importance of M&E planning in ensuring resources are allocated effectively, deviations are identified early and stakeholders are satisfied. These insights emphasized the need for comprehensive M&E planning to promote accountability and transparency of processes in agricultural projects.

These outcomes agree with Mushori et al., (2020) who stipulated that M&E planning influences project performance by setting clear objectives and defining measurable indicators. It also aid in establishing a roadmap for systematic tracking and evaluation of progress. The findings relate to both communicative action theory and theory of change by fostering inclusive, dialogue-based stakeholder engagement (Honneth & Joas, 2015), while systematically mapping out desired outcomes and indicators to guide and assess project impact (Thornton, 2017).

4.3.1.2 Key informant data and triangulation with quantitative findings

Table 6: Key informant responses on M&E planning

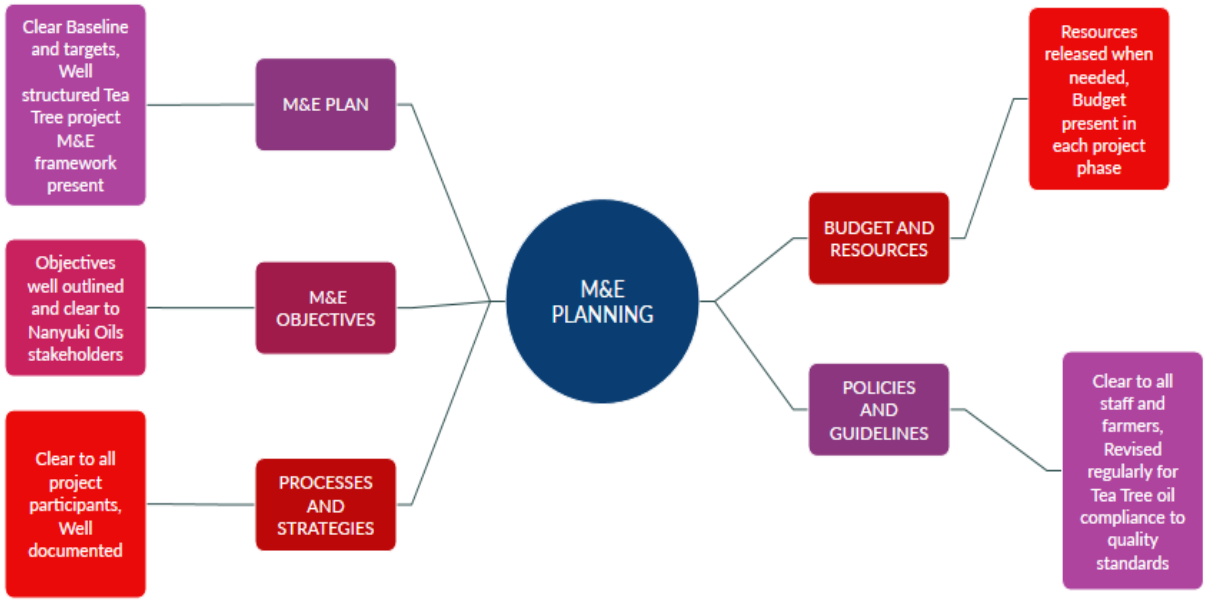
Respondent	**Clarity of M&E objectives**	**Availability of M&E budget and resources**	**Comprehensive M&E plan**	**Clear policies and guidelines**	**Baseline Surveys**
R1(Senior Leadership)	Clear	Available when needed	Present and clear to all stakeholders	Known by all stakeholders	Conducted before any initiative
R2(Project Manager)	Very clear	Available	Available and well structured	Clear to all and regularly revised	Always conducted

					and report documented
R3(Project Manager)	Well outlined	In place	Present and clear	Available and known	Done as required
R4(M&E personnel)	clear	Present	In place	Well communicated	Conducted
R5(M&E personnel)	clear	Available	Present	Known and revised	Conducted
R6(M&E personnel)	clear	It is there	Available	Well aware	Always done
R7(M&E personnel)	Very clear	Present	Clear and precise	Clear to us	They are held
R8(M&E personnel)	clear	In place	Available	Well known	Done
R9(Extension Officer)	clear	Available	Present	aware	Carried out as per requirement
R10(Extension Officer)	clear	Present	Available and well structured	Well communicated to us	Done
R11(Extension Officer)	clear	Available as required	Available	Clear to all	Held as guided

R12(Extension Officer)	Very clear	Present	Present	We are well aware	Done
R13(Extension Officer)	clear	In place	Available	We know them	Carried out
R14(Extension Officer)	clear	Present	Present and clear	Communicated to us	Conducted
R15(Extension Officer)	clear	Present	Available	Well aware	Done

In this matrix, the rows represent individual interview respondent and the columns indicate components of M&E planning in the current study including baseline surveys, M&E plan, policies and guidelines as well as budget and resources. The respondent's perspectives were captured on how the components influence Tea Tree project outcomes like stakeholder satisfaction, resource optimization and goal attainment. From the matrix diagram, a mind map was generated using NVIVO 15 to show the trends and patterns in responses as shown below:

Figure 11: Mind map on M&E Planning



The findings from key informants depicted a strong support for quantitative findings regarding planning in M&E. M&E planning was the central idea of the map. Major themes were developed including M&E plan, objectives, policies and guidelines as well as budget and resources. The responses were thematically coded which helped in grouping similar responses and identification of dominant views. The summary as shown in fig. 11 indicate that the interviewees reported that there were clear baseline surveys and targets in the M&E plan document and the Tea Tree project M&E framework was available and well structured. Additionally, the M&E objectives were clear to all project stakeholders showing that all study respondents were in a consensus regarding these aspects. The participants further agreed that M&E processes are clear and well documented, resources are always available and funds are released on a need basis. Finally, the informants communicated that policies and standard operating procedures are concise and are revised regularly to adhere to Tea Tree project requirements. One of the study participants argued as shown:

"*Every stakeholder involved in Tea Tree production project knows their role and we all work towards achieving project objectives.*" [Project manager]

4.3.1.3 Relationship between M&E Planning and Tea Tree Project Performance

Table 7: Relationship between M&E Planning and Tea Tree production project performance

Correlations

		M&E PLANNING	PROJECT PERFORMANCE
M&E PLANNING	Pearson Correlation	1	.859**
	Sig. (2-tailed)		.000
	N	194	194
PROJECT PERFORMANCE	Pearson Correlation	.859**	1
	Sig. (2-tailed)	.000	
	N	194	194

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

The table 7 shows that the Pearson Correlation between Tea Tree production project performance and M&E planning was (r=0 .859, p=0.000), which is statistically significant at 0.01 level (2-tailed). The p-value of .000 which is less than α (0.05) further validate the statistical significance of the variables correlation. This confirms that there is a strong positive relationship between M&E planning and Tea Tree project performance. This strength suggest that as M&E planning increases, Tea Tree project performance also increases.

4.3.2 Monitoring and Evaluation Control and project performance

The second aim of the study was to establish how M&E control influenced Tea Tree production project performance of Nanyuki Oils Limited.

4.3.2.1 Descriptive Statistics on M&E Control

Table 8 display a comprehensive examination from respondent's perspectives regarding the influence of M&E control on Tea Tree project performance. The participants gave their perceptions on aspects such as capacity development, quality of audits and inspections, change control process and risk management strategies. Additionally, information was provided concerning indicator tracking and responsibilities of Tea Tree project staff. This data contributed to a more nuanced knowledge of project monitoring and control and its role in enhancing the performance of Nanyuki Oils Limited Tea Tree production project.

Table 8: Rating of M&E Control in Tea Tree Project Performance

	Highly reject	**Reject**	**Neutral**	**Accept**	**Highly accept**	**Total**
	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)
Quality audits and inspections are performed regularly	0(0.0%)	5(2.6%)	38(19.6%)	147(75.8%)	4(2.1%)	194(100.0%)
Project is always completed within schedule and budget	0(0.0%)	5(2.6%)	74(38.1%)	115(59.3%)	0(0.0%)	194(100.0%)
Implementation roles are clear and participatory	0(0.0%)	5(2.6%)	54(27.8%)	132(68.0%)	3(1.5%)	194(100.0%)
There is a well-established change control process	0(0.0%)	7(3.6%)	47(24.2%)	137(70.6%)	3(1.5%)	194(100.0%)
Farmers trained on indicator tracking	0(0.0%)	10(5.2%)	62(32.0%)	122(62.9%)	0(0.0%)	194(100.0%)
Nanyuki Oils Ltd undertakes capacity building activities	0(0.0%)	6(3.1%)	59(30.4%)	122(62.9%)	7(3.6%)	194(100.0%)

Available data showed that a larger proportion among the respondents (62.9%) agreed that the organization frequently undertake efforts to strengthen the skills and capacities of project workers.

This leads to effective problem-solving capabilities which is essential for better Tea Tree production project performance. 75.8% of the respondents reported that quality audits and inspections are frequently performed during Tea Tree project implementation. This meant that the project deliverables (Biomass) met the required quality standards which increased farmer's profits. There were positive responses towards change control process where 70.6% accepted that the organization has well-established channels where changes are communicated and adjusted in time. This helps in avoiding massive risks through inclusive active participation processes as reported by 68.0% of respondents. A proportion of 59.3% agreed to the fact that the organization has put in place risk mitigation strategies to handle unexpected occurrences. This means that the Tea Tree project remains within scope, schedule and on budget. A good number (62.9%) of farmers agreed that they receive adequate coaching on indicator tracking and self-monitoring activities. Generally, the data obtained was proof of the degree to which project monitoring and control contributed to Tea Tree project performance of Nanyuki Oils Limited in Laikipia East Kenya.

Table 9: Descriptive statistics on M&E Control

Descriptive Statistics			
Statement	**N**	**Mean**	**Std. Deviation**
Quality audits and inspections are performed regularly	194	3.77	.519
Project is always completed within schedule and budget	194	3.57	.546
Implementation roles are clear and participatory	194	3.69	.547
There is a well-established change control process	194	3.70	.561
Farmers trained on indicator tracking	194	3.58	.591
Nanyuki Oils Ltd undertakes capacity building activities	194	3.67	.597
Aggregate Mean and Standard Deviation	**194**	**3.66**	**.560**

Findings of table 9 showed that respondents largely confirmed that quality audits helped in production of effective outcomes and enhanced accountability, with this measure receiving the strongest level of satisfaction with a mean of 3.77. There was low variation on the frequency of field inspections (standard deviation of 0.519). Furthermore, Nanyuki Oils limited strived to complete project activities within schedule and budget, reflected by a mean of 3.57. There was low variation (standard deviation of 0.546), demonstrating effective time management, financial discipline and proper coordination among stakeholders. To ensure accountability of Tea Tree project processes, the participants agreed that implementation roles were clear and participatory as reported by a mean of 3.69. There was a low variation (standard deviation of 0.547), indicating a sense of ownership and responsibility.

Moreover, participants indicated that Nanyuki Oils Limited had a well-established change control process at the time of this study, confirmed by a mean of 3.70. There was a low variation (standard deviation of 0.561), indicating a strategic approach to handling deviations that differed from initial project plan. Farmers were trained on self- monitoring of indicators as reported by a mean of 3.58, underscoring their participation in Tea Tree project success. There was low variation (standard variation of 0.591). Similarly, participants agreed to Nanyuki oils Limited undertaking capacity building activities to strengthen the capabilities of stakeholders, reflected by a mean of 3.67. The variation was however low (standard deviation of 0.597). This implied that farmers and project staff were empowered to handle challenges and address all needs assuring Tea Tree project's effectiveness and sustainability.

With an aggregate mean of 3.66, the findings suggested a general agreement among participants that M&E control was effective to optimize resources and offer timely corrective actions which ultimately improve project performance. There was low variation in Tea Tree project performance

due to M&E control (standard deviation of 0.560). These insights highlighted the importance of continuous field monitoring activities in ensuring realization of effective outcomes within Nanyuki Oils Limited.

These findings were in consensus with Soto et al., (2021) who found out that monitoring and control influences agricultural project performance by ensuring adherence to plans, timely identification of deviations and implementation of corrective actions to achieve desired outcomes. The findings depict that M&E control relate to communicative action theory by ensuring continuous stakeholder dialogue and accountability (Fraser, 2015). Additionally, M&E control align with the theory of change by systematically tracking progress against planned outcomes and assumptions to enable timely corrective actions (Nkwake & Nkwake, 2020).

4.3.2.2 Key informant data and triangulation with quantitative findings

Table 10: Key informant responses on M&E Control

Respondent	**Proper Change management**	**Capacity building activities**	**Knowledge on indicator tracking**	**Quality audits and inspections**	**Risk management**	**Stakeholders Roles**
R1(Senior Leadership)	Well handled	Available	Done	Conducted periodically	Impromptu visits done to risky farms	Clear
R2(Project Manager)	Carried out	Held	Done but not so clear	Carried out as per standard requirements	Contingency plan In place	Precise

R3(Project Manager)	Done	Done	Conducted	Successfully conducted	Timeous adjustments to deviations made	Clear
R4(M&E personnel)	In Place	Done	Limited knowledge	Conducted	Handled appropriately	Clear
R5(M&E personnel)	Done	Held	Done	Done	Mitigations in place	Well communicated
R6(M&E personnel)	Well structured	Carried out regularly	Conducted	Periodically done	Carefully handled	Known
R7(M&E personnel)	Available	Done	Conducted	Checks done	Addressed well if it occurs	Clear
R8(M&E personnel)	In Place	Done	Conducted	Conducted	Well planned	Clear
R9(Extension Officer)	Done	Catered for	Done	Held on a timely manner	Well catered for	Known
R10(Extension Officer)	Well held	Conducted	Conducted	Always done	Plan in place	Precise

R11(Extension Officer)	Done	Done	Held	Conducted	Handled carefully	Clear to all
R12(Extension Officer)	Done	Always held	Lessons done	Conducted	Addressed if it occurs	Well communicated
R13(Extension Officer)	Handled appropriately	Conducted	Known	Held	Plan available	Known to all
R14(Extension Officer)	Done	Conducted	Taught but not so clear	Done	Addressed	All are well aware
R15(Extension Officer)	Done	Done	Conducted	Done	Mitigations available	Clear

Table 10 include rows representing individual interview respondent and the columns indicate elements of M&E control in the current study including risk management, capacity development, quality of inspections, indicator tracking and change management. The participant's views were captured on how the elements influence Tea Tree project outcomes such as timely delivery, cost management accountability and quality of biomass. From the matrix diagram, a mind map was generated using NVIVO 15 to uncover patterns and draw evidence based insights about the effectiveness of M&E control in enhancing project success as shown below:

Figure 12: Mind map of M&E Control

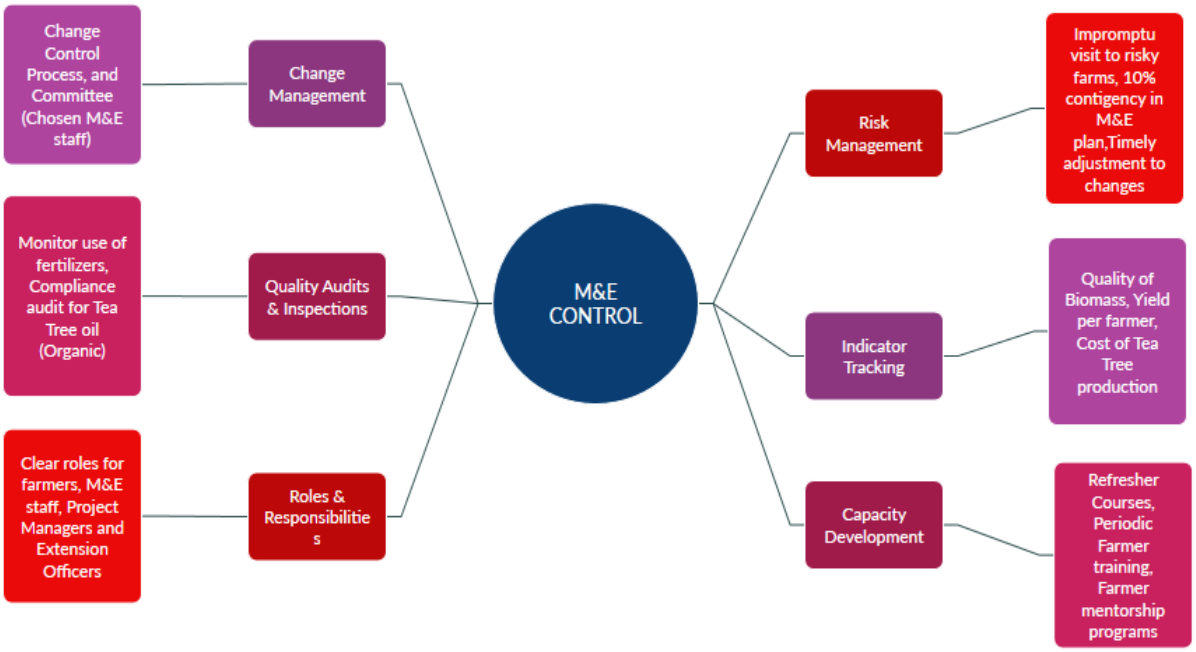


Fig 12 shows interview summaries of key informants concerning M&E control variable of the study. M&E control was the central idea of the map. Major themes were developed such as quality audits, roles and responsibilities, change management, indicator tracking, risk management and capacity development. The responses were thematically coded which helped in grouping similar responses and identification of dominant views. The informants mentioned that Nanyuki Oils Limited had a well-established change control process for project adjustments and there were selected M&E personnel to approve of the changes. This agreed with farmers responses concerning the same phenomenon. Similarly, the participants stated that the organization carries out quality audits and inspections on fertilizer usage and adherence to project requirements in order to generate compliant product (Biomass). The respondents further confirmed that stakeholder responsibilities were clear and the organization undertakes risk mitigation measures such as impromptu visits to risky farms, setting of 10% contingency funds and timely adjustment to changes. Additionally, the participants agreed that Nanyuki Oils Limited continuously track indicators such as quality of

produce and cost of production. Finally, the key informants agreed that the organization undertakes efforts to improve stakeholder's capacity to participate in Tea Tree production project such as training, refresher courses, and farmer mentorship programs. One of the interviewees reported the following:

"*We make unexpected visits to the farms to ensure they comply with organic requirements. We have also allocated some funds to contingencies for risks that may massively affect the project outcomes*" [senior leadership]

The findings were consistent with those of farmers who maintained positive stance regarding M&E monitoring and control during Tea Tree production project implementation.

4.3.2.3 Relationship between M&E Control and Tea Tree Project Performance

Table 11: Relationship between M&E Control and Tea Tree production project performance

Correlations

		PROJECT PERFORMANCE	M&E CONTROL
PROJECT PERFORMANCE	Pearson Correlation	1	.825**
	Sig. (2-tailed)		.000
	N	194	194
M&E CONTROL	Pearson Correlation	.825**	1
	Sig. (2-tailed)	.000	
	N	194	194

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

Table 11 indicate that the Pearson Correlation between M&E control and Tea Tree project performance was (r=0.825, p=0.000), which is significant at 0.01 level (2-tailed). This strong positive relationship implies that as M&E control increases, project performance also increases in

the same direction. The correlation coefficient is 0.000 which is less than α=0.05 value, hence M&E control is statistically significant.

4.3.3 Monitoring and Evaluation Tools and Technologies and project performance

The third study's aim was to assess the influence of tools and technologies on Tea Tree production project performance. This section details the findings on these variables.

4.3.3.1 Descriptive Statistics on M&E Tools and Technologies

Table 12 presents various views from respondents about the influence of tools and technologies on Tea Tree project performance. Several topics were addressed including use of mobile apps and digital tooling, access to modern technology, participation in utilization of M&E tools as well as detection and mitigation of project challenges using digital platforms. These elements provided rich information that informed the study.

Table 12: Rating of M&E Tools and Technologies in Tea Tree Project Performance

	Highly reject	Reject	Neutral	Accept	Highly accept	Total
	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)
Nanyuki Oils uses mobile apps and digital tools for data collection and reporting	0(0.0%)	6(3.1%)	54(27.8%)	134(69.1%)	0(0.0%)	194(100.0%)
Farmers receive training on recording and tracking farm data	0(0.0%)	22(11.3%)	58(29.9%)	114(58.8%)	0(0.0%)	194(100.0%)
Using M&E tools guides improvement in productivity and decision-making	0(0.0%)	7(3.6%)	55(28.4%)	132(68.0%)	0(0.0%)	194(100.0%)
M&E tools and technologies help in detecting and mitigating challenges	0(0.0%)	12(6.2%)	77(39.7%)	105(54.1%)	0(0.0%)	194(100.0%)

When the researcher examined the use of mobile apps and digital tools for project progress, a larger group (69.1%) agreed to it while 27.8% maintained a neutral stance. However, 58.8% accepted that they had received training on capturing and recording farm data using organization app during workshops. Nevertheless, 29.9% remained neutral and 11.3% rejected the statement and reported that they recorded manually using notebooks. This showed that though majority of the farmers had adequate knowledge on the use of available internal systems, they hardly utilized them in recording project progress. A proportion of 68.0% agreed to the fact that M&E tools guide improvement in productivity and enhanced decision-making while 54.1% reported that M&E technologies helped in mitigating and solving challenges during project execution. A higher

frequency of perceptions regarding tools and technologies on project performance was observed among individuals.

Table 13: Descriptive Statistics on Tools and Technologies

Descriptive Statistics			
Statement	**N**	**Mean**	**Std. Deviation**
Nanyuki Oils uses mobile apps and digital tools for data collection and reporting	194	3.66	.536
Farmers receive training on recording and tracking farm data	194	3.47	.692
Using M&E tools guides improvement in productivity and decision-making	194	3.64	.550
M&E tools and technologies help in detecting and mitigating challenges	194	3.48	.613
Aggregate Mean and Standard Deviation	**194**	**3.56**	**.598**

The findings of table 13 indicated that most participants accepted that Nanyuki Oils Limited utilizes mobile apps and digital tools for data collection and reporting, reflected by a high mean of 3.66. There was low variation in responses regarding the effectiveness of mobile apps (standard deviation of 0.536). Additionally, farmers received adequate training on recording and tracking farm data, as evidenced by a mean of 3.47.There was a low variation, suggesting a general consensus on this exercise (standard deviation of 0.692). This implied that data captured was timelier and more accurate giving the project a reliable basis for measuring outcomes and reducing reliance on external enumerators. The use of M&E tools in Tea Tree project tracking played a significant role in productivity and decision-making, with a mean of 3.64. There was low variation, indicating relative consistency in perspectives on the contribution of available M&E tools in project success (standard deviation of 0.550). Moreover, the respondents agreed that M&E tools and technologies helped in detecting and mitigating challenges within the project, reflected by a mean of 3.48. These responses exhibited low variations (standard deviation of 0.613), implying

that the organization proactively use structured instruments to identify problems early and take corrective actions to improve performance.

Overall, M&E tools and technologies were viewed as instrumental in enhancing Tea Tree production project of Nanyuki Oils Limited, as supported by an aggregate mean of 3.56. The low variation (standard deviation of 0.598) suggested that on average, participants were in consensus with the tools contribution to enhanced project success. These findings agree with Kumar et al., (2017) who found out that digital M&E tools contribute to enhanced project success through accuracy in data collection and data driven decision-making, leading to improved productivity and resource management. The outcomes of this research show that M&E tools and technologies align with communicative action theory by facilitating inclusive communication and data sharing among stakeholders (Honneth & Joas, 2015). Furthermore, it relates to the theory of change by enabling systematic tracking of outcomes and assumptions along the project's change pathway as noted by Reinholz and Andrews (2020).

4.3.3.2 Key informant data and triangulation with quantitative findings

Table 14: Key informant responses on M&E tools and technologies

Respondent	**Data Collection**	**Data Analysis**	**Visualization tools**	**Evaluation Templates**
R1(Senior Leadership)	We use mobile phones and questionnaires	We use an internal information system	We have never used any	Manual forms available

R2(Project Manager)	Mostly mobile phones and group meetings	Internal tool	None for now	We use forms for every farmers
R3(Project Manager)	Well-designed questionnaires and mobile phones	Internal system (NOLIS)	We don't do visuals	Templates available
R4(M&E personnel)	Phones and questionnaires	Internal system available	None	Standard evaluation forms available
R5(M&E personnel)	Questionnaires	NOLIS	None	Available
R6(M&E personnel)	Mostly mobile telephony	We have an internal system	None	Common for all farmers
R7(M&E personnel)	Questionnaires	Internal information system in place	None	Forms are available
R8(M&E personnel)	Survey questionnaire	Information system available	None	Available
R9(Extension Officer)	Mobile phones	Internal system	None	Common form for farmers available

R10(Extension Officer)	Farmers meetings	Internal information system	We don't have	Available
R11(Extension Officer)	Calls to farmers	NOLIS	None	Available
R12(Extension Officer)	Inspection forms	Internal tool	We have never used any	Forms available
R13(Extension Officer)	Questionnaires	Internal system	Not available	Designed earlier and in place
R14(Extension Officer)	Mobile phones	Internal Information system	None	Available
R15(Extension Officer)	Inspection forms	NOLIS	None	Available

The above matrix diagram contain rows that represent individual interview respondent while the columns show elements of M&E tools and technologies of the present study including data collection tools, visualization tools and evaluation templates. The participant's opinions were captured on how the components influence Tea Tree project outcomes such transparency, decision making speed, stakeholder engagement and overall Tea Tree project efficiency. From the matrix, a mind map was generated using NVIVO 15 to reveal patterns, similarities and differences enabling a deeper understanding of how digital innovations in M&E contribute to improved project results as shown below:

Figure 13: Mind map on M&E tools and technologies

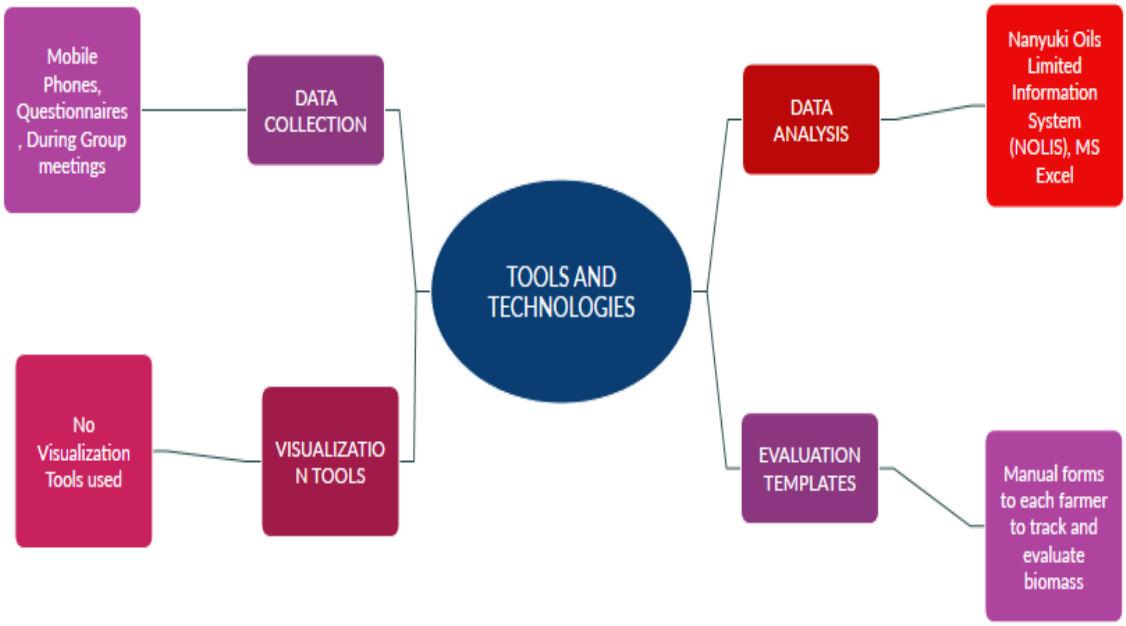


Fig 13 indicate a summary of interview responses regarding tools and technologies variable of the study. Tools and technologies were the central idea of the map. Major themes were developed such as data collection, data analysis, evaluation templates and visualization tools. The responses were thematically coded which helped in grouping similar responses and identification of dominant views. The respondents noted that data was gathered using mobile phones and questionnaires. They also concurred with quantitative findings that the organization does not use data visualization tools. On data analysis, the participants reported that Nanyuki Oils Limited has an information system for analysis and reporting purposes. Finally, the participants reported that they used manual forms designed to record each farmer's progress and evaluate project effectiveness. Some of the participants observed the following:

"*We have a booklet for each farmer with their demographic details, where we record their progress, whether their farm is conventional, conversion or organic and record*

evaluation findings periodically" [Extension officers and project manager]

The interview findings concur with those of the questionnaires from farmers which indicated that though tools and technologies contributed to proper project performance, they had not been effectively updated to modern technology at the time of this study.

4.3.3.3 Relationship between M&E Tools and Technologies and Tea Tree Project Performance

Table 15: Relationship between Tools and Technologies and Tea Tree production project performance

Correlations

		PROJECT PERFORMANCE	TOOLS AND TECHNOLOGIES
PROJECT PERFORMANCE	Pearson Correlation	1	.793**
	Sig. (2-tailed)		.000
	N	194	194
TOOLS AND TECHNOLOGIES	Pearson Correlation	.793**	1
	Sig. (2-tailed)	.000	
	N	194	194

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

The research assessed the correlation between Tea Tree project performance with tools and technologies element of M&E system. The Pearson Correlation coefficient between these two variables was significant at the 0.01 level (2-tailed), with a coefficient value of ($r=0.793$, $p=0.000$). ($p=0.000<0.05$) further confirms the statistical significance of this correlation. This showed that as the use of tools and technologies increases, project performance also increases hence effective use of tools and technologies tended to coincide with improved performance of Tea Tree production project.

4.3.4 Feedback Mechanisms and project performance

The final objective of the study was to establish the effect of feedback mechanisms on Tea Tree production project performance. The results are outlined in this section.

4.3.4.1 Descriptive Statistics on Feedback Mechanisms

The other factor interest was how feedback mechanisms influenced Tea Tree project performance in Nanyuki Oils Limited. The researcher focused on elements including farmers' engagement in project activities, documentation and record keeping, utilization of communication channels, data collection and analysis as well as feedback responses. These provided useful insights that guided conclusions concerning feedback mechanism component of M&E system.

Table 16: Rating of Feedback Mechanisms in Tea Tree Project Performance

	Highly reject	Reject	Neutral	Accept	Highly accept	Total
	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)
Farmers are actively engaged in project activities	0(0.0%)	3(1.5%)	74(38.1%)	114(58.8%)	3(1.5%)	194(100.0%)
There is effective use of communication channels among project stakeholders	0(0.0%)	4(2.1%)	33(17.0%)	153(78.9%)	4(2.1%)	194(100.0%)
Project participants interests are integrated into decision making	0(0.0%)	9(4.6%)	65(33.5%)	117(60.3%)	3(1.5%)	194(100.0%)
Nanyuki Oils Limited has proper project documentation and record keeping	0(0.0%)	9(4.6%)	34(17.5%)	149(76.8%)	2(1.0%)	194(100.0%)
Data is frequently collected and farmers project progress captured	0(0.0%)	4(2.1%)	56(28.9%)	132(68.0%)	2(1.0%)	194(100.0%)

According to table 16 above, 58.8% of respondents accepted the perception that engaging project beneficiaries in M&E activities enhances their satisfaction. Similarly, a substantial 78.9% affirmed that organizational communication channels are effective leading to sustainable practices, while 17.0% disagreed with this statement. A larger group of respondents (60.3%) noted that their views are integrated in decision making and their concerns often addressed. This implied that the farmers continuously supported and trusted decision-makers viewpoints which in turn reduced resistance and conflicts. 76.8% of the study participants reported that the organization had well documented reports and records of project progress, indicating that Nanyuki Oils Limited is transparent and accountable for its project operations. A substantial 68.0% agreed with the fact that Nanyuki Oils

Limited frequently collect data on implementation progress. These findings offered beneficial information on the opined influence that the feedback component of M&E system has on Tea Tree production project performance.

Table 17: Descriptive statistics on feedback mechanisms

Descriptive Statistics			
Statement	**N**	**Mean**	**Std. Deviation**
Farmers are actively engaged in project activities	194	3.60	.550
There is effective use of communication channels among project stakeholders	194	3.81	.488
Project participants interests are integrated into decision making	194	3.59	.607
Nanyuki Oils Limited has proper project documentation and record keeping	194	3.74	.553
Data is frequently collected and farmers project progress captured	194	3.68	.530
Aggregate Mean and Standard Deviation	**194**	**3.68**	**.546**

The findings of table 17 indicated that most participants agreed that Nanyuki Oils Limited engages stakeholders in project activities as a key approach to their satisfaction within the organization, reflected by a mean of 3.60. There was low variation in responses regarding farmer's participation (standard deviation of 0.550). Additionally, the organization had effective communication channels demonstrated by a mean of 3.81. There was low variation, suggesting a general consensus on this provision (standard deviation of 0.488). This demonstrated smooth information flow leading to transparency and stakeholder satisfaction by ensuring that communication is timely, consistent and responsive to actual needs. This reduced frustration and encouraged active engagement of Tea Tree farmers. The participants affirmed that their concerns were effectively integrated into major decision-making, evidenced by a mean of 3.59. Variation was low (standard deviation of 0.607), indicating relative consistency in perspectives on importance of inclusion in

stakeholder satisfaction. Similarly, the respondents agreed that Nanyuki Oils Ltd had proper documentation and record keeping processes, indicated by a mean of 3.74. The responses exhibited low variation in responses (standard deviation of 0.553). Data collection frequency was another critical consideration in feedback mechanisms, with a mean of 3.68. The variation in responses was low (standard deviation of 0.53) suggesting a general agreement on the relevance of data driven decision-making in transparency of processes. This reflected the organizations focus on continuous learning and improvement.

Overall, feedback mechanisms were found useful in enhancing Tea Tree production project performance as supported by an aggregate mean of 3.68. There was low variation in project performance due to feedback mechanisms (standard deviation of 0.546). The participants were in consensus regarding the influence of M&E feedback mechanisms in Tea Tree project performance of Nanyuki Oils Limited. These findings agree with Eitzinger et al., (2019) who found out that feedback loops influence agricultural project performance by enabling timely adjustments, enhancing stakeholder engagement and improving decision-making, based on real-time insights from the field. The outcomes supported the communicative action theory by fostering open, two way communication among stakeholders (Honneth & Joas, 2015). Feedback mechanisms relate to the theory of change by providing evidence- based insights to assess the progress and adjust strategies along the projects intended change pathway as indicated by Silva et al., (2014).

4.3.4.2 Key informant data and triangulation with quantitative findings

Table 18: Key informant responses on M&E feedback mechanisms

Respondent	**Communication Channels**	**Stakeholder engagement**	**Record keeping**	**Feedback response**
R1(Senior Leadership)	Farmer representatives and phones	Done comprehensively	All records available	Done accordingly
R2(Project Manager)	Annual General Meetings and through farmer representatives	Done in every project phase	Done always	Addressed
R3(Project Manager)	Meetings and Phones	Always looked into	Done every time	Done
R4(M&E personnel)	Through farmer representatives	Done	Well done	Addressed
R5(M&E personnel)	We utilize extension officers	Conducted	Done	Done
R6(M&E personnel)	Periodic meetings	Done	All records available	Done
R7(M&E personnel)	Farmers representatives	Stakeholders involved	Done	Handled

R8(M&E personnel)	Phones and meetings	Done	Ready records always	Done
R9(Extension Officer)	Farmer representatives and phones	Done	Done	Well handled
R10(Extension Officer)	General meetings and extension officers	Involved	All records In place	Done
R11(Extension Officer)	We call for farmers meetings	Addressed always	Records are available	Done
R12(Extension Officer)	General meetings	Done	We keep all records	Done
R13(Extension Officer)	Phones and meetings	Always done	Done	Addressed timeously
R14(Extension Officer)	Farmers representatives and extension officers	Done	All records available	Done
R15(Extension Officer)	Mostly mobile phones	Addressed	Done	Done

This matrix present rows that indicate individual interview respondent and the columns show elements of M&E feedback mechanisms of the present study including stakeholder engagement, record keeping, communication channels and feedback response rate. The participant's perspectives were captured on how the components influence Tea Tree project outcomes such as adaptability, stakeholder satisfaction, accountability and achievement of goals. From the matrix, a mind map was generated using NVIVO 15 to reveal patterns, similarities and differences enabling a deeper understanding of the role of feedback loops in M&E systems. This uncovered their contribution to improved project results, enabling the researcher to draw conclusions on the effectiveness of feedback in enhancing project outcomes as shown below:

Figure 14: Mind map on Feedback Mechanisms

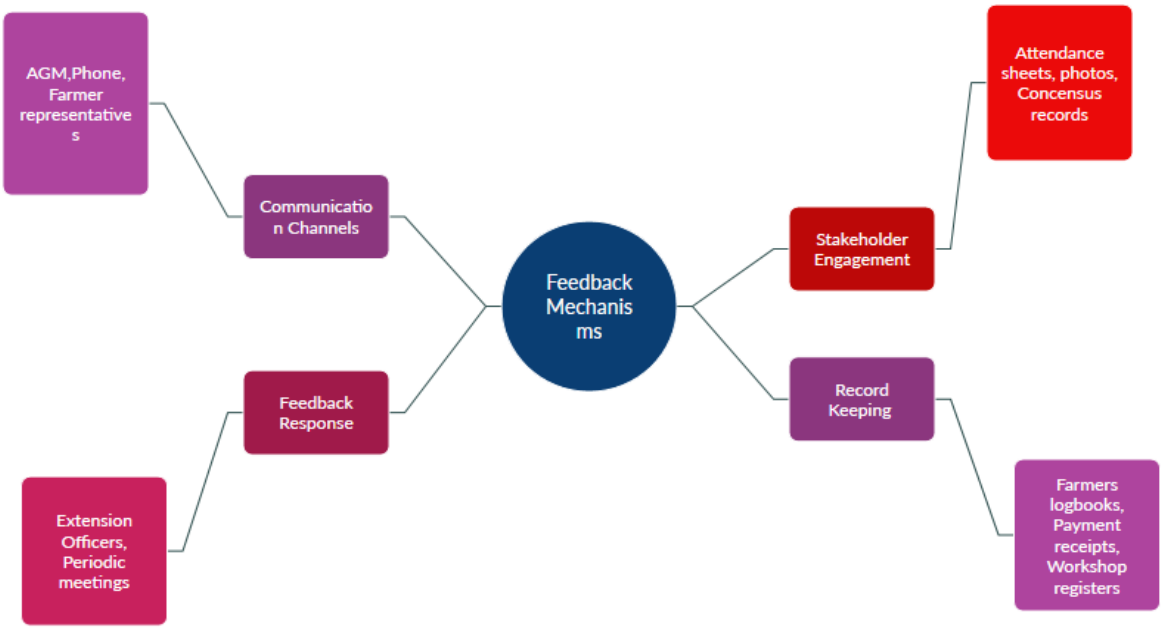


Table 14 depict interview responses concerning feedback mechanisms variable of the study. Feedback mechanism was the central idea of the map. Major themes were developed including communication channels, stakeholder engagement, record keeping and feedback response rate. The responses were thematically coded which helped in grouping similar responses and identification of dominant views. The interviewees reported that the organization uses communication channels such as farmer's representatives and annual general meetings to notify stakeholders about project progress. The feedback responses were then addressed using methods such as periodic meetings and extension officers who regularly visit the farm. The participants further stated that stakeholders were allowed to participate throughout the project cycle and provided evidence of meeting attendance sheets and photos of field monitoring activities. Finally, the key informants accepted to proper record keeping and documentation confirmed by presence of workshop registers and farmers logbooks at the time of this study. One of the interview respondent held as follows:

"*We always utilize farmer's representatives and extension officers to communicate and obtain responses from farmers, after which we meet to deliberate on how to act upon them*" [M&E staff]

The interview responses aligned with quantitative findings that gave positive indications of the role of feedback mechanisms in project performance.

4.3.4.3 Relationship between Feedback Mechanisms and Tea Tree Project Performance

Table 19: Relationship between feedback mechanisms and Tea Tree production project performance

Correlations

		FEEDBACK MECHANISMS	PROJECT PERFORMANCE
FEEDBACK MECHANISMS	Pearson Correlation	1	.833**
	Sig. (2-tailed)		.000
	N	194	194
PROJECT PERFORMANCE	Pearson Correlation	.833**	1
	Sig. (2-tailed)	.000	
	N	194	194

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

The study examined the correlation between project performance and feedback mechanism component of M&E system as presented in table 19 above. The Pearson Correlation coefficient between these variables was found to be significant at the 0.01 level (2-tailed), with a coefficient value of (r=0.833, p=0.000). This indicated a robust relationship between these variables.

4.3.5 Performance Rating of Tea Tree Project

Table 20 display respondents' perspectives on how they rate Tea Tree production project performance in terms of project completion within time and budget limits, quality standard requirements, information transparency and accountability. Additionally, they were invited to respond to matters concerning stakeholder satisfaction and Tea Tree production project sustainability.

Table 20: Performance Rating of Tea Tree production project

	Highly reject	**Reject**	**Neutral**	**Accept**	**Highly accept**	**Total**
	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)
Project is always completed within schedule and budget	0(0.0%)	5(2.6%)	77(39.7%)	112(57.7%)	0(0.0%)	194(100.0%)
Project deliverables meet quality standards	0(0.0%)	5(2.6%)	30(15.5%)	159(82.0%)	0(0.0%)	194(100.0%)
Financial reports are accessible to all stakeholders	5(2.6%)	8(4.1%)	47(24.2%)	134(69.1%)	0(0.0%)	194(100.0%)
Farmers opinions are incorporated in decision-making	0(0.0%)	6(3.1%)	43(22.2%)	145(74.7%)	0(0.0%)	194(100.0%)

In assessing the performance of Nanyuki Oils Limited Tea Tree production project in Laikipia East sub-County, 57.7% of participants agreed that projects are completed within required schedules and budget, while 39.7% maintained a neutral position. This indicate that adequate efforts had been applied in following the project plan closely and implementers didn't overspend. At the time of this study, a significant proportion (82.0%) reported that since project inception, chemical use had reduced significantly and the project deliverables met required quality specifications. This implied that the farmers obtained premium prices for their products. A proportion of 69.1% agreed to have adequate knowledge of funds accountability, while 24.2% of respondents held a neutral stance regarding accessibility of financial reports. This could be due to lack of financial literacy and failure to attend annual general meetings organized by the organization. Majority of respondents constituting 74.7% agreed that the organization offers fair biomass pricing and guarantees a stable market for Tea Tree product. This assures them of sustainability encouraging farmers to dedicate more land for Tea Tree farming.

Table 21: Descriptive Statistics on Project Performance

Descriptive Statistics			
Statement	N	Mean	Std. Deviation
Project is always completed within schedule and budget	194	3.55	.548
Project deliverables meet quality standards	194	3.79	.465
Financial reports are accessible to all stakeholders	194	3.60	.693
Farmers opinions are incorporated in decision-making	194	3.72	.516
Aggregate Mean and Standard Deviation	**194**	**3.67**	**.556**

The findings of table 21 indicate that Tea Tree project performance in Nanyuki Oils Limited was generally positive, with key metrics showing strong performance trends. On resource optimization, respondent's data suggested moderate agreement that activities were completed within stipulated

time and budget with a mean of 3.55. There was some variation in responses (standard deviation of 0.548), implying that respondents had varying opinions about scheduling of various activities. Participants agreed that Tea Tree oil met the organic quality standards with a mean of 3.79. There was low variation in responses (standard deviation of 0.465). This finding implied that farmers obtained better pricing for their product. On process accountability, participants affirmed that financial reports were accessible to all stakeholders, evidenced by a mean of 3.60. The variation was low with a standard deviation of 0.693. Moreover, the respondents accepted that their interests and concerns were integrated into decision-making, reflected by a mean of 3.72. The variation of responses was low with a standard deviation of 0.516. This demonstrated the organizations ability to effectively utilize the M&E system to ensure project sustainability.

With the aggregate mean of 3.67 and a low variation (standard deviation of 0.556), the findings showed a positive overall perception by respondents, of Tea Tree project performance in Nanyuki Oils Limited. However, active feedback integration remain an area for potential enhancement to further strengthen the organizational position in the agricultural sector. Koima and Mukulu (2020) agree that M&E system components lead to improved project performance which was confirmed by the current research. The outcomes indicate that the theory of change anchors project performance as noted by Reinholz and Andrews (2020). This is achieved by providing a clear framework that links project activities to expected outcomes and guiding development of indicators to assess whether the M&E system effectively contribute to achieving the projects intended results. Furthermore, the findings supported that communicative action theory anchor project success by emphasizing participatory dialogue and mutual understanding which enhance transparency, accountability and effectiveness of M&E evaluation processes in achieving project outcomes (Fraser, 2015).

4.3.5.2 Key informant data and triangulation with quantitative findings

Table 22: Key informant responses on project performance

Respondent	**Resource Optimization**	**Stakeholder satisfaction**	**Accountability and Transparency**	**Effectiveness of project outcomes**	**Project sustainability**
R1(Senior Leadership)	Well handled	Well looked into	Proper documentation	We offer fair prices to farmers	Farmers have dedicated more land for farming
R2(Project Manager)	Utilized as per plan	Progressively monitored	Reports accessible to all stakeholders	We ensure timeous harvesting	Stable farmer groups
R3(Project Manager)	Resources used well	Addressed	Roles of stakeholders clear	We offer better pricing to organic farmers	Premium benefits
R4(M&E personnel)	Addressed	Well handled	All reports accessible	Timeous harvesting	Better pricing
R5(M&E personnel)	Done	Well handled	Clear roles for each worker	Good premium prices	Farmer co-operative groups
R6(M&E personnel)	Yes	Looked into	Accessible documentation	Consistent market access	More land in Tea Tree farming

R7(M&E personnel)	Resources used well	Carefully handled	Records are clear	Better prices of biomass	Better Biomass prices
R8(M&E personnel)	Handled efficiently	Done	Clear documentation	We harvest in time to prevent quality compromise	We offer premium benefits
R9(Extension Officer)	Done	Addressed	Engagement in processes	Better biomass prices	Good product prices
R10(Extension Officer)	Well utilized	Handled well	Documents available	Premium prices	Available farmer groups
R11(Extension Officer)	Done	Continuously tracked	Addressed appropriately	We ensure farmers harvest in time	Stable market
R12(Extension Officer)	Handled as per plan	Done	Details communicated to us	Sure market access	Farmer groups
R13(Extension Officer)	Well used	Well handled	Documents readily available.	We offer better prices	Better product pricing
R14(Extension Officer)	Done	Always addressed	Financial reports availed periodically	Harvesting in time	Better premium benefits

R15(Extension Officer)	Well handled	Done	Engaged in project activities	We harvest at the right time	Ready market assurance

In table 22, the rows represent study respondents while columns highlight key dimensions of Tea Tree project performance such as stakeholder satisfaction, transparency and accountability, resource optimization and project sustainability as metrics in the current study. A mind map was constructed from the responses as shown below, to help identify recurring themes and support a more systematic and transparent analysis of project performance.

Figure 15: Mind map on Project Performance

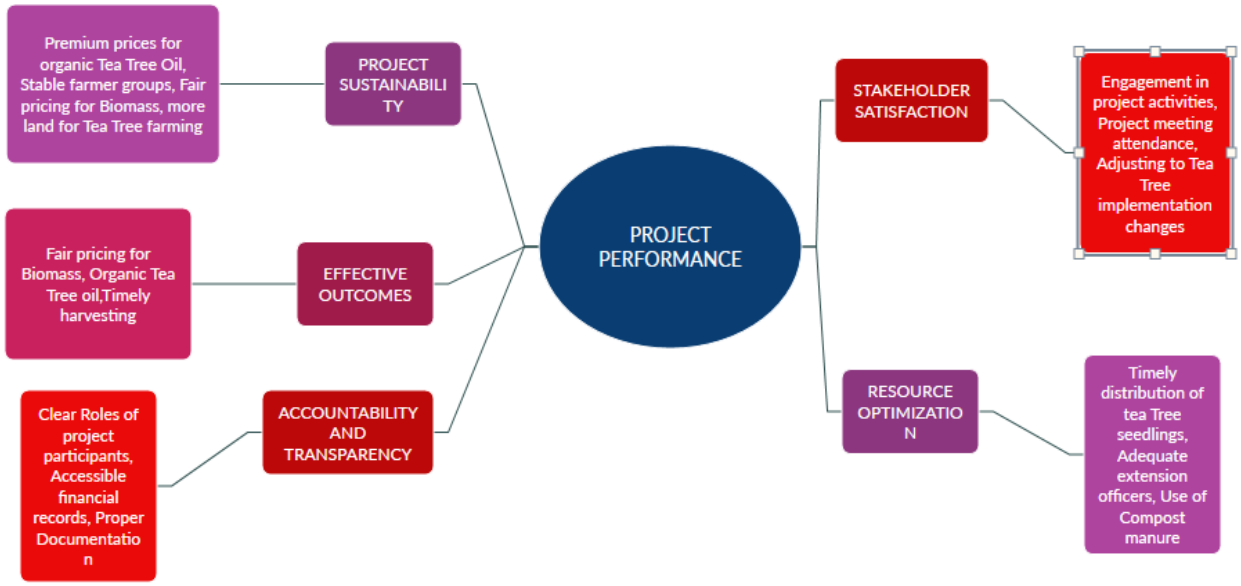


Fig 15 show key informant responses regarding Tea Tree project success. Project performance was the central idea of the map. Major themes were developed including resource optimization, effective outcomes, accountability and transparency, stakeholder satisfaction and project sustainability representing the specific indicators. The responses were thematically coded which

helped in grouping similar responses and identification of dominant views. The respondents reported that Nanyuki Oils Limited offers fair pricing for Tea Tree oil, empower farmer groups and ensure timely harvesting encouraging farmers to dedicate more land for Tea Tree farming. The respondents affirmed that financial reports are accessible to stakeholders, roles of project participants are clear and the organization maintains proper documentation. The findings reinforced those from the farmers which confirmed that the organization is accountable and transparent in their proceedings. The key informants further reported that the stakeholders are satisfied with project operations since they are involved in appropriate activities. Finally, there was convergence between qualitative and quantitative insights regarding resource optimization. One of the respondents reported as follows:

> "*We ensure seedlings are distributed in time by the extension officers and we monitor use of compost manure which has greatly contributed to better project success and increased productivity*" [Project manager].

4.4 Regression

Table 23: Model Summary

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.903[a]	.816	.812	.18476

a. Predictors: (Constant), ME_ TOOLS_TECHNOLOGIES, ME_FEEDBACK_MECHANISM, ME_PLANNING, ME_ CONTROL

The R square shown in table 23 of the test was 0.816. This means that 81.6% of the variations in Tea Tree project performance of Nanyuki Oils Limited was described by M&E planning, Tools

and technologies, M&E control and feedback mechanisms. It also mean that only 18.4% stemmed from other variables of M&E system not included in the model. Adjusted R^2 (0.812) was very close to R^2 (0.816) confirming that the model was not overfitting therefore it generalized well.

4.4.1 Analysis Of Variance

Table 24: ANOVA

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	28.645	4	7.161	209.776	.000[b]
	Residual	6.452	189	.034		
	Total	35.097	193			

a. Dependent Variable: PROJECT_PERFORMANCE
b. Predictors: (Constant), ME_ TOOLS_TECHNOLOGIES, ME_FEEDBACK_MECHANISM, ME_PLANNING, ME_ CONTROL

Table 24 shows the test of the model's ability to predict the performance of Tea Tree project using monitoring and evaluation system. Analysis of variance is used to confirm whether there is any independent variable or variables in a model that are significant predictors of the dependent variable. If there is any, then it is concluded that the model is deemed fit. In this study, the F (4,189) = 209.776 statistic had a value of p=0.000. The statistically significant statistic confirms the expected direction of the relationship. This means that the M&E system was statistically significant ($p<0.05$) in influencing the Tea Tree project performance. This implies that Tea Tree production project performance is highly influenced by a high performing M&E system. The more effective it is, the better the project success and vice versa.

4.4.2 Regression Coefficients

Table 25: Coefficients

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	.256	.122		2.097	.037
	ME_PLANNING	.392	.057	.418	6.916	.000
	ME_CONTROL	.148	.071	.144	2.078	.039
	ME_FEEDBACK_MECHANISM	.298	.056	.310	5.288	.000
	ME_TOOLS_TECHNOLOGIES	.091	.055	.102	1.660	.099

a. Dependent Variable: PROJECT_PERFORMANCE

Table 25 presents the overall multiple linear regression model, which is represented by the following equation:

$$Y=\beta_0 +\beta_1X_1+\beta_2X_2+\beta_3X_3+\beta_4X_4+e$$

Upon substituting the coefficients, the equation was as outlined below:

$$Y= 0.256+0.392X_1+0.148X_2+0.298X_3+0.091X_4+0.18476$$

The findings showed that the expected value of Tea Tree project performance of Nanyuki Oils Limited when all the predictor variables (M&E planning, tools and technologies, M&E control and Feedback mechanisms) are zero was 0.256.

The outcome suggested that for each unit rise in M&E planning variable, Tea Tree production project performance of Nanyuki Oils Limited was predicted to increase by 0.392 units holding other factors constant. This was statistically significant since p=0.000 hence p<0.05 making the influence of M&E planning statistically significant. This finding concurs with Mutsune and Ngugi

(2023) who noted that increasing M&E planning by a single unit would lead to 0.729 unit rise in project performance.

The findings indicated that for each unit rise in M&E control, Tea Tree production project performance of Nanyuki Oils Limited was predicted to increase by 0.148 units, taking other independent variables at zero. This was significant since $p=0.039$ hence $p<0.05$ making the effect of M&E control statistically significant. This outcome agrees with Koima and Mukulu (2020) who argue that monitoring and control influences agricultural project performance by 29.4%.This was observed from their study which focused on influence of M&E on project performance of Kenya agricultural and livestock research organization.

Results suggested that for each unit rise in feedback mechanisms element of M&E system, Tea Tree project performance of Nanyuki Oils Limited was assumed to increase by 0.298 units when other predictor variables were held constant. This was significant since $p=0.000$ hence $p<0.05$ making the influence of feedback mechanisms statistically significant. This finding concurs with a study by Abdi and Kimutai (2018) regarding M&E and performance of constituency development fund projects in Garissa County, Kenya. These scholars indicated that feedback has a positive effect on the performance of a project. Each unit rise in feedback loop leads to 0.021 increase in project performance, though it is reliant on other factors such as stakeholder participation for it to be critical in performance measurement.

The outcome implied that for each unit rise in tools and technologies, Tea Tree project performance of Nanyuki Oils Limited was presumed to rise by 0.091 units when all other variables were held constant. This however was not significant since $p=0.099$, hence $p>0.05$ making the influence of tools and technologies insignificant. This result contradicted those of a study conducted by Kiroro

et al., (2024) who investigated on influence of linking spreadsheets with Microsoft SharePoint in M&E for efficient delivery of quality hospital services. The technology was found to have a positive effect on program performance. The counterintuitive results could be because of the challenges encountered in the use of tools and technologies in Nanyuki Oils Limited. They include lack of modern digital tooling due to age gap, poor communication network and lack of power by some farmers, illiteracy levels, risk of failure and high cost as explained by the lead agronomist, Nanyuki Oils Limited in an interview.

4.5 Discussion of findings with Regard to Literature Review

4.5.1 Discussion of Empirical Literature

Literature review of the study presented an extensive description of M&E system elements and how they influence agricultural project performance, especially in most developing countries such as Kenya (UNDP, 2017). According to Waithera and Wanyoike (2015); Kanyamuna et al,.(2021); Douthwaite et al., (2023), review of literature outlines the role played by monitoring and evaluation in project success while revealing existing gaps and suggesting possible ways to enhance project outcomes. Prior studies also highlighted the need for proper empirical surveys into M&E framework components and their contribution to project success.

4.5.1.1 M&E planning and Tea Tree project performance

The first objective of the study was to analyze the influence of M&E planning on Tea Tree project performance. The study found out that Nanyuki Oils Limited updates their M&E plan frequently. Waithera and Wanyoike (2015) indicate that keeping M&E plans up to date is critical because it prevents them from becoming weaker and irrelevant with time. The author note that this helps in aligning M&E efforts with shifting project priorities and donor expectations guiding proper M&E

planning. The study also showed that most respondents (72.2%) were satisfied with the statement that farmers were well trained on M&E procedures. According to Pellerin and Perrier (2019), training stakeholders about guidelines and processes that guide a project lead to improvement in adoption of best practices and reduces risks and mistakes. Additionally, 68.6% of study participants were in agreement that baseline surveys were conducted and data utilized in planning for M&E. Oino et al., (2015) asserted that baseline surveys contribute to better project performance by informing project design, planning and setting of realistic targets ensuring project sustainability. The study also found out that project policies and guidelines were clear to stakeholders, though a proportion of 19.1% was neutral regarding this aspect. This could possibly be due to failure to attend group meetings and to follow through with project reports.

4.5.1.2 M&E control and Tea Tree project performance

A close examination of monitoring and control processes during project execution indicated that implementation roles were clear and participatory and there was a well-established change control process in place. This practice of continuous adjustment to changes was lauded by Koima and Mukulu (2020) who showed that projects increase productivity through progressive adaptation to realistic data-driven insights. According to World Bank (2019), effective execution of project activities greatly depends on the level of farmer training. On adequacy of training and capacity building activities, a relatively larger proportion of farmers (62.9%) and project staff agreed that their training on good agricultural practices and harvesting techniques was adequate. This could possibly be the reason why Tea Tree project outcomes such as better yields are sustainable. In their study, Ovcina and Kalajdzic (2024) suggested that it was important to check conformance to requirements to identify areas that don't comply with standards. The study findings indicated that Nanyuki Oils Limited performed quality audits and inspections regularly showing that gaps in

non-compliance to standards were identified and corrected early. This probably was the reason why Tea Tree production project improved service delivery over time.

4.5.1.3 M&E tools and technologies and Tea Tree project performance

On the perceived usefulness of the use of digital tools and current technologies in farm projects, a moderate proportion (69.1%) indicated that Nanyuki Oils Limited uses mobile apps and digital tools during project operations. Similarly, more Tea Tree production project stakeholders agreed that they received training on recording and tracking farm data though the implementation of the same was minimal in reality. This agrees with Kombian (2021) who argued that the choice of M&E tools can determine how a system contributes to project success. The study found that in Nanyuki Oils Limited, M&E tools and technologies variable was insignificant with a p value greater than alpha value ($p=0.099>\alpha=0.05$), possibly due to challenges encountered in their use including poor communication network, lack of power by some farmers and illiteracy levels. According to Nduati et al., (2024) failure to use digital tooling in M&E operations can lead to poor data quality and delayed decision making. This can cause missed opportunities to learn and innovate new ideas which was the case in the organization under study.

4.5.1.4 M&E feedback mechanisms and Tea Tree project performance

On the extent of contribution of feedback mechanisms on Tea Tree production project performance, the study show that stakeholders were allowed to participate throughout the project cycle which was backed up by evidence of meeting attendance sheets and photos of field monitoring activities. This possibly led to successful integration of their concerns into M&E planning, design and execution. The results also showed that most farmers (68.0%) were engaged in project activities and there was continuous collection and feedback response from the

organization. Akoon (2023 indicated that the level of stakeholder participation in project activities have a great impact on the success of a project. According to Inisha and Elly (2022); Eitzinger et al., (2019), efficient communication ensures that everyone involved in the project understands the project objectives, timelines and responsibilities which aligns project goals with stakeholder expectations. The study found out that 78.9% of respondents accepted to effective communication channels among project stakeholders. This could possibly be the reason why a larger percentage of Tea Tree production project stakeholders were satisfied and participated towards its success.

Overall, the study findings underscores the essence of reinforcing the M&E system for agricultural projects success (Koima & Mukulu, 2020). By examining factors such as education level, gender dynamics and age differences, the study provides valuable information into workforce characteristics and how they contribute to both M&E system components and project outcomes. Analysis of project general information provides crucial background context offering an overview of projects essential details to a study such as project status and duration of engaging in the project (Mokua & Kimutai, 2019).

The study findings reveal notable gaps in the demographic profile of project participants; predominant male (84.1%) and majority being middle-aged (37-48). Most of the farmers attained tertiary level education and had engaged with tea tree project for a period of 3-5 years at the time of this study. Derived from these insights, Tea Tree production project was found to have a distinct blend of experiences, knowledge and youthful talent that would position them to grow and benefit from M&E framework.

The main elements studied include feedback integration, quality of audits and inspections and capacity building efforts (UNEP, 2022). These findings indicate that effective planning and proper

monitoring during project implementation increases the probability of peak performance and project success which aligns with prior studies (Okafor, 2021).

Broadly, the results of this study adds to existing knowledge on how M&E system contributes to agricultural project performance, particularly in counties in Kenya. By mirroring the findings of other researchers such as (Gajera, 2019; Hauya, 2023; Mwangi et al., 2015), this study supports prior knowledge on the relationship between M&E system and project performance. It offers critical insights that can be leveraged by project stakeholders such as project managers and policy makers to improve Tea Tree production project performance and agricultural projects in Kenya at large.

4.5.2 Discussion of Theoretical Literature

4.5.2.1 Communicative action theory

The study supported the communicative action theory which state that people in systems reach understanding and coordinate actions through dialogue based on mutual agreement. According to Honneth and Joas (2015), good M&E is not just about collecting data but also stakeholders communicating, sharing interpretations and agreeing on what success looks like. The findings indicated that Tea Tree production project stakeholders (farmers, M&E staff, extension officers and project managers) are engaged throughout the project cycle through active feedback loops, involvement in baseline surveys and monitoring project progress, which lead to better ownership and enhanced project performance. Kusek and Gorgens (2010) argued that through communicative action engagements such as group meetings and reports, M&E systems allows learning, reflection and adaptation. The study findings indicated that Nanyuki Oils Limited frequently hold farmers representative meetings, utilizes extension officers to communicate with farmers and by use of

mobile phones which improves decision-making in the Tea Tree production project. The open and participatory M&E system was found to be successful in building trust between stakeholders and guided more accurate and valid evaluation results since everyone agreed on what was being measured.

4.5.2.2 Theory of change

The study supported the Theory of Change by showing that M&E functions such as systematic observation, feedback and adaptation are critical for making the steps in ToC happen effectively. Coryn et al., (2011) suggest that M&E data helps see if each step along the causal chain is happening and if the project is not achieving outputs, it will struggle to achieve outcomes. The findings indicate that farmer training is completed within set timelines. This lead to better production which support the ToC. According to Reinholz and Andrews (2020), a strengthened evidence for impact where strong M&E correlates with better performance backs up the idea that clear pathways of change can be achieved when well monitored. The results supported this idea depicting that all the independent variables (M&E planning, tools and technologies, M&E control and feedback mechanisms) had strong positive correlation with Tea Tree production project performance which provided strong evidence of relationships. Bradshaw et al., (2024) noted that ToC promotes not just impact but learning. The results of the study indicate that the M&E system elements in Nanyuki Oils Limited link project activities with outcomes ensuring stakeholder interest and concerns are incorporated into decision-making. This lead to improved project outcomes which reinforces the learning loops in the organizational ToC. The study therefore provided evidence that both communicative action theory and the theory of change were valid in practice.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter further interrogated the results discussed in chapter four, with a view of drawing conclusive grounds and providing suggestions for further studies. It highlighted the summary of the study findings, conclusions, recommendations and suggestions for further research.

5.2 Summary of the Result Findings

The study involved 243 participants, and 194 survey questionnaires were observed to have sufficient information, resulting to a response rate of 79.8%. This was deemed adequate for making conclusions as asserted by Bell et al., (2022). Demographic information was fetched from Nanyuki Oils Limited Tea Tree production farmers who are the main project beneficiaries. Most of them were male (84.1%) with varying age brackets, education levels and different family members per household. Project information indicated that most respondents (75.8%) owned the farm, majority of farmers had engaged in Tea Tree production project for 3-5 years (28.9%) and a larger proportion described the project to be growing (53.6%).

Performance assessment of Tea Tree production project in Nanyuki Oils Limited showed that majority of the participants were content with the fact that the project is completed within the planned schedule and budget (57.7%). Nevertheless, 39.7% disagreed with this opinion regarding project performance. A proportion of 82% were satisfied with the expression that project deliverables met required quality standards, indicating robust efforts by Nanyuki Oils Limited towards organic farming. The issue on financial reports being accessible to all project stakeholders invited mixed reactions from study participants, with 69.1% agreeing to it and 24.2% remaining

neutral. 74.7% of participants affirmed that the organization offers fair prices for tea tree leaves (Biomass) while 22.2% remained neutral regarding product pricing.

5.2.1 M&E Planning and Performance of Tea Tree Production Project

The examination of M&E planning on the Tea Tree production project performance revealed promising signs among participants, with 72.2% accepting that they were well trained and aware of M&E procedures and guidelines for Tea Tree production project. Regarding clarity of project goal and objectives, a proportion of 78.4% remained positive and affirmed that they continuously worked towards achieving them. In terms of whether baseline surveys are conducted before the beginning of every project phase and the data obtained utilized in M&E planning, 68.6% were in agreement. However, 24.2% of the study participants held a neutral position regarding baseline surveys. Similarly, assessment of whether stakeholders were cognizant of project policies and standard operating procedures concerning Tea Tree project implementation was met with varied feedback. 77.3% of respondents accepted while 19.1% remained neutral.

The study further observed that M&E planning had the strongest positive correlation with Tea Tree production project performance, with ($r=0.859$; $P=<0.001$). The study revealed that for each additional unit in M&E planning variable, project performance of Nanyuki Oils Limited in Laikipia East Kenya was predicted to increase by 0.392 units keeping other variables unaltered.

5.2.2 M&E Control and Performance of Tea Tree Production Project

Majority of participants (62.9%) agreed that the organization consistently undertake capacity building activities, while 75.8% affirmed that quality audits and inspections are performed regularly. Additionally, 59.3% gave a bold acceptance that the organization has adequate risk mitigation strategies in place while 38.1% remained neutral. A significant number of respondents

(68.0%) accepted the statement that roles and responsibilities are clear and participatory, while 70.6% agreed that there was a well-documented change control process. Finally, 62.9% of farmers consented that they were trained on how to track indicators such as yield per hectare though 32.0% held a neutral stance. The overall responses show a positive perception of effective monitoring and control element in the Tea Tree production project implementation

The analysis also revealed that M&E control had a robust favorable correlation with Tea Tree production project performance with ($r=0.825$; $P=<0.001$). The findings suggested that for every rise in M&E control, performance of Tea Tree production project of Nanyuki Oils Limited was predicted to increase by 0.148 units assuming other predictor variables remained constant.

5.2.3 M&E Tools and Technologies on Performance of Tea Tree Production Project

The survey results in Nanyuki Oils Limited indicate a strong positive consensus among respondents regarding M&E tools, technologies and performance of Tea Tree production project. Notable points include high acceptance percentages (69.1%) for use of mobile apps and digital tools for record keeping as well as training on tracking and recording farm data (58.8%). Majority of participants (54.1%) positively acknowledged the expression that M&E tools and technologies help in detecting risks in projects while 39.7% remained neutral.

The research additionally found that tools and technologies had a moderate favorable correlation with Tea Tree production project performance, where ($r=0.793$; $P=<0.001$). The results suggested that for every unit rise in tools and technologies, performance of Tea Tree production project was predicted to increase by 0.091 units, keeping all else unchanged. However, this result was not substantial since $P=0.099$, hence $P>0.05$ making the influence of tools and technologies statistically insignificant. This suggested that while there may be a tendency for tools and

technologies to increase with project performance, the evidence from the sample in this study was not strong enough to confirm a reliable association. Contextual factors such as Tea Tree farmers preferring traditional practices over new technologies and failure of tool design to match with local needs could also have led to weakened strength of the relationship between these variables.

5.2.4 Feedback Mechanisms and Performance of Tea Tree Production Project

The analysis of the effect of feedback mechanisms on Tea Tree production project performance offered positive sentiments among respondents, with 78.9% showing confidence in effective use of communication channels among project stakeholders. The majority (68.0%) accepted that data is frequently collected and project progress captioned indicating a pro-active approach to Tea Tree project effectiveness. There were mixed viewpoints concerning active engagement of stakeholders in project activities, with (58.8%) of participants agreeing and 38.1% maintaining a neutral position. Regarding integration of stakeholder interests and concerns in decision-making, diverse standpoints were registered with 60.3% agreeing and 33.5% remaining neutral. 76.8% affirmed that the organization has proper documentation of reports and maintains all records.

The study further determined that feedback mechanisms had a moderate favorable correlation with project performance of Nanyuki Oils Limited Tea Tree production with ($r=0.823$; $P=<0.001$). This result revealed that for each additional unit in feedback mechanisms variable, project performance of Nanyuki Oils Limited Tea Tree production was predicted to increase by 0.298 units when other predictor variables were unchanged.

5.3 Conclusions

The study concludes that M&E planning influences Tea Tree project performance of Nanyuki Oils Limited. The role of planning in M&E is very crucial in making decisions that lead to project

success. M&E planning helps in clarification of objectives and indicators to project stakeholders, ensures transparency of processes and guides efficient use of resources.

The study concludes that project monitoring and control influence the degree to which project deliverables meet quality standards and guide project continuity. This according to the study findings is necessitated by mitigation of potential risks, strengthening the skills of project participants and allowing project stakeholders to participate during project execution. The level of participation provides a link between project stakeholders and their commitment to its success, improves responsiveness and prevents conflicts and resistance.

Conclusively, feedback mechanisms significantly contribute to tea tree project performance by ensuring farmers are fully engaged in project activities and enhancing communication channels. Continuous data collection, documentation and proper record keeping ensures accountability ultimately contributing to stakeholder satisfaction.

Finally, tools and technologies contributes to project performance through the use of digital tooling, real time project monitoring and use of M&E technologies to mitigate and detect challenges. Though tools and technologies variable had a positive correlation with project performance, it was found to have an insignificant effect on Tea Tree project success. The direction indicates a potential relationship worth exploring by other researchers with different methodologies and larger samples.

5.4 Recommendations for Practice

The study recommends that farm projects employ a holistic approach that integrates both quantitative and qualitative methods, alongside participatory techniques such as group meetings and key informant interviews to capture stakeholder perspectives. This as evidenced by the current

research enables triangulation of processes from various stakeholders lens. Additionally, emphasis should be placed on reinforcing the overall M&E system to ensure regular data collection using digital tools for timely and accuracy of outcomes. Based on the positive perceptions regarding M&E framework in this study, project implementers should conduct robust baseline surveys before developing M&E plan to establish pre-project conditions and enable comparisons over time.

The study recommends frequent feedback loops and reflection sessions with farmers, project staff and extension officers to support continuous learning and adaptive management. This is drawn from the study findings which had diverse perspectives regarding farmers being actively engaged in project activities. Efforts to integrate GIS mapping in initiatives should be further emphasized since they help put up targeted risk mitigation measures and monitor spatial changes for better resource allocation. It is recommended that the organization train and assist farmers to do self-monitoring during project implementation to reduce staff workload and enhance project outcomes.

5.5 Recommendations for Further Research in this Field of Study

Future research on the effect of M&E tools and technologies on agricultural project performance could explore several key avenues. One potential area is assessing the comparative effectiveness of traditional versus digital M&E approaches in enhancing project performance, especially in terms of data accuracy, efficiency and decision-making speed. This relate to the outcome where the organization under study utilized analogous tools and technologies. Additionally, sector-specific impact of project tools and the role of stakeholder capabilities in utilizing the M&E tools and technologies effectively warrants more exploration. Research might further delve into exploring how inclusive, timely and actionable feedback improve project outcomes.

Studies could also examine the degree to which activities are tracked throughout project progress to ensure the project is completed within set timelines. This is from the finding that a larger fraction of respondents (39.7%) disagreed with the statement that the project is completed within stipulated schedule and budget. Finally, examining how M&E plans align with project objectives and contextual realities to enhance learning and adaptability throughout the project cycle present promising opportunities for in-depth study.

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APPENDICES

Appendix i: Research Tools

Questionnaire for the farmer

Good morning/ afternoon/ evening. I am Elizabeth Migwi, a Masters student at MKU. I am conducting an investigation about "Monitoring and Evaluation Systems on Project Performance". Your opinion is very important for this research. I humbly request your assistance by answering the questions in the questionnaire accurately and honestly. All information that you will provide will remain confidential, and will not be exposed to a third party. Kindly do not disclose your name anywhere in this questionnaire.

Kind regards.

Section A: Demographic Factors

1. Gender: a. Male [ ] b. Female [ ]
2. What is your age? a. Under 24 [ ] b. 25-36 [ ] c. 37-48 [ ] d. 49-60 [ ]
   e. 60 and above [ ]
3. Education Level? a. Primary [ ] b. Secondary [ ] c. Tertiary/ College [ ]
   d. University [ ]
4. How many family members are in your household? a. 1-3 [ ] b. 4-6 [ ] c. above 6 [ ]

Section B: General Project Information

5. How much time have you engaged in Tea Tree project? a. Less than 15 months [ ] b. 16 months - 3 years [ ] c. 3-5 yrs [ ] d. 6-9 yrs [ ] e. Above 9 yrs [ ]
6. What is your title in the farm? a. Manager [ ] b. Owner [ ]

7. What is the Location of your farm? a. Kamangura [ ] b. Marura [ ] c. Matanya [ ] d. Gitero [ ] e. Mwireri [ ] f. Kaaga [ ] g. Kithithina [ ] h. Mwiruti [ ] i. Gatuanyaga [ ]
8. What is the most effective way to describe your Tea Tree project since initiation?
   a. Growing [ ] b. Constant [ ] c. Dropping [ ].

Section C: M&E Planning and Project Performance

9. To what extent as indicated below does M&E planning contribute to Tea Tree project performance?

	Highly Reject	**Reject**	**Neutral**	**Accept**	**Highly accept**
	1	**2**	**3**	**4**	**5**
• Farmers are well trained on M&E procedures					
• Tea Tree project goals and objectives are clear					
• Baseline surveys are conducted					
• Budget and resources for M&E activities are available					

Section D: M&E Control and project performance

10. To what extent do you approve of below expressions on the effect of M&E control on Tea Tree project performance.

	Highly reject 1	**Reject 2**	**Neutral 3**	**Accept 4**	**Highly accept 5**
• Quality audits and inspections are performed regularly					
• Nanyuki Oils Ltd has adequate risk mitigation strategies					
• Implementation roles are clear and participatory					
• There is a well-established change control process					
• Farmers are well trained on indicator tracking					
• Nanyuki Oils Ltd undertakes capacity building activities					

Section E: M&E tools and technologies and project performance

11. Please rate the following expressions regarding M&E tools and technologies:

Highly reject	Reject	Neutral	Accept	Highly accept
1	2	3	4	5

- Nanyuki Oils uses mobile apps and digital tools for data collection and reporting
- Farmers receive training on recording and tracking farm data
- Using M&E tools guides improvement in productivity and decision-making
- M&E tools and technologies help in detecting and mitigating challenges

Section F: Feedback mechanisms and project performance

12. Kindly rate your level of satisfaction with the following comments on how feedback mechanisms guide Tea Tree project performance?

Highly reject	Reject	Neutral	Accept	Highly accept
1	2	3	4	5

- Farmers are actively engaged in project activities
- There is effective use of communication channels among project stakeholders
- Project participants interests are integrated into decision making
- Nanyuki Oils Limited has proper project documentation and record keeping
- Data is frequently collected and farmers project progress captured

Section G: Performance of Tea Tree project in Laikipia East, Kenya

13. Kindly tick inside the box on the level to which you agree with the below expressions regarding Tea Tree project performance.

Highly reject	Reject	Neutral	Accept	Highly accept
1	2	3	4	5

- Project is always completed within schedule and budget

- Project deliverables meet quality standards

- Financial reports are accessible to all stakeholders

- Nanyuki Oils limited offers fair pricing and stable markets for Tea Tree oil

Thank you.

Interview Schedule for senior leadership

Good morning/ afternoon/ evening. My name is Elizabeth Migwi, an MKU student investigating the effect of M&E system on Tea Tree project performance in your organization. The details you provide will remain confidential. Kindly participate to the best of your capability.

1. How does Tea Tree project objectives align with Nanyuki Oils Limited long-term goal?
2. What resources are set aside for the operation of the M&E system (technical, financial, human)?
3. How do you ensure Tea Tree project outcomes remain sustainable after project tenure?
4. How often does leadership facilitate training programs to build teams capacity for the project?
5. How do you ensure M&E insights are utilized for timely decision-making?
6. What mitigation and adaptive strategies have you put up to ensure the Tea Tree project performs beyond expectation?
7. How do you ensure the M&E team is competent enough to understand and deliver the operations in an M&E system?
8. What contingency plans do you have in place to ensure the project handles unforeseen changes in schedule and budget?
9. How do you handle the change control process to ensure the changes do not affect the normal project operations?
10. How do you plan to reinforce the M&E system to ensure eventual success of the Tea Tree project?

Thank You

Interview Schedule for Project Managers

Good morning/ afternoon/ evening. I am Elizabeth Migwi, a student from Mount Kenya University carrying out a survey which aims to examine the role of M&E practices in Tea Tree project success. I am assuring you of confidentiality of the information you will provide.

1. Please explain how you ensure Tea Tree project staff understand and use M&E data to guide the project activities?
2. How do you integrate feedback from stakeholders into progressive M&E processes and project workflows to obtain their satisfaction?
3. What methods do you use to communicate policies, guidelines, strategies and processes to Tea Tree project staff?
4. How do you handle the change control process to optimize use of resources and ensure adjustments meet stakeholder expectations?
5. Which feedback channels do you apply to gather and respond to feedback from Tea Tree project stakeholders?
6. How do you ensure funds and necessary resources for M&E activities are available when needed?
7. How do you disseminate reports to stakeholders for accountability and transparency purposes?
8. Which project management software do you use for planning and scheduling time and costs? How does it contribute to resource optimization?
9. In your own opinion, which components of the Nanyuki Oils Limited M&E system can be reinforced to ensure optimum project performance and how

Thank you.

Interview Schedule for M&E personnel

Good morning/ afternoon/ evening. I am Elizabeth Migwi a student from MKU investigating how elements of an M&E system influence Tea tree productivity in your organization. Details provided will remain confidential and shall only be utilized for academic work. Please get involved and feel free to offer required information.

1. How do you develop indicators and targets to track Tea Tree project milestones during implementation?
2. Which data collection tools do you use and how do they contribute to timely decision-making in Tea Tree project operations?
3. What data visualization tools do you use and how do they help in accountability and transparency of Tea Tree project?
4. How do you ensure your M&E skills align with current innovations and best practices for Tea Tree project sustainability?
5. How often do you engage farmers for feedback information to be sure of their satisfaction?
6. Which method do you use to categorize and prioritize farmer's responses and how do you integrate their expectations into decision-making?

Thank You

Interview Schedule for extension officers

Good morning/ afternoon/ evening. My name is Elizabeth Migwi, a student as earlier introduced. The study purposes to investigate the role M&E system plays in Tea tree project improvement in your organization. I am assuring you of confidentiality for the information you will provide, and will only use it for schoolwork. Kindly participate by availing the required information to your level best.

1. What key performance indicators do you use to monitor Tea Tree project progress?
2. How do you ensure farmers are equipped and well aware of guidelines, processes and stages of Tea Tree growth and have adequate knowledge on project practices?
3. What challenges do you face while implementing M&E activities and how do you solve them?
4. After distribution of seedlings to farmers, how do you ensure the quality of the biomass is not compromised by use of conventional fertilizers?
5. How often do you attend refresher courses on M&E practices?
6. What tools do you use to collect data from the field and how do they contribute to timely decision making?
7. What communication channels do you use to update farmers, project managers and M&E personnel throughout project implementation?
8. From your own perspective, what suggestions would you give to improve Tea Tree project performance?

Thank You

Appendix ii: ERC Certificate

Mount Kenya University

REF: **MKU/ISERC/4917** Date: 04 April 2025
TO: **ELIZABETH MIGWI**
REG: **MAME/2023/63295**

Dear Sir/Madam,

RE: INFLUENCE OF MONITORING AND EVALUATION SYSTEM ON PROJECT PERFORMANCE: A CASE OF THE NANYUKI OILS LIMITED TEA TREE PRODUCTION IN LAIKIPIA EAST, KENYA

This is to inform you that **Mount Kenya University** has reviewed and approved your above research proposal. Your application approval number is **3639.** The approval period is **04/04/2025 - 03/04/2026.**

This approval is subject to compliance with the following requirements;

i. Only approved documents including informed consents, study instruments, MTA will be used
ii. All changes including amendments, deviations and violations are submitted for review and approval by **Mount Kenya University**
iii. Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to **Mount Kenya University** within 72 hours of notification
iv. Any changes, anticipated or otherwise that may increase the risks or affect the safety or welfare of study participants and others or affect the integrity of the research must be reported to **Mount Kenya University** within 72 hours
v. Clearance for export of biological specimens must be obtained from relevant institutions
vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal
vii. Submission of an executive summary report within 90 days upon completion of the study to **Mount Kenya University**

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) https://research-portal.nacosti.go.ke and also obtain other clearances needed.

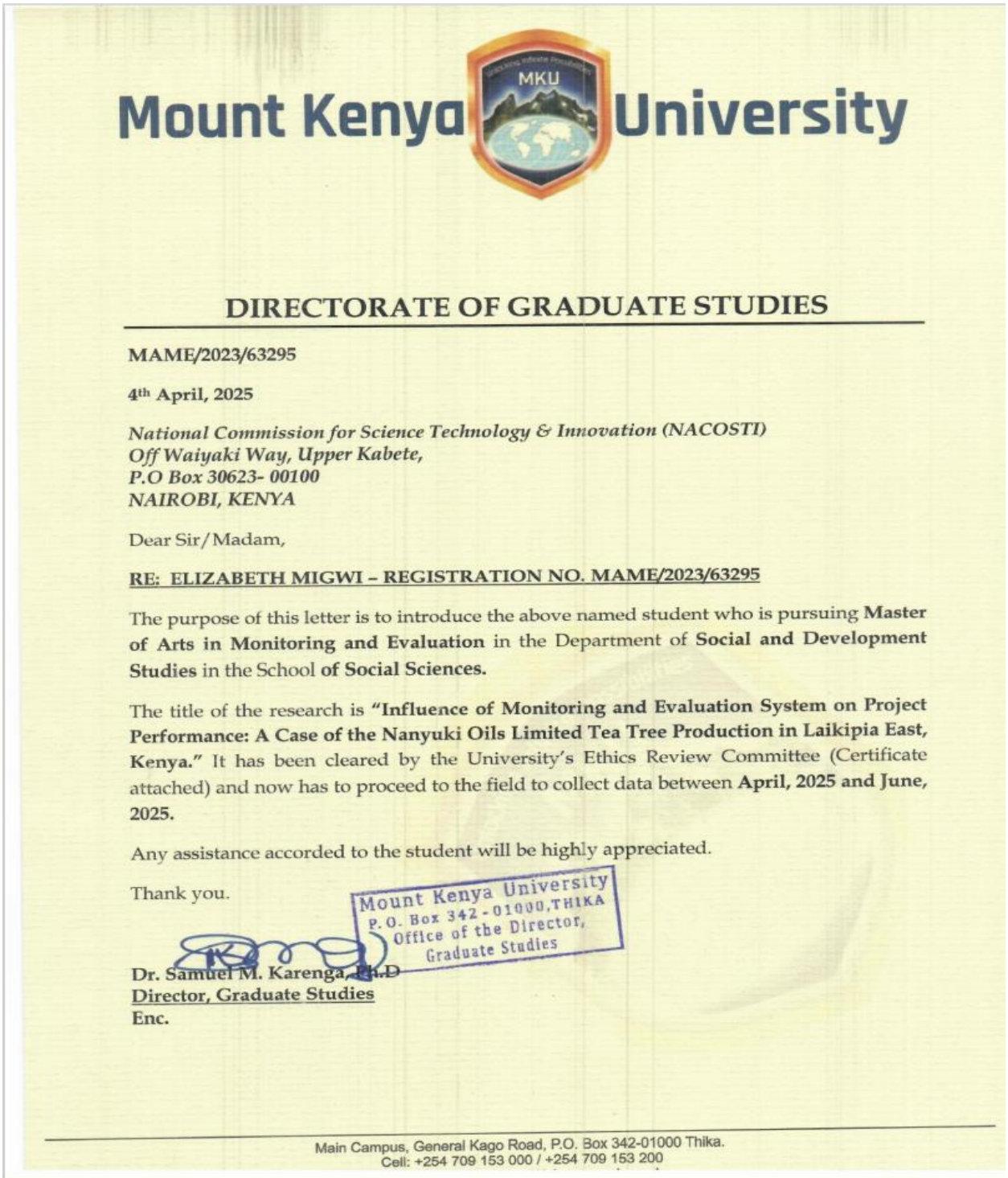
Yours sincerely,

Dr. Alfred Owino, PhD
Chairman, Mount Kenya University ISERC

MOUNT KENYA UNIVERSITY
ETHICS REVIEW COMMITTEE
P. O. Box 342 - 01000,
THIKA

Main Campus, General Kago Road, P.O. Box 342-01000 Thika.
Tel: +254 20 287 8000, Cell: +254 709 153 000
Email: info@mku.ac.ke, Web: www.mku.ac.ke

Appendix iii: Introduction Letter



Mount Kenya University

DIRECTORATE OF GRADUATE STUDIES

MAME/2023/63295

4th April, 2025

National Commission for Science Technology & Innovation (NACOSTI)
Off Waiyaki Way, Upper Kabete,
P.O Box 30623- 00100
NAIROBI, KENYA

Dear Sir/Madam,

RE: ELIZABETH MIGWI – REGISTRATION NO. MAME/2023/63295

The purpose of this letter is to introduce the above named student who is pursuing **Master of Arts in Monitoring and Evaluation** in the Department of **Social and Development Studies** in the School **of Social Sciences.**

The title of the research is **"Influence of Monitoring and Evaluation System on Project Performance: A Case of the Nanyuki Oils Limited Tea Tree Production in Laikipia East, Kenya."** It has been cleared by the University's Ethics Review Committee (Certificate attached) and now has to proceed to the field to collect data between **April, 2025 and June, 2025.**

Any assistance accorded to the student will be highly appreciated.

Thank you.

Mount Kenya University
P. O. Box 342 - 01000, THIKA
Office of the Director,
Graduate Studies

Dr. Samuel M. Karenga, Ph.D
Director, Graduate Studies
Enc.

Main Campus, General Kago Road, P.O. Box 342-01000 Thika.
Cell: +254 709 153 000 / +254 709 153 200

Appendix iv: NACOSTI Research License

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **178101**

Date of Issue: **14/April/2025**

RESEARCH LICENSE

This is to Certify that Ms.. ELIZABETH NJERI NJERI of Mount Kenya University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Laikipia on the topic: INFLUENCE OF MONITORING AND EVALUATION SYSTEM ON PROJECT PERFORMANCE: A CASE OF THE NANYUKI OILS LIMITED TEA TREE PRODUCTION IN LAIKIPIA EAST KENYA for the period ending : 14/April/2026.

License No: **NACOSTI/P/25/418246**

178101

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.

See overleaf for conditions

Appendix v: Research Authorization

NANYUKI OILS
ESSENTIAL OIL PRODUCTION

02nd April 2025

To whom it may Concern,

Ref: Permission to collect data for academic research

This is to confirm that Elizabeth Njeri Migwi (MAME/2023/63295) a student at Mount Kenya University has been granted permission to collect data within our organization, Nanyuki Oils Limited for purpose of conducting academic research titled '*How M&E system affects Tea Tree Project performance*' in the month of April 2025 to end May 2025.

The data collection will involve administration of questionnaires, conduct interviews or review relevant documents and will be conducted under the supervision of the appropriate department within the organization. The student is expected to ensure that the data collection process does not disrupt the normal operations of the organization and that all information collected is used strictly for academic purposes.

We trust that the student will maintain confidentiality and uphold ethical standards throughout the course of this research activity.
Should you require further clarification, please feel free to contact us.

Sincerely,
Martin Wainaina,

Operations Director
Nanyuki Oils Ltd.

Appendix vi: Turnitin Report

Elizabeth Njeri Migwi

Elizabeth_Migwi_Project_Report_July 25.docx

Postgraduate 2025
POSTGRADUATE 2024/25
Mount Kenya University

Document Details

Submission ID
trn:oid:::1:3288360643

Submission Date
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Appendix vii: Research site map