

Determinants of Effective Implementation of Public Health Construction Projects in Murang'a County, Kenya

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Abstract: The purpose of the study was to examine the determinants of effective implementation of public health construction projects in Murang'a County.

Methodology: The study used descriptive research design. The focus was on the 46 public health construction projects within the 133 public health facilities in Murang'a County. The unit of observation was Project managers, assistant project managers. The study adopted a census survey design. A multiple linear regression model was used to analyze the data using statistical package for the social sciences (SPSS).

Results: The study found that that project leadership, budget allocation, team competence and project monitoring and evaluation had a positive and significant effect on the effective implementation of public health construction projects in Murang'a County.

Unique contribution to theory, practice and policy: The findings of this study are useful to the National government and County governments in their quest to ensure proper implementation of various public health facilities and improving the welfare of the residents.

Keywords: effective implementation, Monitoring & Evaluation, construction projects.

1. INTRODUCTION

Projects are activities or an undertaking that need to be accomplished by certain date, for a certain amount of money and within some expected level of performance. Important aspects of a project include "inputs" in the form of men, money, materials, and plans and "outputs" in the form of activities, products or services (Inayat, Melhem, and Esmaily, 2013). Abuya (2016) argues that development projects in Kenya have become the principal mechanisms through which governments deliver public services. Understanding this strategic role is important because few politicians and citizens appreciate the role that development projects play in the delivery of essential public services.

Health construction projects include the improving of health facilities and installing of the latest patient safety technology and advanced medical equipment. KHSSP, 2012-2018 defines health construction infrastructure as all investments relating to physical infrastructure, medical equipment, communication and ICT. With establishment of Counties, the National level prioritize establishment of a minimum number of health facilities, based on the expected services as defined in the KEPH (KHSSP III).

Construction is a basic pillar for global competitiveness and foundational enabler to Kenya's Vision 2030. Kenya has experienced a construction boom during the last decade. According to Kenya National Bureau of Statistics (KNBS) construction sector in Kenya contributes 4.9 per cent of the Gross Domestic Product (GDP) (KNBS, Economic Survey Report, 2013). Infrastructure development accounted for 8.7 per cent of the total budget for Financial Year 13/14 of the total budget of KES1.6 Trillion (KNBS, Economic Survey Report, 2013).

Health construction projects include the improving of health facilities and installing of the latest patient safety technology and advanced medical equipment. KHSSP, 2012-2018 defines health construction infrastructure as all investments relating to physical infrastructure, medical equipment, communication and ICT. With establishment of Counties, the National level prioritize establishment of a minimum number of health facilities, based on the expected services as defined in the KEPH (KHSSP III). Though the physical infrastructure for health provision in Kenya has expanded rapidly, distribution and coverage remains uneven especially in rural areas. Maintenance of public sector health facilities has been a big problem and a major burden for the Ministry of Health (KIPPRA, 2004). KIPPRA report further notes that although there has been a massive expansion of health infrastructure since independence, increasing population and demand for healthcare outstrips the ability of the government to provide effective health services. The health construction sector is facing many challenges for example a health construction project by the National Hospital Insurance Fund have stalled for more than 10 years (Mosoku, 2013)

Problem Statement:

Abuya (2016) argues that development projects in Kenya have become the principal mechanisms through which governments deliver public services. In Kenya, the government and investors are investing heavily on setting up chains of clinics, hospitals and expanding the current health facilities to serve a larger boarder segment of patients (KHS, 2016). Despite the efforts of both the government and investors there has been an increase in the number of incomplete and completely stalled public health construction projects others have being completed but the health facilities are not being used (MHR, 2016).

In Murang'a County a total number of 46 Public Health Construction Projects were listed as either incomplete or completed but with unused facilities (MHR, 2016). A report by the Ministry of Health indicated that a total of 20 (43.5%) of Public Health Construction projects in Murang'a County had stalled with respect to funding allocation but rated as almost in completion state. Others were 14 (30.4%) rated as medium stalled and 12 (26.1%) rated as low priority rate of completion status. Twenty nine percent (29%) of the Public Health Construction Projects in Murang'a had been completed but unused. This translated to an economic loss estimated to be Ksh 145 million per year in lost revenues if services were offered. The delay of project implementation affects every stakeholder in the economy. It delays the government source of revenue and lead to loss of government funds. Project delays prolong the investors' payback period and deny the citizens the much –needed health services (Ogari, 2012).

This study aims at bridging the existing gaps by examining the Determinants of Effective Implementation of Public Health Construction Projects in Murang'a by studying four variables; project leadership, budget allocation, project team competency and monitoring and evaluation.

Study Objectives:

- i. To establish how project leadership determine the effective implementation of Public Health Construction Projects in Murang'a County, Kenya
- ii. To explore the extent to which budget allocation determine the effective implementation of Public Health Construction projects in Murang'a County Kenya
- iii. To determine the extent to which Project Team Competency influences the effective implementation of Public Health Construction Projects in Murang'a County Kenya.
- iv. To examine the influence of Monitoring and Evaluation on the effective implementation of Public Health Constructions projects in Murang'a County Kenya.

2. LITERATURE REVIEW**Theoretical Literature Review:****The Theory of Budgeting:**

In the Theory of Budgeting Hirst and Kalmar, (1987) explains that an effective budgetary control solves an organization's need to plan and consider how to confront future potential risks and opportunities by establishing an efficient system of control, a detector of variances between organizational objectives and performance (Shields & Young, 1993). Budgets are considered to be the core element of an efficient control process and consequently vital part to the umbrella concept of an

effective budgetary control. Budgets project future financial performance which enables evaluating the financial viability of a chosen strategy. In most organizations, this process is formalized by preparing annual budgets and monitoring performance against budgets. Budgets are therefore merely a collection of plans and forecasts (Silva and Jayamaha, 2012).

Contingency Theory:

The contingency theory of leadership was proposed by the Austrian psychologist Fred Edward Fiedler in his landmark 1964. Contingency theories describe how situations influence leadership actions. The Hersey-Blanchard Situational Leadership Theory created by Hersey and Blanchard (1993) encourages leaders to choose a style based on the capability of their subordinates. If new subordinates need specific instructions, effective project managers tell them what to do, typically by providing comprehensive step-by-step procedures (Hersey & Blanchard, 1993).

Control Theory:

Control theory, invented by Ouchi (1979) and Eisenhardt (1985) uses the notion of modes of control to describe all attempts to ensure that individuals in organizations act in a way that is consistent with organizational goals and objectives (Kirsch, 1997). The concept of control is based on the premise that the controller and the controlee have different interests. These different interests will be overcome by the controller's modes of control (Tiwana and Keil, 2009). Modes of control may distinguish between formal and informal mechanisms. Formal modes of control are defined as Behavior control and Outcome control. Behavior control consists of articulated roles and procedures and rewards based upon those rules. Outcome control is mechanisms for assigning rewards based on articulated goals and outcomes.

Project Management Competency Theory:

McClelland & McBer in the 1980s established the competence theory. The authors defined competency as the underlying characteristic of an individual that is causally related to criterion-referenced effective and/or superior performance in a job or situation. Since then a number of competency frameworks have been developed by different project management institutes. Crawford (as cited in Boyatzis, 1982 & Spencer, 1993), puts a model of competence that integrates knowledge, skills, demonstrable performance, and core personality characteristics, noting the last, personality characteristics, as challenging to develop and assess through training. She argues that two of the most influential project management standards, the PMBOK, address only the knowledge aspect of competence while a third, Australia's National Competency Standards, draws from knowledge but focuses only on demonstrable performance. Crawford and Nahmias, (2010) study found out that project managers "do not necessarily have the required competence or perform the full activities required to promote and implement the changes that they are leading as part of their projects.

Empirical Review:

Iqbal, *et al.*, (2015), conducted a study on Moderating Effect of Top Management Support on Relationship between Transformational Leadership and Project Success. The study covered a total of 125 project managers that were selected through systematic sampling technique by using mail survey method. SPSS version 22 was used to analyze the study data. The study concluded that project success can be enhanced through unfolding the relationships between project managers' transformational leadership and top management support. The study indicated that there is positive and significant relationship between project managers' transformational leadership behaviors (individually and collectively) and project success in Pakistan. This study focused on the Moderating Effect of Top Management Support on Relationship between Transformational Leadership and Project Success whereas the current study will focus on Determinants of Effective Implementation of Public Health Construction Projects.

Mwangi, and Ngugi, (2014) conducted a study on determinant of regulations on growth of electricity projects in Kenya. The study targeted 450 respondents while employing a simple random sampling technique in coming up with a sample size of 45 respondents. The study generated both qualitative and quantitative data where quantitative data was coded and entered into Statistical Packages for Social Scientists (SPSS Version 21) and analyzed using descriptive statistics. The study found out that dependence of capital from donors for electrification growth slowed project development hence affecting project performance. There exists a conceptual research gap between the above study and this study. The above

study focused on the determinants of regulations on growth of electricity projects while the current study focuses on Determinants of Effective Implementation of Public Health Construction projects in Murang’a County, Kenya.

Ling and Ma, (2014) conducted a study on the effect of competency and communication on project outcomes in cities in China. Using a structured questionnaire, data was collected through face- face, interviews and e- mails. The results show that competency of contractors has more significant correlations with project outcomes than the competency of consultants, suggesting that is far more important to engage competent contractors.

Mwangu, (2015) conducted a study on How Monitoring and Evaluation Affects the Outcome of Constituency Development Fund Projects in Kenya: A Case Study of Projects in Gatanga Constituency. A field survey was conducted using a sample of 45 respondents who were selected by stratified random sampling. The data were collected using structured questionnaires and analyzed using Statistical Package for Social Sciences (SPSS, Version 16.0). From the findings, 77.8% of the respondents agreed that monitoring and evaluation affects project success to a great extent, 17.8% to a moderate and 4.4% to a lesser extent. All the project supervisors and majority of the beneficiary clients rated this factor highly, similarly were the project contractors. The findings agree with the views of project management scholars on the role of monitoring and evaluation on project success. Lawal and Onohaebi, (2010) opined that monitoring of projects by relevant bodies is essential and of greatest benefit because of the improved insight they provide concerning project completion status.

Conceptual framework:

Independent Variable

Dependent Variable

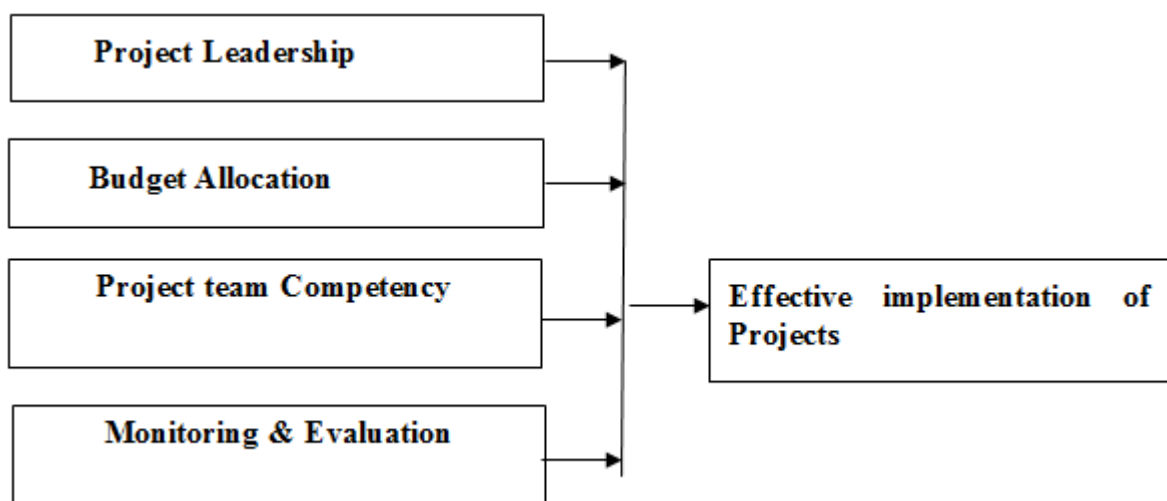


Figure 1: Conceptual framework

3. RESEARCH METHODOLOGY

The study used descriptive research design. The focus was on the 46 public health construction projects within the 133 public health facilities in Murang’a County. The unit of observation was Project managers, assistant project managers. The study adopted a census survey design. A multiple linear regression model was used to analyze the data using statistical package for the social sciences (SPSS).

$$Y = a + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \epsilon$$

Where:

Where;

Y =Effective Implementation of Public Health Construction Projects

X₁ = Project Leadership

X₂ = Budget allocation

X₃ = Project Team competence

X₄ = Project Monitoring and evaluation

In the model *a* is the constant term while the coefficient β₁ to β₄ are used to measure the sensitivity of the dependent variable (Y) to unit change in the explanatory variable (X₁, X₂, X₃, X₄). ε is the error term which captures the unexplained variations in the model. The results are presented in form of tables, pie charts and graphs.

4. RESULTS AND DISCUSSIONS

Project Leadership and Effective Implementation of Public Health Construction Project:

Regression analysis was performed by using the composites of the two variables. The data was input to the SPSS software. Results were then presented in Tables 1,2 and 3.

Table 1: Model Fitness

Indicator	Coefficient
R	0.487
R Square	0.236
Adjusted R Square	0.234
Standard Error	0.091

Project leadership explains 23.6% of the variations in the dependent variable which is the effective implementation of public health construction projects.

Table 2: Analysis of Variance

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	22.216	1	22.216	74.147	0.000
Residual	13.341	119	.085		
Total	35.557	120			

The model was statistically, imply that the independent variable, project leadership was a good predictor of effective implementation of public health construction projects.

Table 3: Regression of Coefficients

Variable	B	Std. Error	Beta	T	Sig
(Constant)	3.615	0.294		13.347	0.000
Project Leadership	0.407	0.076	0.98	9.3523	0.007

Table 3 shows that project leadership and effective implementation of public health construction projects had a positive and significant relationship. (r=0.407, p<0.007).

Budget Allocation and Effective Implementation of Public Health Construction Project:

Regression analysis was performed by using the composites of the two variables. The data was input to the SPSS software. Results were then presented in Tables 4, 5 and 6.

Table 4: Model Fitness

Indicator	Coefficient
R	0.280
R Square	0.078
Adjusted R Square	0.071
Standard Error	0.3919306

Budget allocation explains 7.8% of the variations in the dependent variable which is the effective implementation of public health construction projects

Table 5: Analysis of Variance

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	1.553	1	1.553	10.11	0.002
Residual	18.280	119	.154		
Total	19.8833	120			

The results indicate that the model was statistically significant. Further, the results imply that the independent variable, budget allocation was a good predictor of effective implementation of public health construction projects

Table 6: Regression of Coefficients

Variable	B	Std. Error	Beta	t	Sig
(Constant)	3.127	0.259		12.078	0.000
Budget Allocation	0.208	0.065	0.280	3.180	0.002

The table 6 shows that budget allocation and effective implementation of public health construction projects had a positive and significant relationship. ($r=0.208$, $p<0.002$).

Project Team Competence and Effective Implementation of Public Health Construction Project:

Regression analysis was performed by using the composites of the two variables. The data was input to the SPSS software. Results were then presented in Tables 7, 8 and 9.

Table 7: Model Fitness

Indicator	Coefficient
R	0.746
R Square	0.556
Adjusted R Square	0.553
Standard Error	0.2719022

Project team competency explains 55.6% of the variations in the dependent variable which is the effective implementation of public health construction projects.

Table 8: Analysis of Variance

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	11.035	1	11.035	149.260	0.000
Residual	8.798	119	.074		
Total	19.833	120			

The results indicate that the model was statistically significant. Further, the results imply that the independent variable, project team competency was a good predictor of effective implementation of public health construction projects.

Table 9: Regression of Coefficients

Variable	B	Std. Error	Beta	t	Sig
(Constant)	1.243	0.222		5.588	0.000
Team Competency	0.678	0.056	0.746	12.217	0.000

Table 9 shows that project team competency and effective implementation of public health construction projects had a positive and significant relationship. ($r=0.678$, $p<0.000$).

Monitoring and Evaluation and Effective Implementation of Public Health Construction Project:

Regression analysis was performed by using the composites of the two variables. The data was input to the SPSS software. Results were then presented in Tables 10, 11 and 12.

Table 10: Model Fitness

Indicator	Coefficient
R	0.911
R Square	0.083
Adjusted R Square	0.829
Standard Error	0.1681748

Monitoring and evaluation explains 8.3% of the variations in the dependent variable which is the effective implementation of public health construction projects.

Table 11: Analysis of Variance

	Sum of Squares	df	Mean Square	F	Sig.
Regression	16.467	1	16.467	582.229	0.000
Residual	3.366	119	.028		
Total	19.833	120			

The results indicate that the model was statistically significant. Further, the results imply that the independent variable, monitoring and evaluation were a good predictor of effective implementation of public health construction projects.

Table 12: Regression of Coefficients

Variable	B	Std. Error	Beta	t	Sig
(Constant)	1.507	0.102		14.760	0.000
Project Monitoring and Evaluation	0.617	0.026	0.911	24.129	0.000

According to the findings in Table 12 project monitoring and evaluation and effective implementation of public health construction projects had a positive and significant relationship. ($r=0.617$, $p<0.000$).

Correlation Analysis:

Table 13 Correlation Analysis

		Project Implementation	Project Leadership	Budget Allocation	Team competency	M & E
Project Implementation	Pearson Correlation	1				
	Sig. (2-tailed)					
Project Leadership	Pearson Correlation	0.068**	1			
	Sig. (2-tailed)	0.004				
Budget Allocation	Pearson Correlation	.280**	0.017	1		
	Sig. (2-tailed)	0.002	0.504			
Team competency	Pearson Correlation	.746**	0.009	0.119	1	
	Sig. (2-tailed)	0.000	0.205	0.194		
M & E	Pearson Correlation	.911**	-.187*	0.012	.654**	1
	Sig. (2-tailed)	0.000	0.040	0.463	0.000	
** Correlation is significant at the 0.01 level (2-tailed).						
* Correlation is significant at the 0.05 level (2-tailed).						

Table 13 revealed that there was a positive and a significant relationship between project leadership and the effective implementation of public health construction projects ($r=0.068$, $p=0.004$). The results indicated that there was a positive and a significant relationship between budget allocation and the effective implementation of public health construction projects ($r=0.280$, $p=0.002$). The results also indicated that there was a positive and a significant relationship between team competency and the effective implementation of public health construction projects ($r=0.746$, $p=0.000$). Further the results showed that there was a positive and a significant relationship between project monitoring and evaluation and the effective implementation of public health construction projects ($r=0.911$, $p=0.000$).

Regression Analysis:

Regression analysis was performed by using the composites of the key variables. The data was input to the SPSS software. Results were then presented in Tables 4.21, 4.22 and 4.23.

Table 14 Model Fitness

Indicator	Coefficient
R	0.966
R Square	0.933
Adjusted R Square	0.931
Standard Error	0.1067847

Project leadership, budget allocation, project team competency and monitoring and evaluation explain 93.3% of the variations in the dependent variable which is the effective implementation of public health construction projects.

Table 15: Analysis of Variance

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	18.510	4	4.627	405.814	0.000
Residual	1.323	116	.011		
Total	19.833	120			

The results indicate that the model was statistically significant. Further, the results imply that the independent variables, project leadership, budget allocation, project team competency and monitoring and evaluation were good predictor of effective implementation of public health construction projects.

Table 16: Regression of Coefficients

	B	Std. Error	Beta	t	Sig.
(Constant)	0.160	0.134		1.199	0.233
Project Leadership	0.061	0.020	0.074	2.993	0.003
Budget Allocation	0.182	0.018	0.245	10.118	0.000
Team Competency	0.179	0.030	0.197	6.063	0.000
M & E	0.537	0.022	0.793	24.097	0.000

Regression of coefficients results in table 16 shows project leadership has a positive and significant effect on effective implementation of public health construction projects ($r=0.061$, $p=0.000$). Budget allocation and has a positively and significantly effect on effective implementation of public health construction projects ($r=0.182$, $p=0.000$). Project team competence has a positively and significantly effect on effective implementation of public health construction projects ($r=0.179$, $p=0.000$). Project monitoring and evaluation had a positive and significant effect on effective implementation of public health construction projects ($r=0.537$, $p=0.000$).

5. DISCUSSION CONCLUSIONS AND RECOMMENDATIONS

Discussion:

The study revealed that it is required of a leader with professional qualities to lead in the implementation of construction projects, there is need to use previous experience in decision making, for proper implementation of projects, all decisions should be carried out by project leaders and that for successful implementation of projects there must be use of excessive power. The study found out that most institutions have financial plans that guide project implementation process. The study also revealed that organizations have been experiencing delays in the funds disbursed and that funds used to implement the public health construction projects are obtained from the national government. The study established that project team experience have a great influence on effective implementation of public health construction projects, funds are allocated for team building capacity. The results show that project team competency and effective implementation of public health construction projects had a positive and significant relationship. This finding implies that an improvement in project team competency lead to a better improvement in effective implementation of Public Health Construction projects. The study found out that organizations monitor and evaluate the progress of the project being implemented often and organizations use performance indicators tools in monitoring and evaluating project implementation. The study found out that Project Monitoring and Evaluation and effective implementation of public health construction projects had a positive and significant relationship

Conclusions:

The main purpose of the study was to examine the Determinants of effective implementation of Public Health Construction projects in Murang'a County, Kenya. Based on the findings the study concluded that project leadership, budget allocation, team competence and project monitoring and evaluation positively and significantly influence effective implementation of Public Health Construction projects in Murang'a County.

Recommendations:

The study recommends that a competent project leader be given the responsibility to oversee the implementation of public health construction projects to ensure projects are effectively implemented. The selection of project leaders should be done on merit to ensure only qualified project leaders are given the responsibility to overseen the implementation of projects. Budgetary allocation disbursement be made smooth for construction process to be carried. Lastly, this study recommends that best tools for monitoring projects be identified, the monitoring process should also be improved from the current annual case and more so the reports are prepared after every process. The reports should focus on the stage at which the predetermined outcome has been achieved.

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