Monitoring and Evaluation Budgetary Allocation and Performance of Road Construction Projects in Kisumu County, Kenya

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Abstract: **Road construction is a fundamental aspect in development of every economy, contributing 19.1% of GDP and accounting for 93% of all freight and passenger traffic in Kenya. However, these projects have experienced time and cost overruns besides compromised quality due to the poor exercise of monitoring and evaluation practices. The purpose of the study was to establish the influence of M&E Budgetary Allocation on performance of road construction projects in Kisumu County, Kenya. The study adopted descriptive cross-sectional survey research design and Structured questionnaires used to collect quantitative data from a sample size of 65 respondents out of a target population of 65 subjects. Validity test was done on the instruments and a value of 0.78 obtained using Content Validity Index while reliability involved pretesting of the instruments amongst the 10% of the respondents and Cronbach's alpha coefficient value of 0.79 obtained. Analysis was done through both descriptive techniques of mean and standard deviation and inferential techniques of Correlation and Regression at a significance level of 0.05 and thematic content analysis of qualitative data for triangulation. The hypothesis was tested at α=.05 level of significance and the result was: 1. H_0: M&E Budgetary allocation does not significantly influence performance of road construction projects in Kisumu County, Kenya was rejected since P=0.000<0.05. Therefore the study concluded that there is significant influence of M&E Budgetary Allocation on performance of road construction projects in Kisumu County, Kenya. It is recommended that Project management and policy makers should actively undertake M&E Budgetary Allocation to enhance performance of road construction projects and to suggest appropriate policies for strengthening M&E Budgetary Allocation to boost effective implementation and performance of road construction projects. Further research should be carried out on other case studies other than road construction projects.**

***Keywords*: M&E Budgetary Allocation, performance of road construction projects**

I. INTRODUCTION

Road construction is a fundamental aspect in development of every economy as it's the most widely used means of transport globally; however, these projects have experienced time and cost overruns besides compromised quality due to the inability of parties charged with the responsibility to exercise diligent monitoring and evaluation (Gitahi and Omutoko, 2015). Production costs, employment creation, access to markets, and investment depend on the quality of transport infrastructure (Chai and Yusof, 2013). In developed economies, road construction projects are well implemented due to proper planning, availability of funds and effective communication and coordination of activities; contributing approximately 10% of the gross national product (GNP) (Samson and Lema, 2011). In Kenya, Road construction is always in the upper percentile of funding amongst development projects since it accounts for an estimated 93% of traffic with a traffic growth of 8.2% while contributing 19.1% of GDP in 2012 (Oguya and Muturi, 2016; Kenya Economic Report, 2014).

Evidence shows that about 68% of the road projects in Africa constructed by local firms experienced cost and time overruns besides not meeting the expected quality standards due to weaknesses in monitoring and evaluation of construction contracts (Ugwa and Heupt, 2013). Similarly, in Kenya, most road construction projects are completed with cost and time overruns, poor quality and out of scope which has resulted into persistent traffic jams costing the economy about 0.9% of the GNP annually, thus, calling for more focus on M&E during road construction projects (Akali and Sakaja, 2018; Mandala and Mulwa, 2018; Ogutu and Muturi, 2017). For instance, the construction of Thika Super Highway increased in cost to 34.45 billion from 26.44 billion with a time overrun of 2 years (KeNHA, 2015); the dulling of Nyamasaria-Kisian Road in Kisumu in 2016 showed bitumen bleeding defects soon after surface dressing while the expansion of Kisumu International Airport Road in 2015 had a time overrun of 10 months resulting into cost overruns (Ogutu and Muturi, 2017).

Without effective monitoring and evaluation, it would be impossible to judge if work is going in the right direction, whether progress and success can be claimed, and how future efforts might be improved (UNDP, 2009). In Europe knowledge about monitoring and evaluation has helped project contractors and managers to deliver infrastructure projects within cost, time and quality (Harold, 2013). In Kenya the creation of the 47 counties to be responsible for their own development projects has increased the need for

project monitoring and evaluation (Centre for Learning on Evaluation and Results (CLEAR), 2013). To realize this, several legislations such as the Public Service Commission Act, the Public Procurement and Disposal Act, and the Constitution of Kenya 2010, have been passed to create demand for project monitoring process as mandatory for all public projects to ensure accountability and transparency from public institutions (Mutua, Juma and Owuor, 2020). However, monitoring and evaluation during road construction projects has been hindered by factors linked to M&E practices like staff technical skills, poor budget allocation and poor planning (Akali and Sakaja, 2018; Wairimu, 2016; Nyakundi, 2013) resulting into delay in completion, cost overruns, and poor quality works (Ng'etich and Otieno, 2017).

The M&E budgetary allocation usually estimated to range between 5% - 10% of total project budget should clearly be delineated from the main project budget with M&E unit accorded some autonomy in utilization of its resources to ensure its effectiveness (Gyorkos, 2003). Allocations for monitoring and evaluation of road projects in Kenya has a very lean budget, for instance, the 8 day exercise on performance monitoring in every quarter received Ksh 1,487,000.00 1st Quarter FY2012/2013 which is meant and expected to sustain the budget requirement covering all construction projects ongoing in the entire country done by KeNHA (Gitahi and Omutoko, 2015; KeNHA, 2013).

Recognizing the need for efficiency in performance of road construction projects for dispensation of economic growth and development, the Kenya government has put several measures in place including enactment of Kenya Roads act 2007 and sessional paper No. 5 of 2006 which provided the legal and institutional framework for establishment of Kenya Roads Board, Kenya National Highways Authority (KENHA), Kenya Urban Roads Authority (KURA) and Kenya Rural Roads Authority (KERRA) for construction, rehabilitation and maintenance of roads while the Integrated National Transport Policy (NTP) 2009 clarified the roles of other players in the delivery and management of transport infrastructure. Kenya Vision 2030, a long term planning blueprint launched in the year 2008 recognizes the improvement of infrastructure as one of its foundations to creating a globally competitive and prosperous country with high quality of life by the year 2030 while the Constitution of Kenya 2010 assigns the responsibility of managing the public road network in Kenya to the National Government (National Trunk Roads) and the County Governments (County Roads) (Khisa, 2015; Kenya Rural Roads Authority, 2013). As such Kisumu County and all other county governments have the responsibility to deliver reliable infrastructure to assist in the transportation of goods and passengers to markets.

The study sought to establish the influence of Monitoring and Evaluation Budgetary Allocation on performance of road construction projects in Kisumu County, Kenya. The study aimed to contribute valuable knowledge on identifying and entrenching appropriate M&E Budgetary Allocation to help improve performance of road construction projects and suggested appropriate policies for strengthening implementation of M&E to ensure quality, on time and within cost delivery of road construction projects. The study also provides a reference and vital information databank on M&E practices for optimal performance of road construction projects for other researchers, policy developers and development agencies. If M&E practices are not properly managed, then the delivery of bankable infrastructure projects remains a pipe dream as risks like cost-overrun, time –overrun, substandard quality products, incomplete projects, lost revenue and damage claims may overshadow the project. This study thus helps in formulation of appropriate policies on streamlining modern M&E practices for delivery of successful projects.

II. LITERATURE REVIEW

2.1 Performance of Road Construction Projects

A road project is considered successful if it's completed on time, within budget and scope, with quality standards and client's satisfaction (Ogutu and Muturi, 2017; Otim and Alinaitwe, 2011) while Tengan and Aigbavboa (2018) puts more emphasis time, cost, quality, client satisfaction, value for money and health and environmental safety. The precision of performance indicators to be utilized in any project is necessary to limit chances of ambiguity while achieving the project objectives (Ofori-Kuragu, Baiden and Badu, 2016). Despite previous studies precision and convergence in the measurement of performance in road construction projects in terms of quality road delivery, increased traffic capacity, implementation within time and cost, operational efficiency, client satisfaction, health and environmental safety and value for money (Mucheke and Paul, 2019; Ofori-Kuragu, Baiden and Badu, 2016; Wambui, Ombui, and Kagiri, 2015), none focused on how the performance of road construction projects can be influenced by contractor's capacity for M&E, a gap which the current study intends to fill through descriptive survey design and descriptive and inferential statistical analysis.

2.2 M&E Budgetary Allocation and Performance of Road Construction Projects

Effective and quality monitoring and evaluation requires setting aside adequate financial resources at the planning stage of a project (Mutoro *et al.*, 2017). The M&E budgetary allocation usually estimated to range between 5% to 10% of the total project budget should clearly be delineated from the main project budget so that M&E unit is accorded some autonomy in utilization of its resources to ensure its effectiveness (Gyorkos, 2003). A contrary opinion precludes that the additional costs involved in institutionalizing M&E create economic sustainability challenges since the vast majority of organizations in developing countries face funding constraints particularly due to the ever shrinking funding pool (Umugwaneza and Kule, 2016).

A study by Tengan and Aigbavboa (2018) sought to establish

the role of monitoring and evaluation in construction project management found that effective M&E plays a critical role in construction project implementation given the needed attention by the project implementer's by providing adequate financial and human resources, technical capacity building and providing a conducive project environment and the involvement and participation of stakeholder in M&E to reduce cost and time overruns for effective performance of projects.

Locally, Akali And Sakaja (2018) sought to establish the influence of contractors' financial capacity on performance of road construction projects in Kakamega County, Kenya by adopting descriptive survey design and the sample size of 135 were obtained from a population of 203 employees selected through stratified random sampling and questionnaires and interview schedule used to collect data while analysis involved descriptive and inferential statistics of correlation and thematic analysis. Findings showed a significant relationship between contractor's financial capacity and performance of road construction projects and as such enough finances should be set aside for the project before it commences besides hiring of highly qualified and experienced road contractors, contractors capacity building through frequent meetings and regular trainings to ensure quality, within budget and cost road projects. Further, constructors need to enhance their equipment holding capacity and adopt new technologies to improve on the existing ones.

Similarly, Ochenge, James and Ngugi (2018) sought to establish the effects of project management practices on the performance of road infrastructure projects in the Lake Basin Region constructed by local firms in Kenya through descriptive and explanatory research survey design and data collected using a semi- structured questionnaire used to collect data from a census of 95 respondents while analysis involved descriptive and inferential statistics of regression. The results indicated that financial, physical and technical resources have a significant effect on performance of road infrastructure projects. Hence, the need to allocate adequate financial resources for M&E activities to ensure road construction projects is delivered as per the objectives. However, Local construction firms experience financial challenges leading to cost and time overruns which then cause poor performance of road infrastructure projects. As an intervention the national and county governments should consider developing a monitoring and evaluation policy and regulatory framework. In general, M&E fund allocation has been recognized as an instrumental issue most projects have not been receiving adequate funding for this activity leading unelaborate M&E activities and as such it's very difficult to gauge its effectiveness.

III. METHODOLOGY

The study used descriptive survey design. The study used a census sample size of 65 respondents who were employees in the roads department to provide insight of M&E budgetary allocation and performance of road construction projects in Kisumu County, Kenya from where the project has been implemented and operational. The employees in the roads department had been purposively selected due to their key role in project implementation. Structured Questionnaire was used for data collection. The items were presented as closed-ended five point Likert scale type and allow the respondents to express an opinion on every item as best represented by one of the five options presented as Strongly Disagree (1), Disagree (2), Neutral (3), Agree (4) and Strongly Agree (5). A Likert scale due to equal distances between each value is qualified to be interval scale as was the case of the study. The questionnaire was pre-tested in 10% unselected respondents drawn from the project before commencement of actual data collection and a validity coefficient of 0.80 and reliability coefficient of 0.79 obtained. Descriptive statistics of mean and standard deviation and inferential statistics of correlation and regression at a significance level of 0.05 was done.

A simple regression model took the form:

$Y= \beta_0+ \beta_1X_1 +\alpha$

Where; Y: dependent variable (Performance of Road Construction Projects),

β_0: regression coefficient/constant/Y-intercept,

β_1: slopes of the regression equation/Beta Coefficients,

X_1: predictor variables

α: an error term normally distributed about a mean of 0 and for purpose of computation, the α is assumed to be 0. It captures the effect of all omitted variables or random variation in the dependent variable.

1. H_0: M&E Budgetary Allocation has no significant influence on performance of road construction projects in Kisumu County, Kenya

Performance=f(M&E Budgetary allocation, random variable)

IV. FINDINGS AND DISCUSSION

All the sampled 65 participants returned dully filled and complete questionnaires representing a return rate of 100%. The study assessed the influence of Budgetary Allocation for M&E on Performance of Road Construction Projects in Kisumu County. Budgetary Allocation for M&E for Performance of Road Construction Projects was measured using three indicators of quantity of money allocated, budgetary bureaucracy and budgetary unit. The indicators were developed into four Likert items measured on a 5-point Likert scale as 1 = Strongly Disagree (SD), 2 = Disagree (D), 3 = Neutral (N), 4 = Agree (A) and 5 = Strongly Agree (SA). The participants provided their opinion based on their level of agreement with each item. The results were analyzed and presented using frequencies, percentages, mean and standard deviation as shown in Table 4.1.

Table 4.1: M&E Budgetary Allocation

M&E Budgetary Allocation	SD	D	N	A	SA	Mean	STDev
Budget allocation process for the M&E of roads projects has bureaucracies	0	5	11	30	19	3.98	0.882
	(0.0%)	(7.8%)	(16.3%)	(46.1%)	(29.8%)		
Money for M&E are usually channeled to the right purpose	0	3	8	31	23	4.13	0.809
	(0.0%)	(5.0%)	(12.1%)	(48.2%)	(34.8%)		
There is adequate funds committed to M&E function in road construction projects	2	5	12	29	17	3.83	1.014
	(3.5%)	(7.1%)	(18.4%)	(44.7%)	(26.2%)		
There is a dedicated department for undertaking budget line for monitoring and evaluation of road construction projects	5	13	14	22	12	3.35	1.190
	(7.1%)	(19.9%)	(21.3%)	(34.0%)	(17.7%)		
Composite Mean and Standard Deviation						**3.82**	**0.980**

The results in Table 4.1 show that the Budget allocation process for the M&E of roads projects has bureaucracies (Mean = 3.98) as the participants generally agreed with the statement. Specifically, majority of the participants 30(46.1%) agreed while another 19(29.8%) strongly agreed that Budget allocation process for the M&E of roads projects has bureaucracies, creating a total of 75.9% of participants who agreed. Whereas more than three quarters of the participants agreed, only 11(16.3%) were neutral while 5(7.8%) disagreed that Budget allocation process for the M&E of roads projects has bureaucracies.

Similarly, Money for M&E are usually channeled to the right purpose (Mean = 4.13). In this case, 31(48.2%) of the participants agreed while 23(34.8%) strongly agreed giving 83% of participants who cumulatively agreed that Money for M&E are usually channeled to the right purpose. Thus, the participants overwhelmingly agreed that Money for M&E are usually channeled to the right purpose for performance of road construction projects.

The results also show that there is adequate funds committed to M&E function in road construction projects (Mean = 3.83). This view was presented by majority of the participants 29(44.7%) who agreed and another 17(26.2%) who strongly agreed that there is adequate funds committed to M&E function in road construction projects. However, only 5(7.1%) of the participants disagreed that there is adequate funds committed to M&E function in road construction projects with another 2(3.5%) strongly disagreeing. Thus, cumulatively 70.9% of the participants agreed while only 10.6% cumulatively disagreed that there is adequate funds committed to M&E function in road construction projects. The finding shows that there are adequate funds committed to M&E function in road construction projects which facilitates effective performance of road construction projects.

Further, the results show that there is a dedicated department for undertaking budget line for monitoring and evaluation of road construction projects (Mean = 3.35). The participants were generally neutral regarding this statement with majority agreeing while a significant proportion disagreed. Specifically, 22(34.0%) of the participants agreed while a further 12(17.7%) strongly agreed that there is a dedicated department for undertaking budget line for monitoring and evaluation of road construction projects, leading to a 51.7% cumulative total of participants who agreed. However, 13(19.9%) of the participants disagreed while another 5(7.1%) strongly disagreed that there is a dedicated department for undertaking budget line for monitoring and evaluation of road construction projects. This shows that having a dedicated department for undertaking budget line for M&E in road construction projects is important for performance of road construction projects and thus autotomizing the department of M&E to undertake its budgeting is necessary.

Overall, the findings indicate that M&E Budgetary Allocation influences Performance of Road Construction Projects as indicated by a composite mean = 3.823 (STDEV = 1.024). This shows that the participants overall agree with the views that M&E Budgetary Allocation influences Performance of Road Construction Projects.

The findings were in tandem with Mutoro et al., (2017) observation that effective and quality monitoring and evaluation requires setting aside adequate financial resources at the planning stage of a project. The M&E budgetary allocation should clearly be delineated from the main project budget so that M&E unit is accorded some autonomy in utilization of its resources to ensure its effectiveness.

4.2 Relationship between M&E Budgetary Allocation and Performance of Road Construction Projects

The researcher sought to establish the existence and nature of relationship between M&E Budgetary Allocation and Performance of Road Construction Projects. Pearson Correlation analysis was conducted between measure of M&E Budgetary Allocation and Performance of Road Construction Projects. An equidistant Likert scale was used to collect interval data with Strongly disagree=1(1<SD>0.8); Agree=2(1.8<A>2.6); Neutral=3(2.6<N>3.4); Agree=4(3.4<A>4.2) and Strongly Agree=5(4.2<SA>5) to provide continuous data necessary for Pearson Correlation. As

such, the minimum score on the M&E Budgetary Allocation with four items was = 4 while the maximum score = 20. Similarly, for Performance of Road Construction Projects scale, the minimum score = 4 while the maximum score = 20 for the four (4) items. Pearson correlation output for the analysis is presented in Table 4.7.

Table 4.2: Relationship between M&E Budgetary Allocation and Performance of Road Construction Projects

		M&E Budgetary Allocation	Performance of Road Construction Projects
M&E Budgetary Allocation	Pearson Correlation	1	.493**
	Sig. (2-tailed)		.000
	N	65	65
Performance of Road Construction Projects	Pearson Correlation	.493**	1
	Sig. (2-tailed)	.000	
	N	65	65
**. Correlation is significant at the 0.01 level (2-tailed).			

The correlation results in Table 4.2 show that there is a moderate positive correlation (R = 0.493) between M&E Budgetary Allocation and Performance of Road Construction Projects which is statistically significant (p=0.000<0.05). This is shows that M&E Budgetary Allocation and Performance of Road Construction Projects are statistically moderately and positively correlated such that as M&E Budgetary Allocation increases, Performance of Road Construction Projects also improves to a moderate extent. This result concurred with Akali and Sakaja (2018) observation that a statistically significant relationship exists between M&E budgetary allocation and Performance of Road Construction Projects and as such enough finances should be set aside for the project before it commences.

4.3 Influence of M&E Budgetary Allocation on Performance of Road Construction Projects

Having established the existence and nature of relationship between M&E Budgetary Allocation and Performance of Road Construction Projects, the researcher sought to determine the linear effect of M&E Budgetary Allocation on Performance of Road Construction Projects. This was achieved through regression with M&E Budgetary Allocation as the predictor variable and Performance of Road Construction Projects as the outcome variable. As with correlation, the measure of the variables was obtained as summated scores on the measuring scales to obtain continuous data with M&E Budgetary Allocation having a minimum score = 4 and maximum score 20 while Performance of Road Construction Projects had a minimum score = 4 and maximum score = 20. The regression output is presented in Table 4.3.

Table 4.3: Influence of M&E Budgetary Allocation on Performance of Road Construction Projects

Model	**R**	**R Square**		**Adjusted R Square**		**Std. Error of the Estimate**	
Summary	.493[a]	.243		.237		4.140	
Model		**Sum of Squares**		**df**	**Mean Square**	**F**	**Sig.**
ANOVA	Regression	764.035		1	764.035	44.577	.000[b]
	Residual	2382.433		63	17.140		
	Total	3146.468		64			
Model		Unstandardized Coefficients			Standardized Coefficients	T	Sig.
		B	Std. Error		Beta		
Coefficients	(Constant)	3.199	1.864			1.716	.044
	M&E Budgetary Allocation	.800	.120		.493	6.677	.000
a. Dependent Variable: Performance of Road Construction Projects							
b. Predictors: (Constant), M&E Budgetary Allocation							

From the output in Table 4.3, the model summary gives a R^2 value = 0.243 with p=0.000<0.05. This shows that M&E Budgetary Allocation accounts for 24.3% of Performance of Road Construction Projects. Moreover, the model was found to be a good fit for the data and variables with F (1, 63) = 764.035 (p = 0.000<0.05). The coefficient of the constant term (β=3.199, p = 0.044<0.05) and the coefficient of M&E Budgetary Allocation (β= 0.8, p = 0.000<0.05) were found to be statistically significant. Thus a unit change in M&E Budgetary Allocation improves Performance of Road Construction Projects by 0.8 units.

Linearly, the variables can be modeled using the equation:

$$Y = \beta_0 + \beta_1 X_1 + \varepsilon$$

Where; B_0 is coefficient of the constant term, β_1 is coefficient of the predictor (M&E Budgetary Allocation), X_1 is the predictor (M&E Budgetary Allocation) and ε is the error term.

Thus replacing the coefficients the equation becomes:

$$Y = 3.199 + 0.8X_1$$

4.4 Test for Hypothesis

Hypothesis one was stated in the null and tested as:

H_0: There is no significant influence between M&E Budgetary Allocation and Performance of Road Construction Projects.

The null hypothesis was tested at 95% confidence level as $H_0 1$: $\beta_0 = \beta_1 = 0$ ($p = 0.05$). The null hypothesis was to be accepted when $p > 0.05$ (There is no significant difference) and rejected when $p \leq 0.05$ (There is significant difference) between the coefficient of the constant term and the coefficient of the predictor.

Since the results showed that $\beta_0 \neq \beta_1 \neq 0$ ($p < 0.05$), we reject the null hypothesis and accept the alternative. Thus, there is a significant influence between M&E Budgetary Allocation and Performance of Road Construction Projects.

V. CONCLUSIONS

Based on the findings of the study concludes that the road constructions projects are done within time, cost, and within quality specifications were high while adequate road safety designs were moderate. The Performance of Road Construction Projects is generally moderately effective. On M&E Budgetary allocation, the study concludes that Budget allocation process for the M&E of roads projects has bureaucracies, Money for M&E are usually channeled to the right purpose, and there were adequate funds committed to M&E function in road construction projects. However, there is no dedicated department for undertaking budget line for monitoring and evaluation of road construction projects which has a negative effect on performance of road construction projects. Overall, the findings indicate that M&E budgetary allocation significantly influence Performance of Road Construction Projects. The study recommends that financing and government agency should develop M&E plan to systematically include M&E Budgetary Allocation, M&E Capacity Building, M&E Planning and proper M&E Communication Strategy for enhanced Performance of Road Construction Projects. The researcher recommends that scholars should conduct research using other M&E Practices not covered in the study such as M&E Communication Strategy and M&E Planning to assess their influence on Performance of Road Construction Projects. Moreover, case studies other than Road Construction Projects should be used to verify the findings for further generalization.

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