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Role of Monitoring and Evaluation on Account Ability of Construction Project: A Case of Isange Phase III Construction Project in Kicukiro District, Rwanda

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Abstract: *This study assessed the role of monitoring and evaluation (M&E) in the accountability of the Isange Phase III construction project in Kicukiro District, Rwanda. A descriptive and correlational design was used. The target population comprised 157 project staff, and census sampling was adopted. Data were collected through closed-ended questionnaires, semi-structured interviews, and documentary reviews. Quantitative data were analysed in SPSS using descriptive statistics, Pearson correlation, and multiple regression; interview data were analysed thematically. Of 157 questionnaires, 154 were returned (98.09%). All four M&E dimensions were positively and significantly associated with project accountability. In the regression model, planning ($B = .223$, $t = 4.551$, $p < .001$), data collection ($B = .397$, $t = 8.447$, $p < .001$), data analysis ($B = .129$, $t = 2.688$, $p = .007$), and reporting ($B = .232$, $t = 4.070$, $p < .001$) had positive significant coefficients. The model explained 81.9% of the variation in accountability ($R^2 = .819$). The study recommends strengthening M&E planning, the accuracy and regularity of field data collection, evidence-based analysis, and timely reporting to support transparent project oversight.*

Keywords: *Monitoring, evaluation, Accountability, Construction, Rwanda*

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1. Introduction

Construction projects require mechanisms that allow stakeholders to compare planned activities with actual implementation, identify deviations, and explain how resources are used. Monitoring and evaluation (M&E) can support these functions by providing structured information for management decisions, oversight, learning, and reporting. The dissertation situates M&E within construction governance and draws on literature describing monitoring systems in Sweden, China, Pakistan, Egypt, Nigeria, and Kenya before considering the Rwandan context (Bhatti & Ahmed, 2023; Gong et al., 2022; Njeru & Kirui, 2022; Rohracher et al., 2023).

In Rwanda, the source dissertation describes M&E as relevant to infrastructure oversight and discusses studies concerning road construction, electricity infrastructure, public-facility rehabilitation, and district construction programmes (Habarurema & Akims, 2024; Niyondora & Irechukwu, 2023; Rukundo & Kamande, 2022; Umurungi & Rusibana, 2021). It identifies the Isange Phase III construction project in Kicukiro District, Kigali, as the case for examining whether planning, data collection, data

analysis, and reporting are associated with project accountability.

The problem addressed is the continuing concern, as described in the dissertation, that construction projects may experience weaknesses in contract supervision, financial accountability, quality compliance, progress reporting, and feedback. The source cites national and project-sector reports to frame these concerns, including the Office of the Auditor General of State Finances (2023), Rwanda Housing Authority (2023), and Ministry of Infrastructure Rwanda (2024). The specific empirical gap stated by the author is the lack of project-specific evidence on how M&E practices relate to accountability at Isange Phase III.

The study is justified by the need to assess these practices in a defined construction-project setting rather than infer the situation from sector-wide observations alone. Evidence about the relationships between M&E practices and accountability may help project managers and stakeholders identify which processes merit continued attention. The study does not establish that the findings generalise to all construction projects; its immediate evidence concerns Isange Phase III.

2. Literature Review

2.1 Conceptual perspectives on monitoring and evaluation

M&E comprises organised tracking of implementation and assessment of progress against intended objectives. The dissertation treats M&E planning, data collection, data analysis, and reporting as four related practices. Planning specifies what should be monitored, how progress should be measured, and which resources and responsibilities are required. The literature reviewed in the source links planning to clear indicators, budgets, schedules, and coordination (Mutsune & Ngugi, 2023; Ogunbayo et al., 2024; Sbiti et al., 2022).

Data collection supplies the records needed to compare implementation with plans. The dissertation discusses site visits, daily records, meeting notes, inspections, standardised procedures, and digital data systems as means of producing usable evidence (Inisha & Elly, 2022; Tukei & Tukei, 2022; Xia et al., 2023). The value of collection depends not only on the volume of information but also on its accuracy, completeness, and relevance to project decisions.

Data analysis turns records into interpretable information. Comparison of actual progress with baselines, examination of deviations, and systematic use of statistical or other analytical methods can help managers identify problems and respond to them (Njeru & Kirui, 2022; Okello, 2021; Zarghami, 2023). Reporting communicates findings to stakeholders. Reports that document progress, risks, compliance, and corrective action can make decisions more traceable and help stakeholders follow up on assigned responsibilities (Anzagira et al., 2024; Garcia-Torea & Luque-Vílchez, 2025; Nguliki, 2024).

Project accountability concerns the obligation of project actors to explain decisions, performance, and resource use. The dissertation's review connects accountability with clearly assigned responsibilities, contract compliance, verifiable records, financial oversight, and transparent communication (Celik et al., 2023; Gwala & Mashau, 2023). In a construction project, these elements can complement one another: planning establishes expectations, collection provides evidence, analysis interprets that evidence, and reporting makes it available for oversight.

2.2 Theoretical perspectives

Four theories informed the dissertation. The Resource-Based View was used to consider whether internal capabilities, personnel, tools, and monitoring resources support planning and accountability. The Theory of Change informed the discussion of data collection by focusing on evidence linking activities and expected results. Contingency Theory framed data analysis as requiring interpretation responsive to project conditions. Agency Theory informed reporting and accountability by emphasising oversight and information asymmetry between those who delegate responsibilities and those who implement them (Abedin, 2022; Kalbuana et al., 2022; Ozili, 2024; Rohracher et al., 2023).

These theories offer complementary lenses rather than separate empirical tests in this study. Their relevance is that accountability may depend on the resources and capabilities available to a project, the logic connecting actions to outcomes, the fit between management responses and context, and the quality of information exchanged among project actors.

2.3 Empirical evidence and study gap

The empirical studies reviewed in the dissertation include work on M&E planning in Kenyan public-sector construction projects, road projects in Rwanda, data-quality systems in Uganda, construction projects in Rwanda, and reporting practices in Ghana and Spain (Mutsune & Ngugi, 2023; Rukundo & Kamande, 2022; Shema & Irechukwu, 2022; Tukei & Tukei, 2022; Anzagira et al., 2024; Garcia-Torea & Luque-Vílchez, 2025). Taken together, the reviewed work supports examining M&E practices as potential contributors to project oversight and accountability.

The dissertation identifies a contextual gap: the reviewed studies had not specifically investigated the Isange Phase III project. The present study addresses that gap through survey, interview, and documentary evidence from this

project. The study's contribution is therefore project-specific evidence on the statistical relationship between four M&E dimensions and accountability, not a claim that one case settles the issue for the entire construction sector.

3. Methodology

3.1 Research design and setting

The study used a descriptive and correlational design to examine M&E practices and accountability in the Isange Phase III construction project in Kicukiro District, City of Kigali, Rwanda. The dissertation states that the research focused on project data and activities from 2022 to 2025.

3.2 Population, sample, and sampling

The target population comprised 157 people engaged in the project: 9 site managers, 14 supervisors, 19 finance officers, 21 construction supervisors, and 94 site workers. Census sampling was adopted, with all 157 members of the stated population targeted. A total of 154 questionnaires were returned, equivalent to 98.09%; three were unreturned (1.91%).

Table 1: Target Population by Respondent Category

Respondent category	Population
Site managers	9
Supervisors	14
Finance officers	19
Construction supervisors	21
Site workers	94
Total	157

3.3 Data collection instruments and procedures

Primary data were collected using closed-ended questionnaires and semi-structured interviews. Secondary information was gathered through documentary review of monitoring plans, progress and supervision reports, audit reports, and contractual documents. The questionnaire used a five-point agreement scale, from 1 (strongly disagree) to 5 (strongly agree). Interviews provided contextual explanations to complement the quantitative findings.

3.4 Validity and reliability

The dissertation reports that supervisors and experienced academic researchers reviewed the questionnaire for relevance and clarity. Of 24 questionnaire items, 20 were judged relevant, giving a reported content validity index of 20/24 = 0.83. A pilot test was conducted with 15 people from the Vision City Project. Internal consistency was assessed using Cronbach's alpha.

Table 2: Reliability Coefficients for Study Constructs

Construct	Items	Cronbach's alpha
M&E planning	5	.832
M&E data collection	5	.815
M&E data analysis	5	.841
M&E reporting	5	.828
Project accountability	4	.862

All reported alpha coefficients exceeded the dissertation's stated threshold of .70. These are the reliability results reported by the source; they have not been independently recalculated from raw item-level data, which were not supplied.

3.5 Data analysis

Quantitative data were processed and analysed in SPSS. Descriptive statistics included frequencies, percentages, means, and standard deviations. Pearson correlation was used to examine bivariate relationships, and multiple regression was used to assess the joint and individual relationships of the four M&E dimensions with project accountability. The stated model was $Y = \beta0 + \beta1X1 + \beta2X2 + \beta3X3 + \beta4X4 + \varepsilon$, where Y represented project accountability and X1–X4 represented planning, data collection, data analysis, and reporting. Interview responses were analysed thematically through familiarisation, coding, grouping into themes, and interpretation.

3.6 Ethical considerations

The dissertation reports that participation was voluntary, informed consent was obtained, confidentiality and anonymity were maintained, and permission was obtained

from the University of Kigali and project authorities. These procedures are reported as described in the source.

4. Results and Discussion

4.1 Response rate and descriptive findings

Of 157 questionnaires distributed, 154 were returned (98.09%) and three were not returned (1.91%). The high return rate provided a substantial set of questionnaire responses for the reported analysis.

For planning, the source reports an overall mean of 4.12 and standard deviation of 0.451. The item-level findings describe positive respondent assessments of activity planning, work scheduling, resource allocation, and risk planning. For data collection, the overall mean was 4.18 (SD = 0.476), with respondents reporting regular site visits, progress records, meeting notes, and field inspections. For data analysis, the overall mean was reported as 4.21 (SD = 0.422), and for reporting, the overall mean was 4.16 (SD = 0.408). The source's descriptive table for accountability reports an overall mean of 4.25 (SD = 0.462), although the table itself appears to reproduce the reporting-practice items rather than the accountability items described in the narrative. This discrepancy requires correction against the original dataset before submission.

Table 3: Descriptive Statistics for M&E Practices and Accountability

M&E/accountability construct	Reported overall mean	Reported SD
M&E planning	4.12	.451
M&E data collection	4.18	.476
M&E data analysis	4.21	.422
M&E reporting	4.16	.408
Project accountability	4.25	.462

The descriptive results suggest that respondents generally agreed that M&E practices were applied in the project. These perceptions should be interpreted as respondent-reported assessments rather than independent proof that every project activity complied with formal requirements. The dissertation also presents secondary indicators showing improvement from 2022 to 2025: the overall accountability average rose from 61.6% to 74.2%. Compliance with the project plan increased from 64.2% to 76.8%; financial accountability from 62.8% to 74.6%; corrective implementation from 60.5% to 73.5%; and variance justification from 58.9% to 71.8%. The source does not provide the underlying records in a form that permits independent verification of these percentages.

Table 4: Accountability Indicators, 2022–2025

Accountability indicator	2022 (%)	2023 (%)	2024 (%)	2025 (%)
Compliance with project plan	64.2	68.5	72.4	76.8
Financial accountability	62.8	66.7	70.9	74.6
Corrective implementation	60.5	64.8	69.3	73.5
Variance justification	58.9	62.9	67.6	71.8
Overall average	61.6	65.7	70.1	74.2

4.2 Relationships between M&E practices and accountability

Pearson correlations were positive and statistically significant for each M&E dimension. Planning correlated with accountability at r = .747; data collection at r = .781; data analysis at r = .752; and reporting at r = .816. Each was reported as p = .000 in the software output, which should be written in APA style as p < .001 rather than a probability of exactly zero. Reporting had the strongest bivariate correlation with accountability, followed by data collection, data analysis, and planning.

Table 5: Correlations Between M&E Dimensions and Accountability

M&E dimension	Pearson r with accountability	Reported significance	Interpretation
Planning	.747	$p < .001$	Positive, strong association
Data collection	.781	$p < .001$	Positive, strong association
Data analysis	.752	$p < .001$	Positive, strong association
Reporting	.816	$p < .001$	Positive, strong association

These results are consistent with the literature reviewed in the dissertation, which links structured planning with implementation control, reliable data with performance verification, analytical use of evidence with management decisions, and reporting with transparent follow-up (Anzagira et al., 2024; Mutsune & Ngugi, 2023; Njeru & Kirui, 2022; Tukei & Tukei, 2022). Correlation indicates association; by itself, it does not establish that one practice caused a change in accountability.

4.3 Regression model and individual coefficients

The multiple regression model reported $R = .905$, $R^2 = .819$, adjusted $R^2 = .814$, standard error of estimate = .164, and Durbin–Watson = 1.677. The reported ANOVA was $F(4, 149) = 168.407$, $p < .001$. According to the dissertation, the four M&E dimensions jointly explained 81.9% of the variation in project accountability within the fitted model. This is a model-based association and should not be interpreted as proof that M&E practices alone caused 81.9% of accountability outcomes.

Table 6: Multiple Regression Coefficients Predicting Accountability

Predictor	Unstandardised B	SE	Standardised β	t	Reported p	VIF
M&E planning	.223	.049	.236	4.551	< .001	2.268
M&E data collection	.397	.047	.388	8.447	< .001	1.765
M&E data analysis	.129	.048	.158	2.688	.007	2.775
M&E reporting	.232	.057	.271	4.070	< .001	3.691

Holding the other predictors constant, the reported coefficients were positive for all four dimensions. Data collection had the largest unstandardised coefficient ($B = .397$), followed by reporting ($B = .232$), planning ($B = .223$), and data analysis ($B = .129$). The coefficients for planning, data collection, and reporting were reported at $p < .001$, while data analysis was significant at $p = .007$. Accordingly, the dissertation rejected each of the four null hypotheses at the .05 level.

The dissertation's regression table labels the fourth predictor as "M&E Data Collection," whereas the model description, abstract, and narrative identify it as M&E reporting. The fourth coefficient is therefore interpreted cautiously as reporting in this discussion, consistent with the study's stated model, while recognising that the source table label is inconsistent. The accountability descriptive table also appears to repeat reporting indicators, which limits confidence in interpreting its construct-specific descriptive results.

4.4 Qualitative findings

The dissertation reports thematic interview findings organised around planning, data collection, data analysis, reporting, and project accountability. In general, the qualitative discussion is used to contextualise the survey findings and to describe the perceived value of structured planning, site records, analysis, and reporting. However, the source does not provide a sufficiently detailed, auditable set of verbatim interview extracts or a clear respondent-coding scheme in the material available for this manuscript. Therefore, no direct quotations or claims about the frequency of interview themes have been added.

5. Conclusions and Recommendations

5.1 Conclusions aligned with the objectives

Objective 1—planning: Planning had a positive, statistically significant relationship with project accountability ($B = .223$, $t = 4.551$, $p < .001$; $r = .747$). The evidence supports the conclusion that stronger reported

planning practices were associated with higher accountability in the case project.

Objective 2—data collection: Data collection had a positive, statistically significant relationship with accountability (B = .397, t = 8.447, p < .001; r = .781). It had the largest unstandardised coefficient among the four predictors, suggesting that the collection dimension was an especially important predictor in the reported model.

Objective 3—data analysis: Data analysis had a positive, statistically significant relationship with accountability (B = .129, t = 2.688, p = .007; r = .752). The results support the conclusion that systematic analysis of project information was associated with stronger accountability.

Objective 4—reporting: Reporting had a positive, statistically significant relationship with accountability (B = .232, t = 4.070, p < .001; r = .816). It had the strongest bivariate correlation with accountability, suggesting that clear and timely reporting was closely associated with accountability in this project. This interpretation should be read alongside the inconsistent fourth-predictor label in the source regression table.

Additional synthesis of the four M&E dimensions

The four dimensions examined in this study should be understood as linked stages in a monitoring cycle. Planning establishes the questions and indicators that the project needs to track. Collection determines whether credible information is available to assess those indicators. Analysis compares and interprets the information, while reporting communicates the results to people who can review performance or require corrective action. A weakness at one stage can limit the value of the others: for example, accurate records may not support accountability if they are not analysed or shared, and reporting cannot be reliable when the underlying information is incomplete.

The descriptive results show relatively high reported means across all four M&E dimensions, ranging from 4.12 for planning to 4.21 for data analysis. The narrow range suggests that respondents evaluated the measured practices similarly overall. These means do not, however, demonstrate that each practice was equally effective or that all project stakeholders experienced the practices in the same way. The standard deviations reported by the dissertation range from .408 to .476 for these dimensions, indicating comparatively limited dispersion under the author's stated interpretation. This interpretation should be retained cautiously because the source's threshold-based labels are not a substitute for examining item distributions and measurement properties.

The secondary indicators provide a separate descriptive view of accountability over time. The overall average increases from 61.6% in 2022 to 74.2% in 2025, while each of the four listed indicators also rises over the period. The pattern is consistent with improvement in the project records as represented by the supplied table. It does not, by itself, show that M&E caused the increase: the source does not report a comparison project, a time-series model, or an analysis isolating the contribution of M&E from other changes that may have occurred during the same period.

The correlation matrix provides evidence that each M&E dimension is associated with accountability. The strongest bivariate association is for reporting (r = .816), while the regression results show the largest unstandardised coefficient for data collection (B = .397) when the other three dimensions are held constant. These findings are not contradictory. Correlations describe each dimension's relationship with accountability separately, whereas regression coefficients estimate each predictor's unique association after accounting for the other predictors. The distinction is important when translating results into recommendations: reporting is strongly associated with accountability overall, while data collection has the largest reported unique coefficient in the fitted model.

The model summary reports $R^2 = .819$ and adjusted $R^2 = .814$, with $F(4, 149) = 168.407$, $p < .001$. These values indicate that the four predictors, taken together, fit the observed accountability scores strongly within the sample analysed. The result should be interpreted within the limits of the design. Because the study is observational and case-specific, unmeasured factors may be related to both M&E practices and accountability. The data therefore support evidence of association and prediction in the studied project, but they do not establish causal effects in the strict experimental sense.

Implications for project practice

For project governance, the findings suggest that M&E processes are most useful when they form a traceable management cycle rather than operate as isolated administrative tasks. Project plans should state the intended outputs, indicators, responsible persons, timing, and evidence required to confirm progress. Collection procedures should make records comparable across work areas and reporting periods. Analysis should document the difference between planned and actual performance, the likely reasons for deviations, and the response selected by management. Reports should then show the evidence considered, the decision made, the responsible person, and whether the action was completed.

The study also points to the importance of information quality. Accountability depends on whether stakeholders can trace a claim about progress or resource use to records that are sufficiently clear and consistent to be checked. Regular field visits and inspections can be useful when their observations are recorded systematically. Meeting notes and progress reports are more valuable when they identify actions and deadlines rather than merely summarise discussions. Likewise, analytical outputs should be understandable to managers and oversight

bodies, and should not conceal limitations or uncertainty in the underlying data.

Reporting should be treated as a two-way accountability process. Preparing a report is not, on its own, evidence that the issue described in it has been resolved. The project should be able to demonstrate that the relevant stakeholder received or reviewed the report, that identified deviations were assigned for action, and that follow-up was documented. This implication follows the study's positive reporting-accountability association while avoiding the stronger unsupported claim that reporting alone guarantees compliance.

5.2 Recommendations

Based on the findings of this study, the following

recommendations were made:

1. Project management should formalise M&E plans before implementation, specifying activities, schedules, responsibilities, indicators, risks, and resources.

2. Project teams should maintain accurate, dated progress records and regular site-visit and inspection documentation, with clear responsibility for checking and correcting incomplete records.

3. Monitoring information should be analysed systematically against approved baselines and milestones. Deviations should be documented, explained, and linked to recorded corrective actions.

4. Reporting procedures should set clear timelines and standard formats for progress, risk, compliance, and corrective-action reporting, with evidence that reports were reviewed and followed up.

5. Project management should periodically review whether the M&E arrangements are producing reliable evidence and whether decisions and corrective actions can be traced to that evidence.

These recommendations follow the study's reported findings. They should not be read as a claim that the research tested each recommended intervention separately.

Limitations and interpretation

Several limitations should guide interpretation. First, the study concerns one construction project, so the findings should not automatically be generalised to other projects, districts, contractors, or sectors. Second, much of the quantitative evidence is based on questionnaire responses, which may reflect respondents' perceptions and may be affected by response tendencies. Third, although the dissertation describes interviews and documentary review, the manuscript source does not provide enough traceable qualitative extracts or complete documentary datasets to independently audit those strands. Fourth, the regression analysis does not remove the possibility of omitted variables or establish temporal causality.

A further limitation concerns consistency in the source tables. The accountability descriptive table appears to repeat reporting indicators, and the regression coefficient table labels the fourth predictor as data collection even though the equation, abstract, and narrative identify reporting as the fourth dimension. These discrepancies constrain the precision with which the affected results can be interpreted.

Future research could examine more than one construction project, use comparable indicators across sites, and combine survey responses with audited records of budgets, schedules, quality inspections, and corrective actions. Longitudinal or comparative designs could help assess whether changes in M&E practices precede changes in accountability. Further research could also examine whether project size, procurement arrangements, contractor capacity, or stakeholder participation alters the relationship between M&E practices and accountability. These are directions for future study, not findings established by the present dissertation.

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