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**Effect of Monitoring and Evaluation Practices on Performance of Construction Projects
in Gasabo District- Rwanda**

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Abstract

Purpose: The purpose of this study was to assess the effect of monitoring and evaluation practices on performance of construction project in Gasabo district, Rwanda. The specific objectives of this study were to examine the effect of M&E planning, M&E Staff skills management and M&E ICT management on performance of construction projects in Gasabo district, Rwanda.

Methodology: A descriptive research design was used. Two hundred sixty-three respondents randomly sampled from district, sectors and cells staff and the general local population who are involved in project planning of the construction projects at Gasabo district was interviewed. The data was collected using administered questionnaire and analyzed using SPSS 16. The study chosen to use qualitative and quantitative research methods to explore the topic and thus used multiple regression analysis such as ANOVA, Pearson correlation and descriptive analysis to estimate the strength relationship between the independent variables to the dependent variables.

Findings: The result of the study showed that majority of the respondents were in agreement to the fact that the performance of construction project of Gasabo district was influenced by Monitoring and Evaluation practices. The findings indicate that M&E planning had a positive and significant effect on project performance with ($\beta_1=0.170$, CI 0.010, 0.350, $t=2.080$, $P<.001$). Monitoring and Evaluation Staff skills management with $\beta_2=-.016$, CI -.160, 0.131, $t=-.196$, $P>.001$), has no significant effect on project performance of construction project of Gasabo district. Finally, M&E ICT management performance had a positive and significant effect on construction project performance with ($\beta_3= 0.450$, CI 0.393, 0.690, $t=7.190$, $P<.001$).

Unique Contribution to Theory, Practice and Policy: The researcher recommends that monitoring and evaluation should be a priority in the projects for its relevancy; and all bodies dealing with construction projects should make arrangements for monitoring and evaluation practices due to make monitoring and evaluation operations successful.

Keywords: Construction Project Performance, Monitoring & Evaluation Practices, Monitoring & Evaluation Planning, Monitoring & Evaluation Staff Skills and Monitoring & Evaluation ICT

JEL Codes of Classification: L74, O22, D83, D24, J24, M53, O32

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INTRODUCTION

Construction projects are basically like other projects in general launched to tackle a specific gap, meet stakeholder's needs, or take advantage of opportunities that exist in the business fields. Projects perform better in developed countries than in developing countries, which are faced with a variety of challenges, including poor financial allocations, poor strategic plans, poor expertise, poor communication, poor monitoring, and evaluation (Ogunde, 2017; Nwachukwu and Emoh 2011). According to Serrador and Turner (2014), monitoring is among the key factors for project performance. Project monitoring involves continuously assessing the implementation of projects concerning schedules engendered during its design, inputs utilization, and services that are offered to those it is meant for. This is done to assess promptly whether the program is adequate, effective, and efficient, has influenced the beneficiaries, whether the intervention is sustainable and whether it is in accordance with the purpose of its creation (Simon, 2015). Project evaluation, on the other hand, is an objective review of ongoing or completed projects in terms of design, execution, and outcomes (Maendo, James & Kamau, 2018). Monitoring and evaluation provides project contractors with useful information on project status for initial and final assessment. This information helps identify the required changes, particularly in the structure of the project, their impacts, and the tentative date for completion. Infrastructure project monitoring and evaluation are regarded as critical management mechanism because it aids in the monitoring of project progress (Tesfaye, 2019).

Countries like the United States of America (US) have achieved successful development by implementing effective and efficient processes that monitor the achievement of development goals all over the world (Katharine & John, 2015). In global efforts for environmental, economic, and social sustainability, project surveillance in Spain is becoming an increasingly important tool (Lombardo & Maetzke, 2019).

There are regular monitoring activities in India and Malaysia, ranging from comprehensive national ranking systems to baseline monitoring of selected programs in many Middle Eastern countries (Zvoushe & Gideon, 2013). In all areas of government, it is critical to centralize and improve monitoring and assessment capability. A significant number of high-cost projects were undertaken, according to Chofreh, Goni, Malik, Khan, Klemeš, (2019), with sustainability issues frequently encountered. Concerns have been raised by the World Bank, the Asian Development Bank, and bilateral aid agencies. There is a shortage of trained workers, as well as inadequate supervision and site management, according to Faridi and El-Sayegh (2016).

The growing complexity of the constructions calls for increased effectiveness in the monitoring and evaluation. Singh (2009) published a list of delays and cost overruns causes and their occurrence whereas Kaliba, Muya, Mumba, (2009) argue that construction projects costs and time overrun are affected with project performance in developing especially in Zimbabwe and developed countries. Therefore Kissi (2021) found that project execution and management and proper Monitoring & Evaluation practices had a significant effect on the successful delivery of construction projects in Ghana. Moreover, population explosion and type of construction projects interlink which by then call upon the use of skilled human resources vetted in project management especially monitoring and evaluation practices (Idoro, 2012, 2014; Usman, Kamau & Mireri, 2014a) to display their ability in improving performance worldwide. Monitoring may thereby act as com-mon ground that connects the cycles of scientific inquiry and landscape change in practice (Nassauer and Opdam 2008).

In Kenya, M&E gained traction due to the adoption of performance contracting in order to realize better performance through focus on the customer and expected results, and adopting a positive attitude work ethics in delivering services to the public, (Kobia & Mohammed, 2006). This was meant to restore confidence in citizens with regard to government services (Muthaura, 2014). The 1950s and 1960s as the birth era of the the approach of project monitoring & evaluation and to several large defense programs executed to time (snyder, 2017). During those years, the concept of Project Evaluation Review Technique (PERT) was established, and it became almost synonymous with project management. However, managing a modern project means much more than planning the sequential and interrelated set of activities (David&Lewis, 2008). Bringing a project to its successful end requires an integration of numerous management functions such as controlling, directing, teambuilding, communication, and many others, and it requires cost and schedule management, technical management, risk management, conflict and stakeholders management, life-cycle management, and again, many more. Many of these requirements have promoted in recent years additional developments in project management tools for budgeting, monitoring, risk control, and configuration control.

The problem of assessing the project success depend on the project monitoring and evaluation system practices inplace which is effectively utilizing human resources management tools and planning, communication patterns, cost, and. (Adolphe , 2018). These authors identified a universal set of factors as the most eminent reasons for project impact success; among them, the project monitoring and evaluation.

Rwanda, public sector reforms started simultaneously with decentralization as an integral part of the national development strategy expressed in Vision 2020 and the EDPRS. The decentralized reforms were based on the National Decentralization Policy (NDP) adopted in May 2000 divided Rwanda into 105 districts and town among in Kigali city. It is argued that if it is properly applied, fiscal decentralization can help in development (Leo & Aloysius, 2021). In the public sector reforms in Africa, decentralization takes different meanings to different people (Strachan, 2017). In the 1980s, there arose a shift towards market mechanisms from public services leading to deregulation and privatization in addition to deconcentration and devolution (Eva, 2020).

Since February 2005, after the annual government retreat that takes place every year, found that effectiveness of decentralized institutions effective with clear mission and objectives to serve people thus the government of Rwanda resorted to coming back to their own roots and traditions to find concepts and practices that can be used to help resolve different problems; and in the case of improving public sector construction projects are accounting from the key pillar in the whole life of local population such as utilities, cultural facilities, roads, markets, administrative offices worth for much in front for all development. The second and third decentralization motivated the reform and influences the form linked to cultural dimension (Holmes, 1992) thus district become 30 among in Gasabo district become the part (Law N°08/2006 of 24/02/2006; City of Kigali Law N°07/2007 of 01/02/2007 and Kigali city law N° 22/2019 of 29/07/2019). CDF changed the name and has been attributed the additional responsibilities into Rwanda Local Development Support Fund (RODA/RLDSF) established by the law N°41/2010 of 25/11/2010.

There are some factors that can cause project failure in the public sector on the implementation of projects is not have a clear plan while neglecting, under funding or abandoning those in the plan the estimated costs(Akpobakah and Obioma, 2002). Yet, inappropriate timing of budget

releases, untimely payment of performance certificates, community and labor problems, contractor's default, inaccurate assessment of project, project design and approval; project construction; commissioning of project; operation of a project; impact assessment; and post project evaluation (Lawal and Onohaebi, 2010). Need for clear Project design and planning is increasingly recognized as an indispensable tool of both Project performance. They are both to support the implementation, monitoring and evaluation of projects and to feed back into the design of new initiatives.

Problem Statement

The constraint of construction project performance such as high cost and time delays sway the construction investment failure to deliver the projected long-term impact at the project completion due to a lack of Monitoring and Evaluation practices. As a result, the project poses a serious danger to both project managers and stakeholders (Amandin & Kule 2016; Adolphe & Patrick 2018; Shema & Irechukwu, 2022). Although the Risk in construction cannot be eliminated nonetheless it can be mitigated through effective monitoring and evaluation practices (Hendrickson and Au, 2003). If the monitoring and evaluation process is not comprehensively evaluated and implemented throughout the project implementation life cycle, the project will fail to achieve its objectives (Callistus, 2018). However, absent or inadequate risk assessment and management is an important source of risk for projects.

In spite of the World Bank Report(2014) many project of local government in Rwanda under vision 2020 and NST1 2018-2024 were funded to boost economic transformation especially in infrastructure, however, through monitoring done by local government it was noticed that public and private construction projects implemented from 2009 till end 2022 delayed its completion and its contract amended on cost at high level as result the city of Kigali repossessed 58 private construction delayed in their development, and noticed 153 property owners to resume their construction projects. Adding to that , The Government of Rwanda in 2019 abandoned the Butaro road project because of doubled cost of the construction project from USD 71 to 150 million (Shema and Irechukwu, 2022).

Where as the Rwandan government developed a monitoring and evaluation program in 2010, in Kigali city as well as in Gasabo district no reliable measure has been taken through monitoring and evaluation for estimating risk in urban construction projects, effective risk assessment and management have been impossible (Amandin , 2016). Consequently, a number of construction projects in Gasabo district, have been increasing as long as the population nevertheless Monitoring and Evaluation Practices for construction project keep failing such as poor planning, un evaluated human resource skills on the construction field and internal controls system in use to stick project progress, the trading example is the famous know case of DUBAY enterpreneur in Gasabo district which laydown constructed houses for private use who in turn found low quality of construction material used thus several constructions projects failed to meet their objectives (MINECOFIN, 2021).

The necessary early warning to create adjustments in speed, resource use and quick adjustments in time of projects through monitoring and evaluation are key to the projects performance. Over and done with that and the result from the recent studies which revealed the need to expend the research of monitoring and evaluation practices from a particular construction to construction project at district level according to Shema and Irechukwu (2022), thus the essence of this research to determine the Monitoring and Evaluation practices for public and private projects to achieve Project performance.

Objective of the Study

General Objective

The main objective of this study is to determine the contribution of M&E on the performance of construction projects in Rwanda especially in Gasabo District.

Specific Objectives

- i) To assess the effects of Monitoring & Evaluation planning on the performance of construction projects in Gasabo District.
- ii) To analyze the effects of Monitoring & Evaluation staff skills on performance of construction projects in Gasabo District
- iii) To establish size strategies for monitoring & evaluation ICT on Performance of construction projects in Gasabo District.

Research Questions

- i) What is the effects of Monitoring & Evaluation planning on the performance of construction projects in Gasabo District.?
- ii) What is the nature of analyzing Monitoring & Evaluation staff skills on performance of construction projects in Gasabo District?
- iii) What are the strategies of monitoring & evaluation ICT on performance of construction projects in Gasabo District?

Theoretical Review

Results Based Theory

According to FAO-UN (2021), Results-based management (RBM) is defined as orienting all action and use of resources towards achieving clearly defined and demonstrable results. Results-based management (RBM) increases transparency and accountability, allowing interventions to complement each other and avoid overlap and waste. Three interconnected processes, namely good planning, monitoring and evaluation (M&E), can greatly enhance the effectiveness of investment projects and plans. Good planning helps to focus resource allocation and subsequent implementation on the results that matter. Effective M&E helps to assess progress towards the achievement of results and to learn from the past to ensure that future initiatives better contribute to development impacts. This theory will help the researcher to assess the performance of construction projects in terms of results of the project.

Theory of Change

The project design and planning use also the theory of change which is the causal logic that links research activities to the desired changes in the actors that a project or program is targeting to change. It describes the tactics and strategies, including working through partnerships and networks, thought necessary to achieve the desired changes in the target actors. A theory of change provides a model of how a project or a program is supposed to work. In other words, it provides a road map of where the project is trying to innovate. Management of innovation is clearly associated with managing change. The Theory of Change (ToC) was developed in the 1980s by prominent evaluation methodologists, including Huey Chen, Peter Rossi, Michael Quinn Patton, and Carol 15 Weiss (Ringhofer , 2019).

Theory of Change is described as an explanatory means of how all components are necessary to meet expected outcomes for any project. This is a combination of components like results, achievement and requirements contained in a graphical presentation (Williams, 2014).

The value of testing and refining the model is that it challenges pre-conceptions whereby the Project planning tests and refines the road map while helping to bring about change which should occurred.

The researcher used the Evaluation Theory as the overarching theory to guide this study. The Evaluation Theory plays several important roles in evaluation practice. Such theory and prior research can be very informative for initial needs assessment and program design. Evaluation Theory gives effective strategies for dealing with the problems of concern regarding the evaluation process. Lessons are learned about what does not work which may save program designers and evaluator's time and resources (Donaldson, 2021)

Evaluation theory assesses project effectiveness in achieving its goals and in determining the relevance and sustainability of an ongoing project. According to McCoy, (2015) evaluation theory compares the project impact with what was set to be achieved in the project plan. Shapiro, (2014), noted that Evaluations are mainly of two types depending on when they take place. These are formative and summative evaluations. Formative Evaluation is concerned more with efficient use of resources to produce outputs and focuses on strengths, weakness, and challenges of the project and whether the continued project plan will be able to deliver the project objectives or it needs redesigning. According to Passia, (2014), Formative evaluations are sometimes called interim or midterm evaluations. A summative evaluation is carried out at the end of the project and aims at determining how the project progressed, what went right and wrong and capture any lessons learned.

Empirical Review

Effects of Monitoring and Evaluation Planning on Project Performance

A study by Barasa (2014) on 'Influence of Monitoring and Evaluation Tools on Project Completion in Kenya: A Case of Constituency Development Fund Projects in Kakamega County, Kenya' which used correlations and chi-square revealed that Monitoring and Evaluation tools have significant influence on Constituency Development Funds project completion in Kakamega County. Turner, (2012) Organized work towards a predefined goal or objective that require resources and effort, a unique venture having a budget and schedule.

In addition, a review of nineteen Sub-Saharan African countries has shown that, between 2016 and 1988, 58% of road expenditures were devoted to new construction or improvement, 17% to reconstruction and rehabilitation, and a mere 25% to routine and periodic maintenance (World Bank. 2022; 2013). Countries continue to upgrade existing roads and build new ones even when there are no funds to maintain them. One of the reasons for preferring construction over maintenance is that maintenance is financed under the recurrent budget, while investment is financed under the development budget. Since donors are willing to support the development budget, development funds are less constrained than recurrent funds, which are mainly financed from domestic revenue sources. However, a more important reason for favoring new construction is that contracts tend to be larger (hence offering greater opportunities for gratification payments) and are politically more visible and glamorous (Bundi, 2021).

More so, in construction projects cost is the essential part for any construction project. No project is ever designed perfectly there was always unforeseen conditions or mistakes in your drawings that required a construction "change order" Thus cost overruns are frequent phenomena and are almost associated with nearly all projects in the construction industry (Adam, 2017; Le-Hoai, Lee, 2008)

Ten percent of the construction costs is recommended as the amount of contingency for new construction projects. A survey of 104 public projects in Singapore indicated that nearly two thirds suffered from cost overruns and more than half were delayed (Ke YJ, Ling FYY, Ning Y, 2013). Therefore, In the construction industry's cost overruns and delays would be resolved if effective project management processes as well as project PDP were to be implemented (Nwangwu , 2022)

Peter, 2010) found that the effective processes such as the selection of an appropriate procurement method may decrease cost and time overruns, claims, and disputes. The predominant factors highlighted in this case also assessed to be in Rwanda which influencing cost overruns are material cost increases due to inflation, inaccurate materials estimating and degree of project complexity. The four categories arrived at were: variations, measurement of provisional works, contractual claims and fluctuations in the cost of labor and materials.

Effective monitoring and evaluation have been questioned as expert driven and exclusive of most program stakeholders in construction project in the world, (Verschuren and Zsolnai, 2015). It was also about outsiders coming to practice their expertise in measuring the effectiveness of construction project. A systematic methodology for tracking and assessing the construction project progress was conducted by Shirowzhan (2020). The study's aim was to define methods for tracking and measuring physical improvements in the construction industry, as well as to determine how existing computer technology can be used to track real physical progress at the construction site. They spoke about the findings of a questionnaire survey conducted in the Malaysian construction industry and proposed a prototype system called Digitalizing Construction Monitoring (DCM)

According to Kissi (2019), the Impact of project monitoring and evaluation practices on construction project performance was a very important aspect of project execution and management and that proper M&E practices had a significant effect on the performance of projects. The result was tested to Ghana as case study, The purpose of the study was to examine the impact of project M&E practices on construction project success criteri,the Results showed that M&E practices had a positive statistically significant relationship with health&safety performance and project scope.

The study conducted by Sandrine (2018), using a case study of Skills Development projects revealed that there was a significant relationship between Monitoring and evaluation mechanisms and project performance. The findings of the study revealed a strong correlation of 0.984 between monitoring and evaluation and performance of staff in Workforce Development authority. Monitoring and evaluating of construction projects is of great importance to various players including project sponsors and/or government institutions as it would ensure similar projects are replicated elsewhere as witnessed in various projects undertaken by the financial sector which revolve around a few areas (Kessler and Tanburn, 2014). Thus, it further explains that monitoring includes status reporting, progress measurement, and forecasting. Performance reports provide information on the project's performance with regard to scope, schedule, cost, resources, quality, and risk, which can be used as inputs to other processes (Oyelami, ,2021). These include incorrect forecasts and assumptions a limited understanding of market dynamics, and lack of willingness to plan for volatility and adverse scenarios (Asensio,2013).

The magnitude on which the Monitoring and Evaluation is designed have the impact on project lead time and engineering productivity. Therefore, Studies of the automotive supplier industry

suggest that very different structures and relationships exist in Japan, the U.S., and Europe thus the project scope differs significantly in the industry, even for comparable products. These differences in strategy, in turn, explain an important part of differences in performance (Kim, 2006).

According to Daft (2010) project management is the attainment of organizational goals in an effective and efficient manner through planning, organizing, leading and controlling organizational resources. The success of any project depends on how effective the project management cycle is. This cycle begins from the initiation to completion of any project. A major bottleneck facing the building industry is why projects are not being completed on time at the budgeted cost and within specified standards. Chandra (2010) noted that construction projects especially in the public sector compromise on quality and are not completed on time and have cost overruns, this is part of delaying project performance and thus project planning does not significantly relate to the project performance.

Effects of Monitoring & Evaluation of Staff Skills on Performance of Construction Projects

At the core of project designing, is the development of a hierarchical structure that is used to organize tasks for reporting schedules and tracking costs. Modifications are based on lessons learned from the previous projects, on the new need analysis of the context of the new project and on the structure and competences of the new work team. The WBS involves listing all the project outputs; the identification of all the activities required to deliver the outputs, the subdivision of these activities into sub-activities and tasks, the identification of the deliverable and milestone(s) of each task, the identification of the time usage of all the resources (personnel and material) required to complete each task. It is a hierarchical structure which is normally represented in a graphical form (Igwe, 2018), or in a tabular form. The graphical form is appropriate for communicating work activities to both top management and/or customers, while the tabular form is useful for cost and schedule development (Horine, 2009). In essence, a WBS is a decomposition of a project scope into smaller manageable parts.

The work-breakdown structure is the backbone of the proper planning, execution and control of a project, although it is not as well known as CPM or PERT. The three typical items required to drive the project to successful completion, namely scope, schedule and cost, are greatly enhanced by the ability of the project manager and his/her team to define accurately a WBS and all the related aspects Haugan, (2008). Cost is the essential part for any construction project. No project is ever designed perfectly there was always unforeseen conditions or mistakes in your drawings that required a construction “change order” Thus cost overruns are frequent phenomena and are almost associated with nearly all projects in the construction industry (Le-Hoai, 2008)

The Logical Framework Approach (LFA) has proved to be a valuable tool for project approval, design, and evaluation. However, a few pitfalls make it hard to use within today's project management framework and to integrate with other project management tools. It is describing major project commitments and providing an overall understanding of the project. It was successfully implemented at the Canadian Space Agency and the Canadian Nuclear Safety Commission. The LFA-M fits well within today's project management framework and corporate culture and leads easily to other project management tools (Couillard, 2009). The possibilities of influencing project success and value creation are perceived as the best during the early phases of the project. Early decisions reduce unnecessary changes during later

development phases and even the total costs of the life-cycle (Möttönen , 2009). Hence, the involvement not only concerns internal stakeholders but also external stakeholders that may have both requirements and contributions to the project (Beringer, 2012).

Effectiveness of Monitoring and Evaluation for ICT Performance on Construction Projects

Prasanna Kumar (2018), in their strive for more effective usage of scarce resources, R&D organizations tend to seek the solution in forecasting in more spliced tasks and by allocating the most skilled person for such a small task. To get this done the aid of sophisticated project management software is evaluated on the possibilities of coupling these fine day-to-day tasks to the project portfolio plan.

Determining project roles, responsibilities, and reporting relationships culminating in the staffing management plan, Input, tools and techniques (Michael, 2014). Allocation of work men in a multi-project environment Is an issue for lots of organizations such as software houses, R&D-organization, construction /massonerie and engineering. This article especially fits in with construction-organizations where multiple projects are running concurrently. Specific results and project timing are very uncertain because of the unique characteristics of each project based upon a high degree of innovation; human resources are the main and scarce source in construction projects. Therefore almost everybody provides small specific contribution to every project; The progress of each project strongly depends on the state-of-the-art building blocks that need to be 'invented' by scientists and engineers.

In addition, Ehab and AlSoufi (2016) states that, human ingenuity is very much dependent on the motivation and involvement of Each individual engineer. These three characteristics make the process of resource allocation difficult. The allocation method needs to be flexible because of rapid changing project to portfolio. Conventional project communications practices incorporates several key areas of consideration including: flows between stakeholders; communications with respect to who gets what information when; distributing information; managing expectations; and reporting performance. Project managers are witnessing an explosion of content that is being exchanged between team members and stakeholders, up and down both formal and informal channels of communications. Management of project communications begins with an understanding of who needs what information when and generally includes all aspects ofcollecting, generating, disseminating, and storing communications (Phillips, 2006). Several approaches to planning their communications are currently available to project leaders and include: Team-Project Approach - Teams, like any organization, are complex, dynamic and goal-oriented. The team-project or organizational approach focuses on management of the team and the projects stakeholders (Miller, 2009). In virtual or online project team environments, the team-project approach would be considered most suitable due to the fundamental attributes for such an approach with respect to distance of project participants, expected rapid changes and the utmost priority for innovation.

METHODOLOGY

Descriptive research design was used in this study. The target population under this research are distributed into stratum including different people involve in the construction project of Gasabo District as a case study adding Rwanda Housing Authority as supervising of government housing construction. The stratum is composed with construction project at the urban sectors (Kimironko, Kacyiru, Kimihuru, Remera,Gatsata, Kinyinya and Gisozi) concentrated population area and 40 major construction projects such as schools, Roads, King

FaysalHospital , Housing, Churches, Touristic zones, Memorial centers, Markets, Amahoro Stadium, Kigali Arena , Kigali Convention Center, different Ministries. At the District office, for both projects; the director in charge of urban planning, the in charge of infrastructures, JADF in district at sectors level, the person in charge of the sector Joint Action Forum, and executive secretary of sector and the executive secretary at cell level.

By using the sampling method, the population was grouped into staff (District, sectors and cells and big construction companies) and beneficiaries at urban stratum, The sample size was drawn based on the formula of Kothari, (2004) where the confidence interval equal to 90 percent and standard error of 10 percent for local population and 95 percent and 5 percent for staff, this difference is due to the knowledge of the study for the sample characteristics.

The total number of populations of Gasabo district is 879,505. Among of them Urban areas have 714,069 with more construction than rural ones of 165,436, and thus the dependency ratio is only 81% in urban area whereas 19% of the population living in rural areas over 15 years old (NISR,2022). The total number of staff of the district and project is 367. The following table shows the distribution of the population per each stratum.

The stratum of local population is having total of 276,844 while the stratum of the staff of the district and project managers is 367. As mentioned above that the stratum is internally homogeneous and heterogeneous outside, the total population for the study is 277,211. This is the basis for calculating the sample using Kothari (2004) formula which is as follows:

$$n = \frac{z^2 \cdot P \cdot q \cdot N}{e^2 \cdot (N-1) + z^2 \cdot p \cdot q}$$

Where N= Size of population

n= Size of sample

z = Standard variable for given confidence level

P = Probability of success.

q = Probability of failure

e = Acceptance error.

Deducting the data into the formula, the approximated sample from the total population is 190; staff from district staff (Sectors, Cells and district office, Rwanda housing authority and managers) and the local population shows a sample of 73 people as respondents, the difference confidence intervals for local population and staff was due to the knowledge of the study for the sample characteristics. The following table shows the distribution of the sample per each stratum.

Table 1: Distribution of Sample per Categories and Stratum

	Operating level	Total of the population	Sample size
District construction team	District office	87	03
Sectors construction team	Sector offices	90	42
Cells construction team	Cell offices	150	103
Construction project managers	Projects	40	40
RHA supervision construction	Central gvt	4	2
Local population	Cells level	224,781	73
Total study population		225,148	263

Source: Researcher Survey 2023

FINDINGS

Correlation Analysis

The correlation is one of the most common and most useful statistics. linear correlation coefficient, measures the strength and the direction of a linear relationship between two variables (Sanders and Smiolt, 2000). Table 2. Correlations Analysis of the positive or negative relationship between the variables.

Table 2: Correlation Analysis Results

Correlations	M&E Planning	M&E Staff Skills	M&E ICT	Project Performance
M&E Planning	1			
M&E Staff Skills	.756**	1		
M&E ICT	.522**	.518**	1	
Project Performance	.392**	.346**	.530**	1
	263	263	263	263

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

Source: Primary Data Survey (2024)

The Table 2 shows that M&E Planning correlated with Project Performance with $R = 0.392$ and two asterisks' marks at the bottom of the Table, present that correlation is significant with P Value equal at 0.01 level (2-tailed). In fact, it is less than .01 the significance level is 0.01, definitely is less than 0.05, even less than 0.01. And the Study sample size, $N = 263$. And this Number 1 represents a perfect linear correlation between M&E Planning and Project Performance, it is an effect of having matrix that SPSS is having the output M&E Planning correlation and Project Performance correlation. Since correlation between M&E Planning and Project Performance is 0.392 and it is positive value, according to the index table of interpretation of correlation coefficients and index of interpretation of P-values, this coefficient falls between 0.30 and < 0.50 and this indicates that there is medium correlation, since the coefficient is positive and there is linear correlation between the variables, the double asterisk' marks standing as superscript to the coefficient show that the correlation is significant

accordingly the P-Value is at 0.000 which is less than 0.50 according to index of interpretation of P-values this means that the study has sufficient evidence to reject the null hypothesis because correlation coefficient differs significantly from zero.

M&E Staff Skills correlated with Project Performance is 0.346 and it is an effect of having matrix that SPSS is having the output M&E Staff Skills correlation and Project Performance correlation.

Since correlation between M&E Staff Skills and Project Performance is 0.346 and it is positive value, according to the index table of interpretation of correlation coefficients and index of interpretation of P-values, this coefficient falls between 0.30 and < 0.50 and this indicates that there is Medium correlation, since the coefficient is positive and there is linear correlation between the variables, the double asterisks' marks standing as superscript to the coefficient show that the correlation is significant accordingly the P-Value is at 0.000 which is less than 0.50 according to index of interpretation of P-values this means that we have sufficient evidence to reject the null hypothesis because correlation coefficient differs significantly from zero.

M&E ICT correlated with Project Performance is 0.530. Since correlation between M&E ICT and Project Performance is 0.530 and it is positive value, according to the index table of interpretation of correlation coefficients and index of interpretation of P-values, this coefficient falls between 0.50 and < 0.70 and this indicates that there is Strong correlation, since the coefficient is positive and there is linear correlation between the variables.

While between M&E Staff Skills and M&E Planning correlation coefficient is 0.756 which means the correlation is very strong correlation according to the lengths of index table of correlation and amount of R, also the P-value is significant at 0.000 which means that the study has sufficient evidence to reject the null hypothesis because correlation coefficient differs significantly from zero.

M&E ICT Correlated to M&E Planning at $R=0.522$, and M&E Staff Skills at $R=0.518$, which also means that there is high correlation between the variables according to the lengths of index table of correlation and amount of R. Hence, the P-value is significant at 0.000 which means that the study has sufficient evidence to reject the null hypothesis because correlation coefficient differs significantly from zero.

Regression Analysis

The results of the model summary, analysis of variance and multiple regression analysis are contained in this section as presented in Table 3, Table 4 and Table 5 respectively.

Table 3: Model Summary Results

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			
						F Change	df1	df2	Sig. F Change
1	.547 ^a	.299	.291	.58981	.299	36.890	3	259	.000

a. Predictors: (Constant), M&E ICT, M&E Staff Skills, M&E Planning

Source: Primary Data Survey (2024)

The Results shows that researcher used multiple regression at 95% confidence intervals the analysis indicated good fit of $F(3, 259) = 36.890, P < 0.001, \text{Adj } R^2 = 0.291$ and $R^2 = 0.299$.

Hence, the result of $R^2 = 0.299$ equal to 29.9% were addressed representing the size effect of independent variable. And according to Cohen al., Sawilowsky (2009) is termed to be small size effect.

Table 4: Analysis of Variance

ANOVA ^b						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	38.500	3	12.833	36.890	.000 ^a
	Residual	90.100	259	.348		
	Total	128.600	262.000			

a. Predictors: (Constant), M&E ICT, M&E Staff Skills, M&E Planning

b. Dependent Variable: Project Performance

Source: Primary Data Survey (2024)

The question was to investigate if there any significant relationship between Predictors M&E planning, M&E Staff Skills, M&E ICT and Project performance. The ANOVA results suggest that the M&E planning and Dependent Variable: Project Performance were statistically significant ($F_{3, 259} = 36.890, P < .001$).

Table 5: Multiple Regression Analysis Results

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.378	.293		4.702	.000
	M&E Planning	.180	.086	.170	2.080	.038
	M&E Staff Skills	-.014	.074	-.016	-.196	.845
	M&E ICT	.542	.075	.450	7.190	.000

a. Dependent Variable: Project Performance

Source: Primary Data Survey (2024)

The analysis indicates that M&E Planning such as setting project objectives, baseline of M&E indicators and M&E Data collection and analysis, contributes to project performance. The setting objectives, baseline and analysis of M&E contribute much in the project implementation for engineers on the site and henceforth, the process of monitoring and evaluation for Gasabo district thus the result of project performance reveal ($\beta = 0.170, CI 0.010, 0.350, t = 2.080, P < .001$). Hence, the question was positively responded Project objectives, Baseline of M&E indicators, M&E Data collection and analysis.

Also, the question was to investigate if there any significant relationship between M&E Staff Skills and Project performance, the analysis indicates that M&E Staff kills such as use appropriated project indicators to measure project objectives, setting attainable project goal and

outcomes indicators within stated time, effective measurement of project indicators and cost in terms of time and money, contributes to project performance of construction project for Gasabo district, thus the result of project performance reveal ($\beta = -.016$, $CI = -.160, 0.131$, $t = -.196$, $P > .001$). Consequently, the test statistic was $-.196$, and the P-Value is 0.845 which was greater than $.001$, so the study fails to reject the null hypothesis it concludes that the M&E Staff skills was no significant effect to project performance of construction project for Gasabo district.

Finally, the analysis indicates that Monitoring and evaluation ICT such as IT Equipment in Project, Use of IT team in the construction project, Using ICT to facilitate the decision-making process contribute to project performance had a positive effect on construction project performance with ($\beta = 0.450$, $CI = 0.393, 0.690$, $t = 7.190$, $P < .001$). Hence, the model was accepted.

Discussion

This study did not negate with the findings of a study done by Shema and Irechukwu, (2022) thus, the demand after this progress as well as the project performance. Furthermore, M&E practices are not at the end; this means that monitoring and evaluation must begin with planning initiation and throughout the project and during the life of the project from beginning to end.

According to Daft (2010) project management is the attainment of organizational goals in an effective and efficient manner through planning, organizing, leading and controlling organizational resources. The success of any project depends on how effective the project management cycle is. This cycle begins from the initiation to completion of any project. A major bottleneck facing the building industry is why projects are not being completed on time at the budgeted cost and within specified standards.

We can conclude that monitoring and evaluation is the most important factor that positively affects any construction project to achieve success and progress in the project as planned. In order to achieve this, research has proven that the use of information technology to collect data and share information with all decision makers and stakeholders has a strong positive impact with statistical significance.

CONCLUSION AND RECOMMENDATIONS

Conclusion

Through a series of issues addressed starting from the literature review, information collected in the field and summary of findings, this research aimed to assess the effects of Monitoring & Evaluation practices on the performance of construction projects in Gasabo District. Based on analysis of findings it can be concluded that Monitoring and evaluation practices are important factors to consider when planning and implementing construction project specifically identified M&E planning, M&E staff skills and M&E ICT.

Recommendations

Based on the findings of the field respondents and literature review, the researcher recommends that monitoring and evaluation should be a priority in the projects for its relevancy; and important government agencies, non-profit organizations, the World Bank and other stakeholders and all bodies dealing with construction projects should make arrangements for monitoring and evaluation practices due to make monitoring and evaluation operations successful.

In fact, government agencies or non-governmental organizations should set a budget for M&E in their programs so that the development of M&E is more visible in construction projects.

Suggestions for Further Studies

The construction projects had been always studied by looking its technicality angle and outcome although omitting its linked with monitoring and evaluation in developing countries, to better understand the implications of these results the study suggest other researcher to analyse the project performance using cost and time management while moderating project management practices variable, the result should reveal otherwise.

The research proposer also to assess the mediation between human resource skills management, project monitoring and evaluation practices and project performance, this could lead to another angle of improvement of project management by emphasizing much on human resource practices.

The researcher also proposes the duplication of the study to new developed countries by analysing the moderating effect of human resource skills management between project monitoring and evaluation practices and project performance or interchange dependent to independent and moderating variable to see if it is relevant for construction project, the result should reveal otherwise.

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