Monitoring and Evaluation Practices and the Performance of Kenya National Highways Authority Road Maintenance Projects in Central Region, Kenya

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ABSTRACT

Road maintenance projects frequently encounter issues such as delays in completion, inadequate user satisfaction, and inconsistent quality of work. This study examined how Kenyan road maintenance projects performed in relation to Monitoring and Evaluation (M&E) procedures. This research purposed to determine the impact of M&E budget allocation on the Central region's Kenya National Highways Authority (KeNHA) road repair projects' performance. In this investigation, the guidance was drawn from the theory of constraints. This research employed descriptive survey research and targeted 24 roads under KenHA maintenance in Central region. The intended participants comprised 72 road engineers and 50 KeNHA staff from various counties in the central region. A census sample approach was employed in the study. Both closed-ended and open-ended questionnaires were used in the study. A small sample of ten road engineers working on KeNHA projects participated in a pilot study. The data was statistically analysed using SPSS version 27. The study on budget allocation in road maintenance projects found positive evaluations of budget management, with a composite mean of 4.19. Correlation analysis showed a strong positive link between budget allocation and project performance (r = 0.670, p < 0.001), while regression analysis indicated budget allocation accounts for 57.3% of performance variance (R² = 0.573). Overall, effective budget allocation for M&E activities, including training and logistics, significantly boosts project success. The study recommended that KenHA should ensure adequate allocation of M&E funds to enable training of monitoring team and for logistical support.

Keywords: *Central Region, Monitoring and Evaluation Practices, M&E Budget Allocation, Performance of KeNHA Road Maintenance Projects*

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I. INTRODUCTION

The implementation of monitoring and evaluation (M&E) practices is essential to the global success of projects. M&E emerges as a globally recognized factor influencing project performance. Mutai and Musembi (2024) state that M&E is a systematic process used to assess and improve the performance of projects or programs. Monitoring involves the continuous collection of data to track progress against planned activities and outcomes. On the other hand, evaluation is the ongoing appraisal of a project's long-term viability impact, efficacy, and efficiency. A study by Otieno and Muchelule (2024) emphasized that effective monitoring and evaluation ensures efficiency in project outcomes and resource utilization.

Makau and Kiarie (2024) state that budget allocation for monitoring and evaluation involves allocating funds to assist in evaluating project performance and results. It involves allocating cash at every stage of the project to guarantee proper planning, execution, and assessment. Allocating M&E resources effectively promotes accountability and transparency by guaranteeing accurate project process tracking, spotting deviations early, and offering solutions for the problems that are found. Hiring qualified staff, obtaining the required assessment instruments, and carrying out project audits are all made possible by efficient resource allocation. In addition to improving performance, adequate funds support long-term project sustainability (Koima & Ombui, 2024).

According to Opiyo and Muchelule (2024), performance of projects entails efficient use of resources for the said project, achievement of its intended goals with minimal wastage, and successful completion of the project deliverables within the planned parameters. Other scholars such as Okeyo et al. (2024) posit that project performance is pegged on the three key project constraints of scope, time and cost. When the three are effectively handled, then the project is said to be successful. They further acknowledge stakeholder satisfaction as key to better project performance.

Globally, in New Zealand performance contracting has led to better budget utilizations and achievement of quality projects especially in infrastructure projects (Kelly et al., 2023). Studies conducted in Africa including the Uganda National Roads Authority revealed that proper project monitoring especially communication of project milestones when adequately funded enhanced project success (Namakula, 2024). As for the case of Ghana, a study

disclosed that M& E assist in identifying matters such as delay and poor workmanship at initial stages thus enabling corrective measures put in place (Nuako et al., 2024). M&E produces accountability and enhances stakeholder confidence hence financial prudence that leads to mobilization of funds for future project (Kirima et al., 2024).

This study sought to investigate the challenges that road maintenance projects in Central Region encounters despite major investments by the government. According to past studies major problems affect road maintenance projects including, delay, budget overruns and compromised quality. Poor M&E practices have compounded problems of oversight, budget unsustainability, and accountability by generating costly, substandard road infrastructure projects. Currently, KeNHA outsources maintenance project to road contractors, but lack of efficient supervision results to poor road maintenance thus increased road accidents (Akinyi, 2022).

1.1 Statement of the Problem

Kenyan road infrastructure projects fail primarily due to poor project sustainability management strategies that have resulted in time and cost redundancy problems (Auma, 2023). Despite the fact that the industry is prominent in Kenya, many of its projects experience severe delay problems and generally take longer time to complete. While some are completed within deadlines, others are constructed with no proper maintenance protocols in place hence over time they deteriorate (Auma, 2023).

The specific M&E activities commonly used in road maintenance include survey, monitoring, reporting and evaluation practices. Efficient road maintenance monitoring improves the overall performance of the projects because they facilitate early identification of problems and immediate action. For instance, performance-based contracts (PBCs) have been revealed to enhance the accuracy of budget estimates, and the performance of projects, through regular and active supervision. Also, the involvement of the stakeholders in the M&E processes enables achievement of what the most road users desire for (Akinyi, 2022).However, most road maintenance projects have performed dismally in Central region due to a number of reasons, among them, inadequate funds allocation by the government and corruption and embezzlement of funds (Akinyi, 2022).

Most research investigations, such as those by Marc et al. (2022) and; Hubert and Mulyungi (2018). Murorunkwere and Munene (2022) and Wambua (2019) conducted studies on the influence of monitoring and evaluation procedures in different projects such as housing and education. However, no study had been carried out in Central region to ascertain the impact of M&E on road maintenance projects. Hence this research sought to answer the research question; what is the influence of monitoring and evaluation practices on the performance of KeNHA road maintenance projects in the Central region?

1.2 Research Objective

To establish the influence of monitoring and evaluation budget allocation on the performance of KeNHA road maintenance projects in the Central region.

II. LITERATURE REVIEW

2.1 Theoretical Review
2.1.1 Theory of Constraint

This study was anchored on the theory of constraint by Goldratt (1990). This theory states that managers in organizations need to effectively manage the three project constraints of time, quality and scope. Effective management of the constraints leads to better performance of projects (Goldratt, 1990).

Gupta and Boyd (2008) argue that project managers for infrastructural projects need to ensure efficiency in resource utilization to ensure that projects are completed on time and that they meet the required standards. They argued that proper resource management ensures the successful management of the other two project constraints of time and quality and therefore this theory was relevant to the objective of establishing the influence of budget allocation on the performance of the projects.

2.2 Empirical Review

Ovcina and Arslanagic-Kalajdzic (2024) investigated the connection between project performance in charitable organisations in developing nations, the establishment of project management platforms (PIMS) for financial monitoring, and M&E. This study was anchored on resource based view theory. The study revealed that organizations that had efficient monitoring and evaluation practices in place such as proper budgets for M&E and effective knowledge management experienced improved project performance.

Ouma and Nyang'au (2024) explored the influence of monitoring and evaluation practices on project performance in humanitarian organizations in Nairobi City County, Kenya. The study adopted descriptive research design and targeted 366 management employees and sampled 187 respondents via simple random sampling. Data
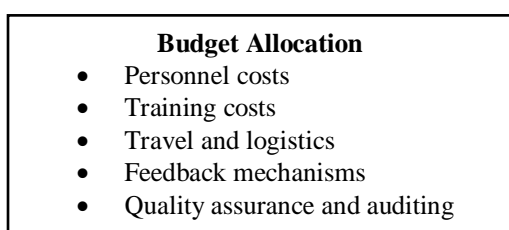
were collected through questionnaires and analyzed with SPSS. Findings revealed that both M&E budgeting and communication had positive, significant effects on project performance. The authors recommended that humanitarian organizations in Nairobi prioritize ongoing M&E throughout project phases and invest in continuous training for staff involved in M&E activities.

Ambatsa and Mutwiri (2024) looked into how well tuberculosis (TB) control programmes in Kenya's Kakamega County performed in relation to monitoring and evaluation (M&E) procedures. Based on theories of management and human capital, the study sought to ascertain how M&E budget allocation and capacity building affected programme effectiveness. Owing to the small sample size, all members of the population were interviewed for the study. SPSS software was used to analyse the data that were gathered utilizing questionnaires. Results showed a strong positive link between the performance of the TB programme and the budget allocated to M&E, highlighting the need for improved budgetary prioritization and alignment with programme objectives. Study recommended that the county government should increase allocations to monitoring and evaluation of the projects.

2.3 Conceptual Framework

This study assesses the relationship between budget allocation components—such as personnel costs, training expenses, travel, and feedback mechanisms—and project performance indicators, including timely completion, adherence to budget, reduced accidents, and effective environmental management in road maintenance projects.

Independent Variable

Budget Allocation
• Personnel costs
• Training costs
• Travel and logistics
• Feedback mechanisms
• Quality assurance and auditing

Dependent Variable

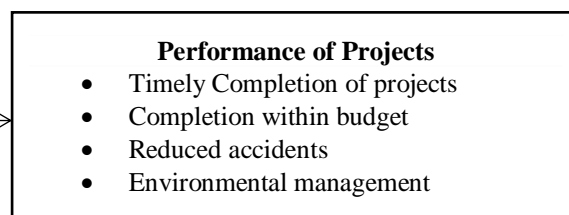| Performance of Projects |
| --- |
| • Timely Completion of projects |
| • Completion within budget |
| • Reduced accidents |
| • Environmental management |

Figure 1
Conceptual Framework
Source: Author (2024)

III. METHODOLOGY

3.1 Research Design

According to Creswell and Creswell (2017) this refers to the methodological strategy employed in data collection. Descriptive survey research was utilised in this study.

3.2 Target Population

The research focused on 24 roads under KenHA maintenance in Central region. Contractors who had been granted tenders for the performance based road maintenance projects in central regions were used in the study. The intended participants comprised 72 road engineers and 50 KeNHA staff from various counties in the central region responsible for monitoring the highway road maintenance program. This data was sourced from the KeNHA Central Region office in 2024.

3.3 Sample Design

All 24 of the roads undergoing maintenance were chosen for the study using a census sample technique.

3.4 Data Collection

Both closed-ended and open-ended surveys were used in the study. There were two parts to the closed-ended instrument. The second section included questions on the independent variable in relation to the dependent variable, as well as the demographic details of the respondents.

3.5 Data Analysis

From qualitative data, quantitative forms were developed. SPSS version 27 software was utilised to do a quantitative analysis of the collected data. A frequency distribution table was created using the estimated statistics for each variable. Measures of central tendency and dispersion were computed using descriptive statistics. A simple linear

regression model was utilised in order to ascertain the significance of the impact of the independent factor on the dependent variable.

IV. FINDINGS & DISCUSSION

4.1 Performance of Road Maintenance Projects

This section examined the responses on a 5-point Likert scale regarding the performance of road maintenance projects. The results reflect respondents' opinions on various aspects of performance.

Table 1

Descriptive Statistics on the Performance of Road Maintenance Projects N=108

STATEMENTS	1	2	3	4	5	Mean
There is timely completion of road maintenance projects	19.3%	34%	12.7%	15.3%	8.7%	2.51
The contractors complete the projects using resources efficiently as per the budgets	21.3%	37.3%	14%	15%	12.4%	2.48
The maintained roads have led to reduced number of road accidents	10.6%	15.1%	11.3%	38.3%	24.7%	3.79
Contractors ensure that there are environmental safety concerns while maintaining the roads.	14%	17%	8.3%	38.4%	22.3%	4.18
Composite and composite mean						**3.24**

The data reveals varied perceptions of road maintenance project performance. Respondents largely feel that road maintenance projects are not completed on time, with a mean score of 2.51, indicating concerns about delays. Similarly, the efficient use of resources in line with the budget received a mean score of 2.48, reflecting dissatisfaction with budget adherence. In contrast, the impact of maintained roads on reducing road accidents was viewed more positively, with a mean score of 3.79, suggesting that respondents recognize a beneficial effect on road safety. Additionally, there is strong agreement that contractors address environmental safety concerns effectively, with a mean of 4.18. Overall, the composite mean of 3.24. The low composite mean indicates that road maintenance projects are not well conducted, reflecting the overall dissatisfaction and poor performance ratings.

In interviews, KeNHA staff revealed several key issues regarding road maintenance project performance. They cited challenges such as inadequate budget allocation, frequent scope creep, and difficulties in adhering to project timelines. These findings agree with a number of studies. For instance, a study by Samo et al. (2024) revealed that Kenyan road projects have a myriad of issues including cost overruns always averaging above 50%, and mostly delay in excess of two years after the planned timelines. Another study by Karuga, Sang and Mutuku (2024) revealed that most urban road projects in Nairobi Metropolitan areas experienced delays with most contractors misappropriating funds.

4.2 Monitoring and Evaluation Budget Allocation

This provided the descriptive statistics on the various M&E budget allocation strategies in place to ensure effective performance of the road maintenance projects. The findings were on a 5 point Likert scale.

Table 2

Descriptive Statistics on M&E Budget Allocation

STATEMENTS	1	2	3	4	5	Mean
There is budgeting for monitoring and evaluation team in charge of road maintenance projects	8.7%	11%	12%	41.3%	27%	4.21
Funds are allocated for the training of KeNHA M&E team	7%	9.3%	8.3%	42.3%	33.1%	4.48
Adequate funds are allocated for logistical support	9%	15.7%	11.3%	40.3%	23.7%	4.12
Adequate funds are allocated for road quality assurance and auditing	9%	13.3%	14.3%	38.3%	25.1%	3.98
Composite mean and standard deviation						**4.19**

N=108

The purpose of this objective was to examine the impact of budgeting on the performance of road maintenance project. Most respondents believe that there is there is budgeting for monitoring and evaluation team in charge of road maintenance projects with a mean score of 4.21. The financing of the M&E team training and development had also high rating of 4.48. Most respondents also agreed that there is adequate allocation of funds for M&E travel and logistical purposes, with the mean value of 4.12. Finally, most respondents also agreed that funds are

allocated for road quality assurance and auditing with a high mean of 3.98. The composite mean was 4.19 which indicated that there is effective provision of funds for monitoring and evaluation purposes.

A survey with the cross-sectional staff of KeNHA produced overall positive sentiment towards the budgetary provision with regards to funds allocated to road maintenance projects especially on M&E team capacity building and financing. Staff argued that adequate finances for monitoring and evaluation as well as other logistic requirements by the programs helped improve the overall project outcome sin Central region.

4.2.1 Correlation Analysis for Budget Allocation

This ccorrelation analysis assessed the association between budget allocation and performance of road maintenance projects.

Table 3
Correlation Analysis

Variable		Budget allocation	Performance of road maintenance projects
Budget allocation	Pearson Correlation	1	0.670[**]
	Sig. (2-tailed)		0.000
	N	108	108
Performance of road maintenance projects	Pearson Correlation	0.670[**]	1
	Sig. (2-tailed)	0.000	
	N	108	108

The Pearson correlation analysis revealed a strong, positive relationship between budget allocation and the performance of road maintenance projects, with a correlation coefficient of 0.670 ($p < 0.001$). This indicates that as budget allocation improves, the performance of road maintenance projects tends to enhance as well. These results are consistent with other investigations. Ambatsa and Mutwiri (2024) looked into how well tuberculosis (TB) control programmes in Kenya's Kakamega County performed in relation to monitoring and evaluation (M&E) procedures. Results showed a strong positive link between the performance of the TB programme and the budget allocated to M&E, highlighting the need for improved budgetary prioritization and alignment with programme objectives.

4.2.2 Regression Analysis for Budget allocation

This analysis helps reveal the nature of association between budget allocation and the project performance.

Table 4
Regression Analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.670[a]	.573	.492	.4882

a. Predictors: (Constant), Budget allocation

The regression analysis indicated a strong relationship between budget allocation and the performance of road maintenance projects. The R-value of 0.670 revealed a significant positive correlation. The R-squared value of 0.573 indicates that approximately 57% of the variance in project performance can be explained by budget allocation.

V. CONCLUSIONS & RECOMMENDATIONS

5.1 Conclusions

The study on budget allocation and the performance of road maintenance projects revealed positive evaluations of budget management practices. The study revealed that adequate budget allocation for M&E activities, including team training and logistical support, positively influences road maintenance project performance. Strong correlation and regression analysis confirm that better financial management in budgeting directly improves project outcomes.

5.2 Recommendations

The study's recommended that KeNHA should provide adequate and strategic allocation of funds for M&E activities, particularly for training and logistical support and that it should ensure early disbursement of funds to project contractors in order for them to adhere to project schedules.

REFERENCES

Akinyi, R. F. (2022). *Contractor's capacity and implementation of performance based road maintenance contract projects on class a roads in Kenya: A case of class A2 road by Kenya National Highways Authority* (Doctoral dissertation, university of Nairobi).

Ambatsa, S. A., & Mutwiri, F. (2024). Monitoring and Evaluation Practices and Performance Of Tuberculosis Control Programs In Kakamega County, Kenya. *International Journal of Social Sciences Management and Entrepreneurship (IJSSME)*, *8*(2), 206-221.

Auma, N. A. (2023). *Construction Delay and Completion of Dam Projects in Kitui County Kenya* (Doctoral dissertation, University of Nairobi).

Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.

Goldratt, E. M. (1990). *Theory of constraints*. Croton-on-Hudson: North River.

Gupta, M. C., & Boyd, L. H. (2008). Theory of constraints: a theory for operations management. *International Journal of Operations & Production Management, 28*(10), 991-1012.

Hubert, N., & Mulyungi, P. (2018). Influence of monitoring and evaluation planning on project performance in rwanda: a case of selected nongovernmental organisations in Gasabo District. *European Journal of Business and Strategic Management, 3*(8), 1-16.

Karuga, S., Sang, P., & Mutuku, M. (2024). Project Staff Scheduling and Performance of Road Construction Projects in Nairobi Metropolitan, Kenya. *East African Journal of Engineering*, *7*(1), 162-169.

Kelly, L. M., Goodall, J., & Lombardi, L. (2023). Developing a monitoring and evaluation framework in a humanitarian non-profit organisation using agile methodology. *Disaster Prevention and Management: An International Journal*, *31*(5), 5108-549.

KIRIMA, N. N., MINJA, D., & NJOROGE, J. (2024). Effect of project identification on the performance of road infrastructure development projects in Kenya. *Reviewed Journal of Social Science & Humanities*, *5*(1), 67-79.

Koima, Z. C., & Ombui, K. (2024). Monitoring and Evaluation Practices and Performance of the National Digital Superhighway Project in Nairobi City County, Kenya. *International Journal of Social Sciences Management and Entrepreneurship (IJSSME)*, *8*(3), 43-54.

Makau, J. M., & Kiarie, F. K. (2024). Monitoring & evaluation practices and performance of county funded health projects in Mombasa County, Kenya. *International Academic Journal of Economics and Finance*, *4*(3), 15-27.

Marc, N., Wafula, A. K., & Kirabo, J. (2022). Monitoring and Evaluation Practices and Performance of NGOs in Rwanda. *Journal of Entrepreneurship & Project Management*, *6*(1), 53–69.

Murorunkwere, A., & Munene, P. M. (2022). Monitoring and Evaluation Practices and Performance of Non-Governmental Organisation Projects in Rwanda: A Case of Care International Village Savings and Loan Associations Project. *Journal of Entrepreneurship & Project Management*, *6*(3), 37-55.

Mutai, G. K., & Musembi, A. K. (2024). Project Monitoring and Evaluation Practices and Performance of Water Projects In Western Region, Kenya. *International Journal of Social Sciences Management and Entrepreneurship (IJSSME)*, *8*(2), 38-66.

Namakula, B. (2024). *Assessing the impact of contract administration on the performance of road construction projects in Uganda* (Doctoral dissertation, Durban University of Technology).

Nuako, F., Ghansah, F. A., & Adusei, T. (2024). Critical success factors for cost overrun minimization in public construction projects in developing countries: the case of Ghana. *Construction Innovation*, *31*(5), 108-149.

Okeyo, W., Nyaga, J., & Eliab, J. O. (2024). *Project Funding and Performance of Education Projects in Kenya: A Case Study of Kajiado County* (Doctoral Dissertation, Konan University).

Otieno, A. M., & Muchelule, Y. (2024). Monitoring and Evaluation Practices And Performance Of Irrigation Projects In Siaya County, Kenya. *International Journal of Social Sciences Management and Entrepreneurship (IJSSME)*, *8*(1), 545-557.

Ouma, D. A., & Nyang'au, S. P. (2024). Monitoring and evaluation practices and project performance in humanitarian organizations in Nairobi City County, Kenya. *International Journal of Social Sciences Management and Entrepreneurship (IJSSME)*, *8*(2), 28-41.

Ovcina, A., & Arslanagic-Kalajdzic, M. (2024). The Role of Monitoring and Evaluation and Project Implementation Management System for Non-Profit Project Performance in Developing Countries. *South East European Journal of Economics and Business*, *19*(1), 63-76.

Samo, T. B., Ngatia, P. M., Wairiuko, J. W., & Shale, N. I. (2024). Project Planning Practices and Performance of Roads Construction Projects in Kenya. *Journal of Entrepreneurship & Project Management*, *8*(7), 17-33.

Wambua, C. M. (2019). *Monitoring and evaluation practices and performance of county funded education projects in Makueni County, Kenya* (Doctoral dissertation, Kenyatta University).