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MONITORING AND EVALUATION TOOLS AND PERFORMANCE OF CLIMATE CHANGE PROJECT: A CASE OF GREEN AMAYAGA PROJECT

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ABSTRACT

The purpose of this research was to examine monitoring and evaluation tools and performance of climate change project, case study of Green Amayaga Project. The research was guided by the following specific objectives: to evaluate the effect of project control tools on the performance of Green Amayaga climate change project, to assess the effect of project performance reporting on the performance of Green Amayaga climate change project and to determine the effect of project results evaluation on the performance of Green Amayaga climate change project. Three theories identified in this research include goal setting theory, theory of change and evaluation theory of tree. Furthermore, the research design used both descriptive and correlation analyses. The target population was made up of 143 people while the sample size is 106 selected using simple random sampling technique and quota sampling including the beneficiaries of Green Amayaga Project. Primary data was collected using questionnaires and interview guide. The findings revealed a strong relationship between project control tools and project performance as reported by the Pearson correlation ($r=0.735$, $p<0.05$). The findings on objective two ($r=0.604$, $p<0.05$) indicates positive and significant relationship with project performance. The findings based on the third objective reported a moderate positive relationship ($r=0.504$, $p<0.000$) between project result evaluation and project performance. The regression analysis reported $R^2=0.810$ showing that 81% of the project performance is due to the influence of the use of project M&E tools such as project control tools, project performance reporting and project result evaluation. The researcher recommends that the project managers in community-based projects such as the Green Amayaga should use the M&E tools to ensure such projects achieve their development objectives within their budget, timeframe, and scope. The researcher also recommends that progressive reporting should be adopted in order to continuously furnish the donors and other stakeholders with relevant information for decision making.

KEY WORDS: Monitoring *and Evaluation, M&E Tools, Climate change adaptation, Project Performance, Rwanda*

1.0 INTRODUCTION

1.1 Background of the Study

Climate change has been a critical matter to discuss globally in the last decade since, it has been characterized by the change of weather which affected food production, rising sea levels which could cause the tragedy of flooding as well as increase of heat waves and fast of loss of biodiversity and ecosystem. After this observation, the issue of climate change was not the concern of one country, rather than has been the issue of world. Climate change has been considered as a threat to the life of the livelihoods of worldwide. In 2020, US$100 billion per year was invested worldwide in climate change, however, there were no improvements made despite the efforts and resources injected in the program (Carty & Kowalzig, 2022).

Globally, monitoring and evaluation (M&E) has been seen as the solution of identification of the potential areas of the investment in climate change aspect, but also this means have been seen as the tool to track what is working well, and what is working wrong, and set the measures of making the betterment of the program. In addition to that, M&E of the climate change supported the strategic and effective investments in climate change adaptation.

In Europe, Klostermann, *et al.*, (2018) provide detailed information that gives evidence of the use of monitoring and evaluation framework for climate change adaptation projects. The authors further indicate the significance of developing M&E resources, frameworks and approaches that practitioners and other stakeholders can utilize to ensure that the climate adapt projects achieve their intended objectives of preserving the climate while at the same time bringing out the maximum social and economic benefits to the human society. Through M&E frameworks, it is possible to reverse the adverse effects of climate change in a way that would benefit the lives and livelihoods around the globe for the purpose of sustainable human development. The M&E tools and framework provide the climate change project with this opportunity of achieving desirable project outcomes.

In Asia, the report prepared by Karki, *et al.*, (2018) on the climate change adaptation projects in Nepal has evidenced that the use national M&E systems has majorly focused on monitoring and identification of problems encountered in project implementation. This has indicated that the M&E has not focused so much on the evaluation of project performance. Hence, the authors recommend the use of M&E systems in such a way that stakeholders are actively engaged, project performance in continuously reported and that evaluation of progress provide feedback for effectiveness in project success. Percy, *et al.*, (2019) also documents the application of M&E in agriculture and food security projects in Asia. The authors acknowledge the need for monitoring and evaluating the performance of the climate change in ensuring the sustainability of food security in Asia.

In African continent, the fact of formulating the effective response to climate change has been a critical need which can vary from one African institution to another. That means that, to enhance evidence-based management work is to utilize M&E measures which is the vital tool to be used to track the information related to climate change and their mitigations and adaptation interventions which are not yet to be exploited to enhance the effectiveness of the programs related to climate change. The research has shown that in developing countries, their citizens are mostly affected by climate change, that is the reason why in developing Africa countries, the designing of sustainable M&E system can increase the visibility of climate change aspect, and therefore, this intervention can lead easily to the resilient economic growth. In addition to that, M& E system in Africa has been considered as the effective tool used to determine learning, informing evidence-based decision-making, promoting the accountability of climate change issues as well as improving climate change mitigation measures and adaptation intervention(Ssekamatte, 2018).

In Rwanda, the Government of Rwanda (GoR) made commitment towards climate change control in its Nationally Determined Contributions (NDC) 2020 submitted to United Nation with promise towards achieving inclusive and sustainable development (Ministry of Environment, 2020). Despite this commitment, most of the population in Rwanda depend on natural resources. In addition to that, 72.1% of the population live in rural areas, whereas 27.9% remaining are in the urban areas according to the census done in 2022 (NIRS, 2022). In addition to that, 53.4% of Rwandan population depend on agriculture sector for their livelihood and source of income. Statistics have shown that 94% of Rwandan population are using wood fuel (solid fuel) as source of the energy for cooking. And the research has shown that 80% of the diseases suffered by people living in urban areas are due to environmentally related effects. In fact, most effects are due to the mismanagement of water treatment and sanitation. Thus, the fact of conducting monitoring and evaluation of the effect of the consumption of natural resources and effect of human activities at a certain period can allow the decision makers to ensure that there is high performance and sustainable development and ensure that there is also sustainable livelihood of Rwandan people (UNDP, 2020). The current study investigated the effect of monitoring and evaluation tools on the climate change project performance in Rwanda, taking a case of Green Amayaga project. This project was launched in 2020 as a six-year initiative to promote biodiversity, foster ecosystem services and increase agricultural production of the beneficiaries. The project also intends to uplift the livelihood of the beneficiaries in a way that would improve their socioeconomic status.

I.2 Problem statement

The fact of conducting monitoring and evaluation of the project and program has been playing a big role in project success. In many developing countries like Rwanda, the donors set strict measures elucidating how data will be collected, and how they will be analyzed and being interpreted as well. This should be set for being reported periodically with the intention of tracking the routine learning and informing the donors the status of the performance of the project and tracking the accountability of the project throughout the project life cycle. In addition to that, the M&E system didn't solve the problem completely because it was separated from the weather information.

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Most empirical studies conducted in Rwanda like very few empirical literatures conducted in Rwanda like Muhayimana and Kamuhanda (2020), Alex and Irechukwu (2021) and Uwanyirigira, *et al.*, (2022) are narrow in their focus and carried out in different projects. They are not exhaustive enough to cover M&E tools. This study intends to fill the existing research gap and add to the body of knowledge by including different tools for M&E and project performance for climate change projects. Most of the people in Rwanda depend on natural resources. In addition to that, 72.1% of the population live in rural areas, whereas 27.9% remaining are in the urban areas according to the census done in 2022 (NIRS, 2022). In addition to that, 53.4% of Rwandan population depend on agriculture sector for their livelihood and source of income. About 94% of Rwandan population depend on wood and fuel for their energy. Then more than 80% of the diseases suffered by the vulnerable people are environment related diseases which can lead even to the death. Therefore, destruction of natural resources by human activities such as unmanaged agricultural activities done by the cultivators and mining activities can lead to poverty level which is currently at 56% according to the data retrieved from statistics in 2002. In addition to that, Rwandan country has put in place climate change adaptation initiative in different fields such as agriculture and food security which is due to the temperature increase from 1.5^0c to 2.7^0c. Therefore, that is causing some climate consequences such as flooding, and landslides as well. Rwandan Government established the National Adaptation Plan (NAP) aiming at helping it to monitor and evaluate the learning system for climate change adaptation. However, this practice was only focusing on the agriculture sector. Further, the government is committed towards the climate change as mentioned in the NDC 2020 towards environment conservation. Yet, more needs to be done to achieve desired levels. Within this context, in this study, the researcher investigated the effect of monitoring and evaluation tools on the performance of climate change projects in Rwanda, taking a case of the Green Amayaga project in Nyanza.

I.3 Research Objectives

The study aimed at assessing the effect of monitoring and evaluation tools on the performance of climate change projects in Rwanda, taking a case of the Green Amayaga project in Nyanza.

i). To evaluate the effect of project control tools on the performance of Green Amayaga climate change project.
ii). To assess the effect of project performance reporting on the performance of Green Amayaga climate change project.
iii). To determine the effect of project results evaluation on the performance of Green Amayaga climate change project.

I.4 Research Questions

i). What is the effect of project control tools on the performance of Green Amayaga climate change project.
ii). What is the effect of project performance reporting on the performance of Green Amayaga climate change project.
iii). What is the effect of project results evaluation on the performance of Green Amayaga climate change project.

2.0 LITERATURE REVIEW

2.1 Empirical Literature

Kivila, *et al.*, (2017) in their research investigated the contribution of project control on sustainability of infrastructure projects in Europe. The study used case study research design because it was explanatory in nature. It used interview to gather primary data and was also qualitative in nature. The authors acknowledged the use of control processes to enhance project success and sustainability. In particular, the study found that financial incentives in a project can be used as control mechanism in sustainability of projects. In this control process, the goals of the project are included in the incentives to allow the project donors to fund the project knowing the project goals. Furthermore, use of KPIs analysis enable the project managers to convey relevant information for the purpose of the performance of the project.

In Kenya, Chege and Bowa (2020) studied the effect of M&E on the performance of NGO projects in Nairobi County. Using questionnaires and interviews, the authors collected primary data from 156 officers implementing the projects. The authors put forward the arguments that the use of M&E team, their skills and experience can influence the performance of projects. They therefore investigated the contributing effect of the M&E approaches adopted on the project performance. The findings showed that the suitability of M&E approaches ($r=0.273$, $p=0.010$) adopted and the M&E team ($r=0.441$, $p=0.000$) have positive effect on project performance. Cheboi (2022) in unpublished thesis investigated the effect of M&E tenets on the performance environmental projects in Kenya. the authors identified M&E resource allocation, M&E staff expertise and M&E tools as the main variables that influence project

performance. The author found that M&E resource allocation is important practice in determining the performance of environmental projects with a mean score of 3.34 and 1.156. On the other hand, the M&E staff expertise importantly influences project performance with a mean score of 3.41 and standard deviation of 1.208 while the use of M&E tools scored a mean of 3.59 and standard deviation of 1.073. The results therefore implied that project performance is positively determined by the different M&E tenets that the project managers implement in their projects.

In Nigeria, Ibrahim, and Adamu (2021) assessed the application of M&E such as control and monitoring practices on construction project performance. Using questionnaires and interview to collect primary data, the researcher focused on sixty quantity surveyors. They found that only 26% use M&E tools very often while all the respondents believed that M&E tools have an impact on project delivery. In their research, Awah, *et al.*, (2021) investigated the effect of M&E strategies on project completion in Nigeria. The authors paid specific attention to project inspection, engineering certificate, contractor's integrity, and stakeholders' interest and how this affects the completion of projects. The primary data was collected using questionnaire distributed to a sample of 153 respondents. The regression analysis reported that there is a positive effect between M&E strategies and project completion. In this regard, project inspection ($r=0.964$, $p<0.05$), engineering certificate ($r=0.918$, $p<0.05$), contractor's integrity ($r=0.921$, $p<0.05$) and project completion ($r=0.926$, $p<0.05$) which implied that all the investigated M&E strategies have significant effect on project completion.

Hubert and Mulyungi (2018) investigated the influence of M&E planning on project performance in Rwanda. The authors used a sample of 106 from which they distributed structured questionnaire. The authors acknowledged the significance of M&E planning in improving the performance of NGO projects and sought to provide an empirical study of the same. Using descriptive and correlational analyses, the authors found that 92% of the respondents positively indicated the need for M&E planning in improving the project performance. Further, the authors found Karl Pearson correlation of 0.80 between M&E planning and project performance showing that monitoring and evaluation has a strong impact on the performance of project.

Mokua and Kimutai (2019) investigated the influence of M&E systems on the performance of Public Private Partnership (PPP) projects in Nairobi, Kenya. the authors were concerned specifically with the availability of M&E systems, staff competence, the use of M&E reports and the use of logical frame. A sample of 125 people were selected purposively, and questionnaires and interview were used as research instruments. The findings reported $R^2=0.038$ indicating that M&E planning influences 3.8% of the variances in project performance. In addition, the multiple regression analysis reported that staff competence ($\beta_1=-0.066$, $p=0.510$), availability of M&E department ($\beta_2=0.11$, $p=0.310$), the use of logical frame ($\beta_3=-0.038$, $p=0.717$) and the lack of using M&E reporting ($\beta_4=-0.217$, $p=0.042$) only the use of M&E reports was statistically significant since all the other p-values were greater than 5% level of significance.

Kissi, *et al.*, (2019) investigated the effect of M&E practices on the success criteria for construction projects in Ghana. The authors initially acknowledge the significance of M&E practices in controlling and influencing project success. They therefore identified different M&E practices such as baseline studies, M&E planning, M&E framework, M&E budgeting, and M&E scheduling. The project success was also measured using key indicators such as cost performance, schedule performance, quality performance, health and safety performance, stakeholders' relationship, project scope and environmental performance. Using structured questionnaire, the authors collected and analyzed primary data using partial least square-structural equation modeling. They found that M&E practices investigated have positive and statistically significant effect on the construction project success giving an R^2 values ranging from 0.325 to 0.536. Ssekamatte (2018) investigated the role of M&E in climate change mitigation initiatives in developing countries. The author recognized the significance of M&E in enhancing evidence-based management, yet M&E is underutilized as a tool. The author used desktop approach by reviewing fifteen different empirical literature and found that M&E can be used as an effective tool for learning, promoting accountability, learning, and informing the climate change projects.

Alex and Irechukwu (2021) investigated the effects of M&E tools on project performance in Rwanda with a case of Busanze housing project in Kicukiro district. The authors identified three key tools of M&E including M&E plan, logical framework formal survey and result oriented M&E. They used both qualitative and quantitative research approaches. The target population was 120 people from which a sample of 94 was selected using stratified random

sampling. The findings indicated that M&E plan has positive relation with project performance (r=0.348, p=0.001), that M&E logical framework positively affect project performance (r=0.254, p=0.041) and formal survey also improve project performance with correlation (r=0.291, p=0.005). The analysis on the combined effect showed that the three strategies affect 72.7% on the stakeholder's satisfaction, 53.3% on timely delivery and 75.3% on the effective use of budget in project performance. This imply that M&E tools significantly affect the project performance.

Muhayimana and Kamuhanda (2020) investigated the relationship between M&E practices and public project performance in Rwanda with a case of Science and Technology Skills Development (STSD) project. The authors were interested in M&E plan, participatory approach and disseminating M&E results on project performance in terms of cost, time and quality performance. The results showed that the R^2=0.977, indicating that 97.7% of the project performance is influenced by the monitoring and evaluation practices used and how effective these are employed. Uwanyirigira, *et al.*, (2022) assessed M&E practices on the performance of NGO projects in Rwanda. The authors used theory of change, community action planning theory and dynamic capabilities theory. The study used descriptive and correlation designs and targeted 116 people from which a sample of 90 was selected. Questionnaires were used to gather primary data. The findings showed a significant correlation of 0.588 and a combined R^2=0.470 implying that 47% of the performance of NGO projects in Rwanda can be explained by monitoring and evaluation practices.

2.2 Theoretical Framework

This section discusses three main theories used as the foundation of this research citing their relevance to the study.

Goal Setting Theory

The Goal Setting Theory (GST) can be traced back to Edwin Locke in 1960s. The theory which is an employee-engagement tactic states that employees are motivated to work if there are tangible goals to achieve. The goals give the employees the motivation to get involved in a task (Godwyn, 2022). According to Ryan (2019), this theory further holds that when an organization has specific, clear, challenging, and measurable goals, then its employees will have a direction and motivation to work towards the organization performance. The GST is therefore a motivational theory that aims at soliciting the employees to work towards the organization performance. The goals direct the employees to perform certain tasks by facilitating their understanding their place and what is supposed to be done. In GST, the goals must be specific, measurable, achievable, relevant and time bound in order to draw attention and all the efforts of the employees. Consequently, the employees become actively engaged only if they have a sense of direction and clearly defined goals to be achieved.

This theory can also be applied in project management insofar as it provides light to the motivation of project team towards achieving the project goals. In this case, project performance is tied to the level of commitment and engagement of the project team members including the project manager and all other key stakeholders. Similar to organization goals, a project starts by project planning where the project goals and objectives are set. The project team become motivated and actively engaged based on the sense of direction provided by the goals. Consequently, goal setting becomes an action plan charting the path that all the stakeholders should follow to achieve the desired level of project performance. In this way, the GST is relevant in explaining the need for setting goals that provide direction to all the team members and therefore improve the project performance (Liu, *et al.*, 2020).

According to Carstens and Richardson (2019), monitoring and evaluation is an important process in project management. Through M&E, project managers are able to control and at the same time assess the project performance in a progressive manner. However, the M&E process can attain desired results only within a project framework where project goals are clearly defined. It is only when the project team is aware of the goals to achieve that the project managers can evaluate whether such have been achieved or not. Similarly, monitoring project performance is better performed against the project defined goals and objectives. Hence, the relevance for the goal setting theory in project management. As noted by Godwyn (2022), achievement-motivated people are preoccupied with what they want to accomplish as well as the processes and action plan necessary to achieve their goals. Well written project goals provide the project team the impetus to focus all their attentions and efforts towards the goals. This in return improves the project performance.

Theory of Change (ToC)

The Theory of Change (ToC) can be traced back to Carol Weiss in 1995 who popularized the theory in her book discussing in detail the theory of change (Weiss, 1995). The theory aims at providing the expectation that different actors intervening in climate change adaptation should come up with. In this context, this entity shows how different

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changes involved in climate change will be achieved. This started by determining long term goals or vision statements and ended up with short terms goals. Hence this is composed of small steps showing how the long-term goal will be achieved. In addition to that, ToC is considered as a roadmap showing what is going to be attained in future, and elucidating from scratch how things will get done. Finally, the theory of change can also highlight the challenges that the implementors of climate change adaptation will face and how they will have been addressed (Pringle & Thomas, 2019).

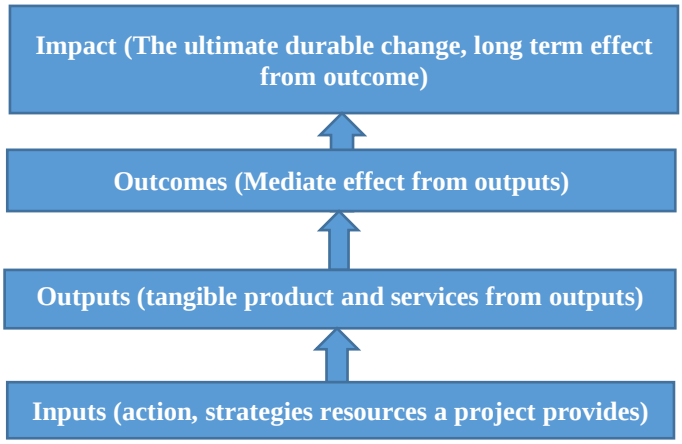


Figure 1:Figure of the theory of change

Source: Pringle & Thomas (2019)

Indeed, the theory of change and log framework depicts the intended results that a climate change intervention should achieved and provide also neat causes and effects of interventions' inputs, and activities to achieve the intended results. Hence, theory of change, log framework, logical model are the important tools used while conducting monitoring and evaluation of climate change programs. In addition to that, there is another tool known as tools 27 which is intending to link inputs and activities to get specific outcomes.

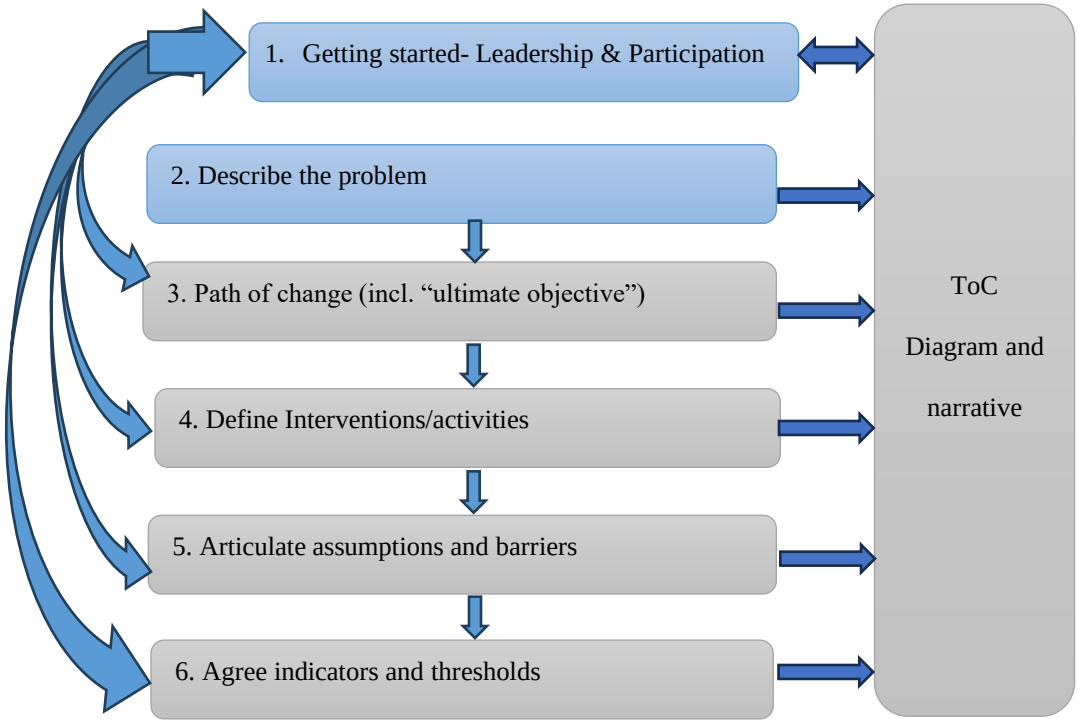


Figure 2: The figure illustrating the steps to be used while designing theory of change

Source: Pringle and Thomas, (2019)

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In most cases, the project managers struggle to design the theory of change that can fit in their project and can bring the project to success. According to Pringle and Thomas (2019), different steps can be followed to ensure the designing of the project that effectively bring change can be followed. Figure 2 shows these steps that intend to guide future readers and project managers to design the theory of changes on their owns. The process involves six steps as shown in the diagram. Following these steps can help project managers in their project management as well as in M&E practices. These can also be adopted in climatic change projects insofar as they will help improve the control, monitor and evaluate the performance of these projects.

Evaluation Theory Tree

The third theory is known as Evaluation Theory Tree (ETT) which was established by Alkin and Christie in 2004. This theory provides inputs from different previous stakeholders and theorists and researchers who worked on theory of evaluation. In this context, the root of evaluation is social accountability, social inquires, and epistemology of evaluation (Alkin & Christie, 2004). Later one, Christie and Alkin (2023) sat together and made some slight changes which stated that the "user" of the evaluation effort, and the methodology should be used in alignment with national data and targets. In addition to that, these theorists postulated that the linkage between the branches should not be considered as isolated systems, rather they must complement each other. Thus, the relationship between the branches can be used as strengths and opportunities for each approach to strengthen monitoring and evaluation of climate change adaptation system. This theory is applied in this stud because it is relevant to explain the monitoring and evaluation aspects that are need to improve the performance of projects such as climate change adaptation.

2.3 Conceptual Framework

The variable used in this research is linked using the following figure.

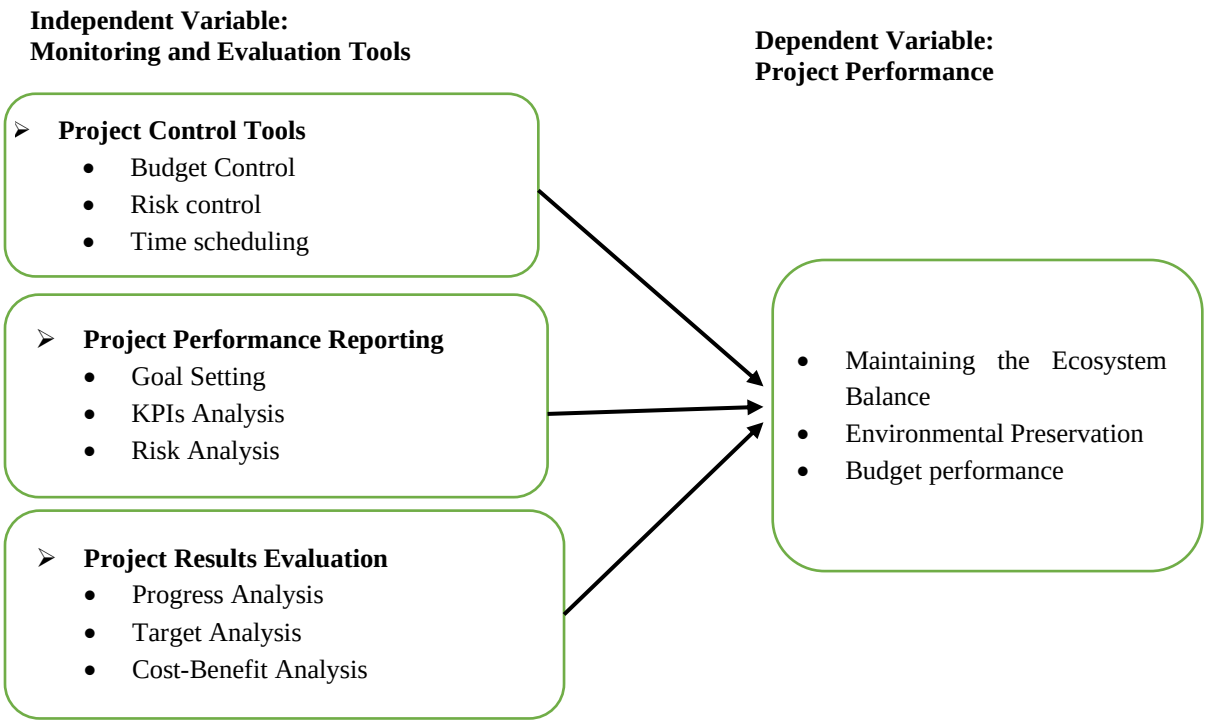


Figure 3: Independent & Dependent Variables

The researcher used two variables in his research, that means communication and project implementation as independent and dependent variable respectively. At this moment, the research assessed if there is any correlation between these variables and draw conclusion later. This was tracked after analysis of the data collected in chapter four. Moreover, the researcher explored the influence of mode and channel of communication on some implementation parameters such as time, cost, deliverables, quality, and scope as well.

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3.0 METHODOLOGY

3.1 Research Design

The research design is the technique or approach that a researcher uses to determine the data collection methods, data analysis, presentation, and data interpretation. The research designs for this study were descriptive survey and correlational research in which data was collected and analyzed from the employees and beneficiaries of Green Amayaga Project. Descriptive research design was important in this study because it helped the researcher present the data using descriptive statistics like percentages, frequencies, mean and standard deviation. Further, correlational analysis was used in analyzing the relationships between the study variables while regression analysis measured the effect of monitoring and evaluation on climate change project performance. Surveys were undertaken using questionnaires and interview administered to the beneficiaries and employees of the project to generate data for research study.

3.2 Target Population and Sample Size

According to Creswell and Creswell (2017), target population in research refers to the entire set of elements within a given study. the target population usually comprises individuals which observable traits as identified in a study. This study used the employees working in the Green Amayaga Project as well as the beneficiaries as the target population. This comprised of 8 staff supporting Green Amayaga Project and 354 beneficiaries of the Green Amayaga project in Nyanza District. Therefore, the total target population was 362 people. Note that the selection of these study populations was selected on basis of suitability which affected positively any subsequent interpretations and generalizations of the research findings.

The sample is a segment of the population selected to represent the population as a whole and it involves the selection of a number of the study of population. Ideally in research, the researcher can decide to use the entire population as long as it is small, or it is easily accessible. However, where the target population is large and/or it covers a wide geographical area, the researcher should opt for sampling. That is, selecting a representative group known as sample, to be used as the representation of the entire population. In such a case the sample size determination is very important (Creswell & Creswell, 2017).

One way of determining the sample size is through the use of acceptable statitistical formulas. In this study, Slovine's formula was used as follows:

$$n = \frac{N}{1+N\,e^2} = \frac{143}{1+143*0.05^2} \approx 106$$

Where:
n= required sample size
N= Total population
e= Level of precision estimated at 5% (standard value of 0.05).

The calculation done based on the above formula provided a sample size of 106 respondents.
Sampling is the process of choosing a number of people for a study in such a way that the people chosen are representative of the broader group from which they were chosen. Sampling is a strategy or procedure for choosing a sub-group from a population to participate in the study. In this case, every member of the employees of Green Amayaga Project will be having equal chance of being selected. In this research, the units of study were determined randomly using simple random technique.

In addition, quota sampling was used in which case the method ensured a predetermined number of sample units from various categories with particular traits show up in the sample in order to reflect all of these traits. This approach involves studying as many individuals in each study unit category as is humanly practicable until the quota is reached.

3.3 Data Collection Methods

Wilson (2016) postulated that as part of rigorous data collection, the proposal developer also provides detailed information about the actual surveys instrument to be used in the proposed study. A researcher, while deciding about the method of data collection must bear in mind the type of data, the reason for data collection and the methods of interpretation. to be used for the study, a researcher used both primary and secondary data. In this case, the primary data was collected using structured questionnaire and interview. To strengthen this research academically, the secondary source was reviewed from annual reports of Green Amayaga Project.

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According to Creswell and Creswell (2017), data sources can be grouped in to two main categories, namely, primary data and secondary data. Primary data represents the data of which the researcher directly gather himself or herself. It is usually first-hand data collection. On the other hand, secondary data involves data obtained from printed sources where the researcher is collected from data refined by other people. This study used both the primary and the secondary data.

Data collection instrument is the research tool used to gather data. In this study both the questionnaire and interview guide were used to collected primary data. In general, the questionnaire consists of closed-ended questions. The closed-ended questions are such questions which are more specific and, they take less time to administer especially in large-scale surveys and they are also easy to analyze. The overall purpose of questionnaires is that it is quick and easy to obtain a lot of information from many people. And the advantage of this method is that it is inexpensive to administer, easy to compare and analyze, it can administer to many people, and this can allow a researcher to get lots of data.

In addition, face-to-face interview was used in this study. In this case the research conducted individual interviews with key informants, and these included the category of the employees working in Green Amayaga Project. The choice for key informant interviews is important since the category of respondents may be having different perspective on this topic because of different roles that they play in the project implementation. The overall purpose is to fully understand someone's impressions or experience or learn more about their answers to questionnaires. The advantages of this method are that it can be an efficient way to gather and analyze deeply the information within short time and therefore this conveyed key information about skills development fund project**.** Documentary review method was used to gather secondary data.

Reliability and Validity

Before starting to collect the data for the examination of the influence of the tools of monitoring and evaluation on project implementation, the researcher made sure that the instruments or tools that she used were validated and reliable enough for use. The degree to which study results accurately reflect what is taking place in the circumstance is the measure of an instrument's validity. The reliability of the data collection tools, which is determined by how well the tools measure what they are supposed to measure, is thus a determinant of the validity of the findings (Creswell & Creswell, 2017). The validity was assured using the expertise of the supervisor where the question items were given to her, and any reviews were used to determine the reliability. Further, the validity was done using the content validity index (CVI) as given by the following formula where the number of relevant question items are the actual questions in the questionnaire administered to the respondents against the previous total number after adjustments made to the questionnaire. Any CIV greater than or equal to 0.8 is considered valid enough. As given in the formula below, the results for CVI showed that the instrument was reliable enough to be used for data collection.

$$CVI = \frac{No.of\ relevant\ question\ items}{No.of\ total\ question\ items} = \frac{37}{42} = 0.881$$

However, the degree to which an instrument produces consistent results each time it is used is referred to as its reliability. It provides an answer to the query, "How consistent is the data gathered with the questionnaire?" How reliable is the data gathered using the observation rubric? The reliability was tested using the Cronbach's alpha test. According to this test, an instrument is considered to be valid if the alpha is 0.7 or more.

Table 1: Cronbach's alpha statistics

Cronbach's Alpha	N of Items
.807	37

Source: Researcher (2024)

As reported in Table 1, the Cronbach's alpha was 0.807 which meets the minimum required statistics. Hence, it was evident that the research instrument was reliable enough to be administered to the respondents. It was also reliable enough to help the researcher gather relevant data that can help to measure the study variables.

Administration of Research Instruments

The researcher went to the area where a respondent will be selected, that is where the researcher found the respondents that were among the case study. Before administrating the questionnaire to the respondents, the researcher firstly introduced herself and the purpose of the researcher to the respondents. And this fact was followed by the distribution

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of questionnaires which was given back to the researcher after a few days with a purpose of collecting the data for coding, analyzing, and interpreting them. Where necessary, the researcher used research assistants to distribute and collect the questionnaires. The interview was administered face-to-face at the workstation of the respondents.

3.4 Data Analysis

The researcher used Pearson correlation analysis to determine the strength and the direction of relationship. In addition, multiple regression analysis was done to determine the effect of monitoring and evaluation tools on the project performance. The multiple regression was formulated as follows:

$$Y = \beta_0 + \beta_1 * x_1 + \beta_2 * x_2 + \beta_3 * x_3 + \epsilon$$

Where Y= Monitoring and evaluation tools as the dependent variable
β0= the constant
β_1, β_2 and β_3= regression coefficient for x_1, x_2 and x_3 respectively
x_1, x_2 and x_3= project control tools, project performance reporting and project result evaluation respectively.

4.0 RESEARCH FINDINGS AND DISCUSSIONS

4.2.4 Pearson Correlation Analysis

The researcher carried out inferential statistical analysis in order to adequately capture the effect of M&E tools on the performance of projects in Rwanda. To perform these, Pearson correlation analysis and multiple regression analysis were used. In this section, the results for the Pearson correlation are reported in Table 2.

Table 2: Pearson Correlation Analysis

		Project Performance	Control Tools	Performance Reporting	Results Evaluation
Project Performance	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	79			
Control Tools	Pearson Correlation	.735**	1		
	Sig. (2-tailed)	.000			
	N	79	79		
Performance Reporting	Pearson Correlation	.604**	.286*	1	
	Sig. (2-tailed)	.000	.011		
	N	79	79	79	
Results Evaluation	Pearson Correlation	.504**	.178	.201	1
	Sig. (2-tailed)	.000	.117	.075	
	N	79	79	79	79

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).
Source: Researcher (2024)

Table 2 reports the Pearson correlation analysis assessing the relationship between the indicators of project monitoring and evaluation tools on one hand and the project performance on the other. In this study, three key indicators of project M&E were identified, namely, project control tools, project performance reporting and project result evaluation. As per the findings reported in Table 2, all the three indicators have positive and significant relationships with project performance since all the p-values reported are less than 5%. For project control tools, the Pearson correlation ($r=0.735$, $p<0.05$) results show a positive and strong relationship with project performance. This implies that project control tools as part of M&E tools importantly influence the performance of projects in Rwanda.

Similarly, for project performance reporting the Pearson correlation ($r=0.604$, $p<0.05$) results indicate positive and significant relationship with project performance. This shows project performance reporting, which is a tool for M&E,

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significantly affect project performance. On the other hand, a moderate positive relationship is reported for project result evaluation where the Pearson correlation (r=0.504, p<0.000) results also reports positive and significant relationship with project performance. The findings in this analysis reveal that all the three key indicators selected in this study as measures of project M&E tools are significant in determining the project performance in Rwanda, more specifically for the Green Amayaga Project. On their part, Chege and Bowa (2020) studied the effect of M&E on the performance of NGO projects and reported low correlations that showed that the suitability of M&E approaches (r=0.273, p=0.010) adopted and the M&E team (r=0.441, p=0.000) have positive effect on project.

4.2.5 Multiple Regression Analysis

This section presents the multiple regression analysis to make sure that the contributions of each of the indicator variables, namely, project control tools, project performance reporting and project results evaluation tools, to the project performance.

Table 3: Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.900[a]	.810	.803	.075

a. Predictors: (Constant), Control Tools, Performance Reporting, Results Evaluation

Source: Researcher (2024)

Table 3 reports the regression model summary analyzing the effect of project M&E tools on the project performance. As per the findings, the reported R^2=0.810 shows that 81% of the project performance is due to the influence of the use of project M&E tools such as project control tools, project performance reporting and project result evaluation. On their part, Kissi, *et al.*, (2019) reported low levels of R^2 in their research on M&E practices giving R^2 values ranging from 0.325 to 0.536. Muhayimana and Kamuhanda (2020) however reported a very strong R^2=0.977 on the effect of M&E tools on project performance.

Table 4: Analysis of Variance (ANOVA) table

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.785	3	.595	106.895	.000[b]
	Residual	.418	75	.006		
	Total	2.203	78			

a. Dependent Variable: Project Performance

b. Predictors: (Constant), Control Tools, Performance Reporting, Results Evaluation

Source: Researcher (2024)

Table 4 reports the Analysis of Variance reported in this regression model. The ANOVA helps to identify whether the regression model is significant or not and whether the indicators variables are accurate in their prediction of the dependent variable. In this case, the analysis investigates whether the M&E tools, namely, project control tools, project performance reporting and project result evaluation, have any significant contribution to the project performance as proposed earlier on in this stud. The analysis reports that the regression model (F=106.895, p<0.05) is significant since the p-value is less than 5% threshold. Hence, it clearly indicates that project M&E tools are key in the contribution of the project performance in Rwanda.

Table 5: Regression coefficient analysis

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.082	.271		.301	.764
	Control Tools	.405	.038	.569	10.764	.000
	Performance Reporting	.308	.044	.376	7.069	.000
	Results Evaluation	.262	.041	.327	6.323	.000

a. Dependent Variable: Project Performance

Source: Researcher (2024)

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Lastly, the researcher conducted a multiple regression analysis of the individual predictor variable by analyzing their respective regression coefficients. As proposed earlier, the researcher wished to find the contributing effect of project control tools, project performance reporting and project result evaluation on the project performance. This analysis helped the researcher to measure the effect and to achieve the research objectives. As per the reported results, project control tools are found to have a positive and statistically significant effect (β_1=0.405, $p<0.05$) since the p-value is less than 5%. This indicates that a percent improvement in the use of project control tools would lead to an improvement in project performance by 0.405 percent. Similar findings are reported in regard to the project performance reporting where the regression coefficient analysis reveals a positive and significant effect (β_2=0.308, $p<0.05$) with a p-value of less than 5%. Lastly, the regression coefficient analysis for project result evaluation on project performance is also revealing a positive and significant effect (β_3=0.262, $p<0.05$) since the p-value is less than 5%. The results showed that the project M&E tools identified, namely, project control tools, project performance reporting and project result evaluation, all have an individual and positive contribution to the project performance. Hence, it is important that project managers and team players improve their use of project M&E tools in order to improve the performance of community-based projects such as the Green Amayaga project. Authors such as Mokua and Kimutai (2019) reported negative regression coefficient of M&E reporting (β_4=-0.217, p=0.042) on project performance while Awah, *et al.*, (2021) regression analysis reported that there is a positive effect between M&E strategies and successful project completion.

4.3 Discussions of Key Findings

This study aimed at investigating the effect of project M&E tools on project performance in Rwanda. More specifically, the study focused on the Green Amayaga project. It also concentrated on three key M&E tools, that is, project control tools, project performance reporting and project result evaluation. To achieve this objective, descriptive analysis as well as inferential analysis were used. The findings reported using Pearson correlation and multiple regression analyses showed positive and significant effects between project monitoring and evaluation and project performance.

The results helped to achieve the first specific objective where a positive effect was reported for project control tools on project performance. This clearly shows that there should be efforts made towards the use of control tools to improve project performance. Through project control tools, project managers can be able to efficiently allocate resources, control for wastages and ensure optimal use of resources towards the performance of projects. These results are in congruent with the previous research findings reported by other empirical studies. For instance, Kivila, *et al.*, (2017) in their study found that there is a contribution of project control on sustainability of infrastructure projects. Further, the authors reported that the use of KPIs analysis as control mechanisms can be an effective way of improving project performance. Furthermore, Ssekamatte (2018) found that M&E can be used as an effective tool for learning, promoting accountability, learning, and informing the climate change projects. Hubert and Mulyungi (2018) showed the significance of M&E planning as a control tool for project performance. Alex and Irechukwu (2021) pointed out the importance of using M&E tools on project performance. Hence, the findings from the empirical studies have shown that the project control tools as part of M&E tools significantly affect the project performance.

On the second objective, the results also revealed a positive effect of project performance reporting as an M&E tool on the project performance. Moreover, the progressive reporting about the project helps project managers to communicate the progress of the project to the stakeholders and can be used to hold them accountable. Hence, through performance reporting, M&E is improved which can in turn lead to improved project performance. The goal of calling the project managers and the team to keep continuously reporting is to ensure that adequate information is shared to the stakeholder and that the project is kept within the project schedule, budget, and scope. These findings are congruent with the reported findings from authors such as Cheboi (2022) who reported that M&E tools can improve the performance environmental projects. More specifically, the project reporting based on M&E resource allocation, M&E staff expertise and M&E tools help the project managers to continuously service other stakeholder with relevant information on project progress. Hence, this increases transparence and accountability thereby improving project performance. However, Mokua and Kimutai (2019) showed that M&E tools such as the use of M&E (β_4=-0.217, p=0.042) reports have negative effect on project performance while Awah, *et al.*, (2021) regression analysis reported a positive effect between M&E tools on successful project completion.

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On the third specific objective, the results also showed that project result evaluation which is used as a monitoring and evaluation tool has significant effect on project performance. In particular, the regression analysis showed a positive contribution that result evaluation has on project performance. This indicates that evaluation of project results is a key M&E tool that project managers should embrace. It can effectively be used to measure the performance of the project vis-à-vis the expectations of such project. More specifically, the use of M&E tools can greatly impact on the performance of the Green Amayaga project. The findings in this objective are in harmony with other findings reported earlier by authors such as Kivila, *et al.*, (2017). In their study, the authors showed that the use of KPIs analysis as an evaluation tool enable the project managers to convey relevant information for the purpose of the performance of the project. Hence, the importance of results analysis. Moreover, Kissi, *et al.*, (2019) found that M&E practices such as baseline studies, M&E planning, M&E framework, M&E budgeting, and M&E scheduling improve the performance of construction projects. Ssekamatte (2018) reports on increased accountability whenever result evaluation practices are there, while Alex and Irechukwu (2021) pointed out that M&E tools significantly affect the project performance.

5.0 CONCLUSIONS AND RECOMMENDATIONS

In this study, the researcher sought to find out the effect of project M&E tools on the project performance in Rwanda. to achieve this, three key areas of concerns were identified, namely, the project control tools, the project performance reporting and project result evaluation. Both the descriptive and inferential analyses were adopted in this study. The study reported positive and significant relationships between the three variables with project performance. Hence, it is evident that the use of M&E tools would eventually enhance the project performance. The findings have shown that the use of project control mechanisms should be done by examining the project progress over time vis-à-vis the budget, time, and the desired scope.

The focus of the project M&E is to have a progressive control over the project to ensure that the project is on the right course to completion. It is important therefore to conclude that there is significant contribution of project control towards the performance of community-based projects. Through project control tools, the project managers are able to track the progress of a project while maintaining the project within its scope which at the same time engaging all key stakeholders in an active way to identify and deal with any risks or potential risks that may derail the successful implementation of climate change projects.

Further, project performance reporting improves the performance of projects such as the Green Amayaga project. It should therefore be done progressively while adopting different regular periods as the needs be. Some donors may also require on demand reports which may be produced at any given time. For these reasons, having the necessary information about the project progress helps managers to produce timely, relevant, and effective project reports. The researcher concludes that performance reports can be used to monitor the work already completed within a given timeframe or project phase, thereby improving the information available for decision making.

Similar positive findings were reported regarding project result evaluation practices as M&E tools. It was reported that project result evaluation is a project M&E tool used to assess the results of a project against the expected outcomes or the budgeted costs. The project manager is able to assess the performance of the project progressively and provide a breakdown of the project performance in terms of costs, time and quality. This is very important to the donors and interested parties who want to know the outcome of the project. Apart from assessing the project success, the project manager can give feedback on the areas that the project team has not performed to expectations or areas that need improvement. The project managers also get an opportunity to conduct a result analysis that can give all relevant information concerning the performance of a project. It also provides the managers with a chance to provide future estimates in terms of resources and funds that are necessary to see the project to completion.

This study has found that project M&E tools contribute significantly to the performance of projects in Rwanda. Hence the researcher recommends that the project managers in community-based projects such as the Green Amayaga should use the M&E tools to ensure such projects achieve their development objectives within their budget, timeframe, and scope. The researcher also recommends that progressive reporting should be adopted in order to continuously furnish the donors and other stakeholders with relevant information for decision making. It is through this reports that managers can effectively ensure that projects are within their schedule and budget. Moreover, it is imperative that a regular evaluation of the performance of the project is conducted. This can help to increase the expected benefits from the project for the community.

The research recommends the following future research for consideration:

i) Research on the significance of project M&E practices on the success of community-based projects in Rwanda.
ii) Research to assess the contribution of project management skills on project control in Rwanda.
iii) Research to investigate the effect of project team evaluation on project performance in Rwanda.

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