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ASSESSMENT OF PROJECT MANAGEMENT STRATEGIES FOR SUCCESSFUL COMPLETION OF RURAL ROAD PROJECTS IN COUNTY GOVERNMENT OF VIHIGA, KENYA

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Abstract

Good road connections in rural areas attract better service infrastructure, access to markets, health, education and other social amenities. This study assessed project management strategies for successful completion of rural road projects in Vihiga County, Kenya. The research assessed four strategies: proper budgeting, project team selection, project appraisal and project planning. A cross-sectional survey research design was employed with a target population of 342 comprising of prequalified road contractors, County planners, County roads engineers, technical road construction auditors and ministry of roads engineers. A sample size of 78 respondents was selected. A structured questionnaire was administered for data collection. Data was processed and analyzed using SPSS-20 for descriptive and inferential statistics. Response rate was 89.7%. The four strategies had strong positive significant correlations with the successful completion of rural road projects. Regression analysis explained only 79.8% of the successful completion of rural road projects. The study recommended addressing of gaps in proper budgeting, project teams, project appraisal and project planning.

Keywords: Planning; Budgeting; Appraisal; Teams; Rural; Road; Assessment, Strategy

INTRODUCTION

Rural roads in Kenya are a function of the Kenya Rural Roads Authority (KeRRA) which carries out construction, expansion, upkeep and repairs according to the Kenya Roads Act 2007. The agricultural industry dominates the rural areas of Kenya and roads in particular are a necessity for enhanced economic growth. Rural road networks facilitate trade, social exchange, health, resource extraction and mobility. As a result, rural road construction projects play crucial roles in enhancing economic growth for the rural communities. This is in line with the extension of service delivery, social inclusion and achievement of the Kenya Vision 2030. Therefore, resources must be invested in this sector by both the county or devolved and national governments. Opening up rural areas through road construction will not only improve livelihoods but also unlock opportunities for employment creation as a crucial and vital component of poverty reduction. According to ADB (2006), Africa in general lacks the infrastructure to meet the enormous basic needs of its population. Hundreds of millions of Africans lack even the most fundamental amenities, from rural roads to basic health, and access to quality education. The lack of infrastructure is most severe in Africa's long-neglected rural areas with high population densities. As statistics show, over half of the rural roads in sub-Saharan Africa are in a very poor condition and repairs are immediately needed. According to the UN General Assembly's 22 September special meeting in New York on Africa's development needs indicated that the poor state of transport and communications adds an "economic distance" to African trade. High transit costs caused by infrastructure problems make the continent's exports less competitive on world markets and its imports more expensive for consumers. The sad state of African infrastructure has numerous causes including the lingering effects of colonialism. Newly independent countries inherited in adequate and outward-oriented infrastructures designed largely to serve the metropole instead of the development needs of the new states (ADB, 2006).
The inadequacy of rural road maintenance under the stringent controls on government spending during the structural adjustment programmes of the 1980s made rural roads more and more ephemeral in Sub-Saharan Africa (World Bank 2000). In addition, a feature of road Construction Firms in the developing countries is that, they are often believed to be one-man enterprises, having low financial and capital base and also lacking the requisite managerial skills to adequately face up to the numerous and difficult challenges they constantly have to encounter in a typical developing economy such as Kenya's (Ahadzie, 2007). Oyewobi and Ogunsemi (2010) equally described the main categories of waste during construction process as reworks/repairs, defects, material allocation, unnecessary material handling and material waste. Reworks equally contribute to time and cost overruns in projects. Koskela (2000) showed that there was a relationship between reduction of productivity and the incidence of waste in road

construction. Poor quality was identified as one of the major factors causing low productivity. The African Development Bank (2010) indicated that rural Africa has only 34% road access as compared to 90% in the rest of the world. In Kenya, the state of the rural road construction performance appraisals is not sufficient (UNRWA, 2006). The same case applies to many countries all over of the world where road construction continues to face failure in time performance, cost, team work and other key performance indicators. Many challenges lie in budgeting, planning and selection of key skills or staff for rural road construction (Ondari & Gakera, 2013). Hence, delays in delivery of rural road projects are a common problem with an immeasurable cost to society and contractors. Project delays are a reoccurring problem and have negative impacts on project success in terms of time, cost, quality and safety (Knight, Hurst & Farahani, 2009). Okuwoga (2008) stated that cost and time performances have been identified as general problems in the construction industry worldwide. Dissanayaka and Kumaraswamy (2005) remarked that project complexity, client type, experience of team and communication are highly correlated with the time performance; whilst project complexity, client characteristics and contractor characteristics are highly correlated with the cost performance. Further, Reichelt and Lyneis (1999) obtained that project schedule and budget performance are controlled by the dynamic project team feedback process. Iyer and Jha (2005) remarked that the factors affecting cost performance are: project manager's competence; top management support; project manager's coordinating and leadership skill; monitoring and feedback by the participants; decision making; coordination among project participants and owners' competence. Coordination among project participants was as the most significant of all the factors having maximum influence on cost performance of projects.

Statement of the Problem

Rural Africa has only 34% road access as compared to 90% in the rest of the world (African Development Bank, 2010). In Kenya, the state of the rural road construction performance measurement systems and appraisal mechanisms are neither effective nor sufficient to overcome this problem (UNRWA, 2006). Indeed, all over of the world, road contractors' continue to fail in construction performance and successful completion of projects. As a result, many road projects fail in time performance, cost, team work and other key performance indicators. To begin with, limited allocations of funds to open up rural areas through rural road construction projects have resulted from competition for development funds from both the devolved and national governments. In addition, inadequate road project designs and planning coupled with insufficient inspection has led to poor workmanship and poor delivery occasioned by project delays (Ondari & Gakera, 2013). Delays in delivery of rural road projects are a common problem

with an immeasurable cost to society and contractors. Project delays are a reoccurring problem and have negative impacts on project success in terms of time, cost, quality and safety (Knight, Hurst & Farahani, 2009). Poor construction of rural roads in Kenya impairs distribution of products, farmer connections to markets, information exchange and economic growth. Moreover, insufficient road construction project appraisals have increased wastage on construction materials, time and cost. Aminudin (2006) found 30% of road construction is rework while labour is used at only 40% to 60% of potential efficiency and at least 10% of materials are wasted. However, rework costs could be significantly higher (Love & Smith, 2006). According to Easterly, (2001), many governments are unwilling to spend the amount of money required to keep roads in basic repair. The low road access percentage (34%) in Africa reflects lack of adequate infrastructure. In fact, only 25%of the people in rural areas have access to market within two hours (World Food Programme, 2009). Despite these apparent issues, successful completion of rural road projects continues facing increasing challenges. The construction of major roads has reduced focus on small rural roads which are perceived to have a smaller economic impact in Kenya.

THEORETICAL LITERATURE

The application of the resource based theory in rural road construction is very important in the application of valuable physical and non-physical resources at the firm's disposal (Mahoney, 2004). The strategic allocation of resources for rural road projects can lead to sustained competitive advantage for road contractors. Road construction projects experience labors issues that are mainly caused by processes and activities within the project lifecycle. Therefore, proper resource planning matches key skills to project activities. The financial distress theory seeks to look at the different factors that lead to a decline in a firms' (contractor) performance (Brigham & Ehrhardt 2013). Beaver, Correia, & McNichols (2011), describe financial distress as the inability of an organization to pay its financial obligations as they mature. It is important to assess the probability of road construction projects' financial distress because it will determine the successful completion of rural road projects The Vihiga County and national Governments' investment decisions and financing are separable and independent. However, not most organizations recognize this hence holding their balance sheets on debts and equity claims as one which then reduces their leverage on costs (Finnerty, 2013). Road contractors aiming to undertake projects should ensure that their financial capabilities are well planned before making a decision on whether to carry out a project or not. Time required for funds disbursement should be managed carefully to avoid project delays and handle financing for high cost projects. County governments in Kenya experience financial constraints either due to late funding, poor financial

estimations and late release of project funds. In addition, stakeholders' participation in rural road construction projects significantly determines their successful completion (PMI, 2004). According to Chinyio and Olomolaiye (2010), stakeholders could affect an organization's functioning, goals, development and even threaten their survival. In particular, stakeholders could be beneficial when they facilitate the realization of the rural road projects' goals and antagonistic when they oppose the projects' mission leading to the failure of many projects.

EMPIRICAL LITERATURE

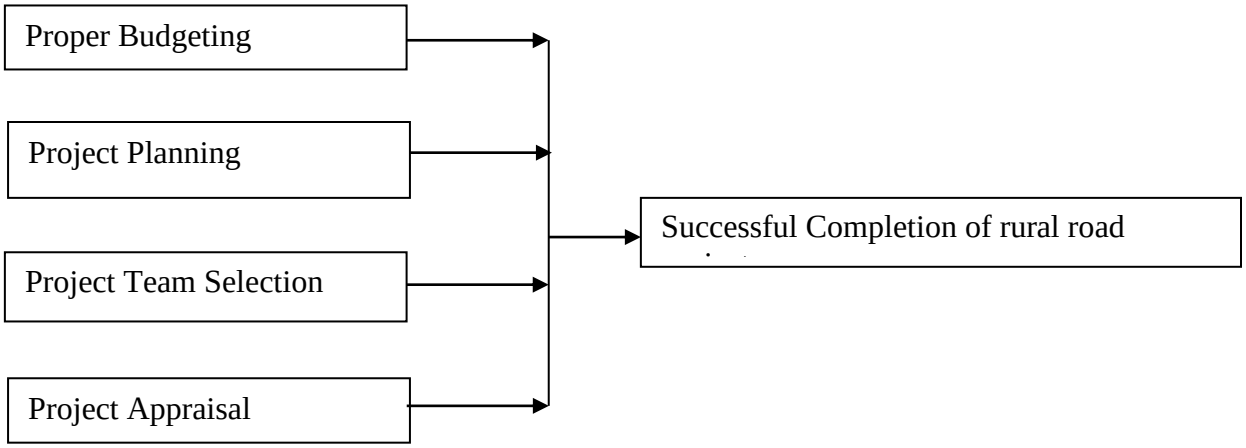
If devolved funding is to impact positively on the sustainability of rural road projects construction, the managers of the funds must budget how to serve the targeted communities better. They should focus on delivering the purpose of these funds by identifying reliable contractors and stakeholders. Most of the early road investment was in major trunk roads but in the 1970s as rural development objectives were pushed to the fore by western donors, rural roads gained in importance in World Bank lending. This was in anticipation that this would spur rural economic growth (Edmonds, 1998). Previous researches have shown that the realities of rural transport and investment investments have a limited impact on rural dwellers' lives. This is because the major share of rural travel and transport is bound up in domestic tasks such as water and firewood collection which generally involve walking on off-road paths (Porter, 2002). According to Warner (2003), successful decentralization requires administrative and financial capacity and effective citizen participation. However, many rural governments lack adequate revenue base or sufficient professional capacity. The funds for rural road construction must be accounted for (Republic of Kenya, 2005). In practice, the projects undertaken are not accounted for in recurrent budget allocations. For instance, when a constituency uses its funds to build a secondary school, no mechanism exists to ensure that the school is adequately staffed on completion, this affects the efficiency of public resource use (Shah, 2007). The World Development Report (2005) indicated that building rural roads in Morocco increased primary school enrolment from 28 percent to 68 percent; access to clean water reduced the probability of child mortality by 55 percent. In Zambia, access to passable road was associated with a decrease in the possibility of child labor by 7.4 percent and with higher educational achievement.

One of the most important steps in any project is to carefully choose the project team. Sympathies and friendship should be relegated to make the right choices for the sake of the project. The success of a project does not only depend on the project manager but also on the whole project team, composition of the team, professional competence, the level of responsibility, challenges encountered by the team and the level of involvement during the

planning, design and monitoring of the project. The technical capacity, expertise in conducting evaluations, the value and participation of project team during the decision making is very important (Vanessa and Gala, 2011). Project teams should be given clear job allocations as well as designations which match their expertise. If the human resources in the project are lacking in skills, proper training should be carried out (Ramesh, 2002). According to Chan and Kumaraswamy (2005), a number of unexpected problems and changes from original design arise during the construction leading to problems in time schedule and performance. Project and investment appraisal requires the full exploration of reform options to address the key problems to ensure that the project solution provides the best return for society's scarce resources. Cost benefit analysis (CBA) is the primary appraisal tool at the options assessment and project prioritization process. In road construction, performance is predominantly measured using time, cost, quality and scope of the project among other parameters. The costs of construction, workmanship, quality of materials and road construction specifications should be monitored along all the project phases (NGTSM, 2006). A clear scope and definition is essential for conducting a good CBA and can help address the problems of unrealistic cost and demand forecasts. Cheung *et al*., (2004); Shahrzad & Hamidreza, (2011) established the performance factors categorized into the objective measures of time, cost, safety and environmental considerations and subjective measures of quality, functionality and satisfaction of project participants. Ensuring that rural roads in developing countries are maintained is no simple task. The condition of the recently rehabilitated roads is often mediocre, and in some instances these roads are barely passable after a few years (Kuprenas, 2003).

In addition, rural road construction projects require careful planning, innovation and creativity. Just as every project is unique, it requires a unique management approach.Alinaitwe*et.al,* (2007) found that design changes, stoppages due to disputes, stoppages because of insolvency, lack of adherence to regulatory requirements and inspection delays affects road construction projects. Many though think the initiation and the initial planning done by the client and the consultants determines the future direction of the project. Khang and Moe (2008) found that consultations are far more important in influencing the project success. Ika, Diallo and Thuillier (2010) while surveying World Bank projects found most prominent critical success factors for project supervisors are design and monitoring. Recent efforts in national planning in Kenya have sought to identify development priorities through consultations (Nganga, 2011) like the preparation of the Poverty Reduction Strategy Papers (PRSPs). These consultations have been particularly insightful in highlighting the priority rankings of development needs by communities (Kimenyi, 2005).

Figure 1. Conceptual Framework



Critique of Existing Literature Relevant to the Study

Devolved funding in Kenya can impact positively on the sustainability of rural road projects construction for the targeted communities. However devolved fund managers must carefully budget, involve the relevant stakeholders and contractors to deliver the purpose of these funds. Most of the early road investment was in major trunk roads but in the 1970s as rural development objectives were pushed to the fore by western donors. The rural roads gained in importance in World Bank lending to the transport sector in the anticipation that this would spur rural produce marketing, trade and economic growth (Edmonds, 1998).For reliable road construction, performance appraisal must be measured using time, cost, quality and scope of the project. The costs of construction, workmanship, quality of materials and road construction specifications must be monitored throughout all the construction project phases. Empirical evidence shows that effective consultations are far more important in influencing the project design, team selection, planning and successful project implementation.

Research Gaps

There is limited allocation of funds through the county and national governments to effectively open up rural areas through rural road construction projects. This has resulted from competition for development funds from both the county and national governments. Further, poor road project designs coupled with insufficient inspection has led to poor workmanship on rural road projects. Poor construction of rural roads or lack of it has compounded the high poverty levels and impairs distribution of products, farmer connections to market, information exchange, and trade. Many governments are unwilling to spend the amount of money required to keep roads in basic repair. In turn, poverty in these areas has increased by the isolation caused by lack of

infrastructure, resulting in low-level equilibrium traps. The low road access percentage (34%) reflects the lack or inadequate infrastructure in rural Africa in which Kenya is part and parcel. In fact, only 25 percent of the people in rural areas have access to market within two hours according to the World Food Programme. Despite these apparent issues, rural road projects are facing increasing challenges due to poor quality and sometimes unavailability of funding resources.

METHODOLOGY

A cross-sectional survey research design was utilized because it permits the collection of data through questionnaires administered to a sample. The data collected by this design was used to suggest reasons for particular relationships between variables (Saunders &Thorn hill, 2007). It also facilitated the collection of a considerable amount of data quickly, efficiently and accurately (Oso & Onen, 2005).The target population for the study was 342. According to Silverman (2005), the sampling frame should be large to allow the researcher to make inferences of the entire population

Table 1: Sampling Frame

No.	Category	Target population	sample size
1	Prequalified Road contractors	317	72
2	Ministry of roads engineers	7	2
3	Vihiga County planners	7	2
4	Roads Engineers from Vihiga County	6	1
5	Technical Road Construction Auditors	5	1
	Total	342	78

Stratified random sampling was applied on the prequalified road contractors (317) while purposive sampling was done for the road engineers, planners and technical road auditors. Saunders *et al.* (2009) argued that dividing the population into series of relevant strata means that the sample is more likely to be representative as one can ensure proportional representation within the sample. The Nassiuma (2000) formula was used to calculate the sample size.

$$n = \frac{NC^2}{C^2 + (N-1)e^2}$$

Where

n = sample size;

N = population size;

C = coefficient of variation which is 50%

e = error margin which is 0.05.

$$n = \frac{342\ (0.5)^2}{0.5^2 + (342-1)0.05^2}$$

$$n = 77.6$$

$$n = 78$$

Data was collected using a structured questionnaire with close-ended questions. Questionnaires are research instruments used to collect information geared towards addressing specific objectives (Kombo et al., 2002). Prior to conducting the main research, a pilot study was conducted in the neighboring Kakamega County to test reliability and validity of the research instrument. Validity is the degree to which an instrument measures what is supposed to measure (Kothari, 2004). This was done by pre-testing the questionnaire. Reliability refers to a measure of the degree to which research instruments yield consistent results (Mugenda & Mugenda, 2003). Cronbach alpha was used to test the internal consistency estimate of reliability of the test scores. All the study variables results were compared with the reliability coefficient of 0.7 ($\alpha > 0.7$). Prior to issuing of the questionnaire, the necessary permits were obtained from the relevant authorities for ethical considerations. The questionnaire was self-administered using drop-and-pick-later method to allow respondents some time to fill the questionnaire.

Data Analysis Approach

Data analysis refers to examining what has been collected in a survey or experiment and marking deductions and inferences (Kombo et al., 2002). The data collected was coded and analyzed using the Statistical Package for Social Sciences (SPSS version 20) tool. Both descriptive and inferential analysis using mean, standard deviation and percentages were generated. The researcher further used regression analysis to establish the strength of the relationship between the dependent and independent variables.

$Y= \beta0+ \beta1x1+\beta2x2+ \beta3x3 + \beta4x4+\varepsilon$ Where: Y = Successful completion of rural road projects.

β0 is the regression coefficient/constant/Y-intercept, β1, β2, β3and β4 are the coefficients of the linear regression equation. x1 = Proper budgeting, x2 = Project Planning, x3 = Project team selection, x4 = Project appraisal. ε is an error term normally distributed about a mean of 0. The findings were presented using percentages and frequency distribution tables.

Pilot Study

A pilot study was conducted to test the reliability of the questionnaire. A sample of 10% of the respondents was picked from neighboring county of Kakamega and the return rate was 100%.

The Cronbach's Alpha test was conducted on all measures for the independent and dependent variables giving alpha values of more than 0.7. Higher scores give more reliable coefficients (Creswell, 2002). All the four variables were therefore retained for study.

Table 2: Cronbach's Test Results

Variable	N	Cronbach's Alpha
Proper budgeting	5	0.763
Project Team Selection	5	0.732
Project Appraisal	5	0.725
Project Planning	5	0.759

FINDINGS AND DISCUSSIONS

A total of 78 questionnaires were issued to the sampled respondents and 70 were filled as required translating to 89.7% response rate. Majority of the respondents (64.3%) were male while females (35.7%).50% were aged 35 years and above followed by those aged 31-35 years respectively. Furthermore, the study assessed the academic qualifications and 48.6% had attained university education, 40% college while 11.4% had attained secondary school education. Majority of the respondents were adequately educated and this was a major factor in determining who was employed in the road construction projects based on its technical nature and skill set requirements. On position held by respondents, 44.3% were road construction workers, 17.1% were engineers while 5.7% were project accountants. The road construction workers were the majority in the study sample analyzed. 44.3% were construction workers. The findings further revealed that majority of the respondents, 47.2% had worked for 1-5 years. 17.1% had worked for less than one year and more than 10 years respectively. The findings indicated that working experience in road construction projects was very critical in determining the successful completion of rural road projects in Vihiga County.

Descriptive Analyses

Table 3 illustrates the analytical results for proper budgeting for rural road construction projects in Vihiga County. The performance of construction projects are affected by national economies (Navon, 2005). As a result, successful completion of rural road projects is related to factors such as time, cost, quality, client satisfaction; productivity and safety. These factors fundamentally depend on proper budgeting of funds. The findings indicate that, respondents were indifferent (mean <3.5; std. dev > 1.000) on adequate budgeting for rural road construction projects and upgrading. However, majority strongly agreed (mean=4.28, std. dev=0.912) that availability of finances is a determinant in the extent to which rural road construction and upgrading can be

done. On giving higher priority through county government financing, the respondents were also indifferent with the view (mean=3.10; std. dev= 1.121). The county government Vihiga should address gaps in budgeting, stakeholder participation and prioritizing funds for rural road projects. The findings are in tandem with Ahadzie (2005) who reported that lack of finance and credit facilities for contractors, delay in the payment of contractors, design changes or variations, low morale and motivation of workers, poor planning, supervision and low mechanization are among the most important factors that could be affecting construction projects' performance. This in essence also affects successful completion of rural road projects.

Table 3: Descriptive Analysis for Proper Budgeting

		Mean	Std. Dev
i.	The County government adequately budgets for rural road project construction and upgrading	3.21	1.100
ii.	The county rural road construction board organizes stakeholder forums to participate in budgeting process for rural road projects	3.32	1.012
iii.	There is continuous monitoring and audit on use of funds allocated for rural road projects in Vihiga county	3.12	1.002
iv.	Availability of capital or finances determines the extent of rural road project construction and upgrading	4.28	0.912
v.	The rural road construction projects are given higher priority through County government financing	3.10	1.121

On the selection of project teams based on qualifications and competencies (Table 4), most respondents strongly agreed (mean = 3.50; std. dev = 0.887). In addition, majority of the respondents agreed that there was clear definition of tasks and schedules for the project teams (mean=3.6, std.dev=.900). Further, the top management supported the project teams to execute their tasks (mean=3.49, std.dev. =.996). However, on training projects teams regularly to enhance their technical capacities and execute their duties, the majority disagreed (mean=2.9, std.dev=1.002). The findings complement those of Ramesh (2002) who indicated staffs sent out to the field in carrying out project activities on their own should get contact support to ensure quality. Foresti (2007) similarly illustrated project team training should not be just mere training but must undertake learning approach with best practices and positive effect.The results clearly indicate that there were incidences of payment delays with the potential to slow road project completion.

Table 4: Descriptive Analysis for Project Team Selection

		Mean	Std. Dev
i.	Project teams are selected based on their qualifications and competencies	3.50	.887
ii.	There is clear definition of tasks and schedules for the project team members	3.60	.900
iii.	The top management of the construction companies adequately supports project teams in their tasks	3.49	.996
iv.	The project team members are regularly trained to enhance their technical capacities to execute their mandates	2.90	1.002
v.	Project team members are paid on time and are motivated to work harder for successful completion of projects	3.08	1.000

The study sought to determine the opinions on project appraisal for rural road construction projects in Vihiga County (Table 5). Majority agreed (mean ≈ 3.24; std. dev < 1.000) that project appraisal is crucial in management of rural road construction and maintenance while they disagreed (mean ≈ 2.72; std. dev > 1.000) that, majority of the stakeholders participated in the routine appraisal of the rural roads under construction. The findings supports those of Passia (2004), monitoring helps in tracking and documentation of resources throughout the life of the project.Majority very strongly agreed that there is set criteria used to assess the progress and workmanships of rural road construction projects (mean=4.76, std. dev=.693). Moreover, majority disagreed that there are adequate controls during rural road construction on cost, time and scope of the projects (mean=2.85, std. dev=1.110). It is clear that stakeholders did not adequately participate in routine appraisal of road construction projects. This was supported by lack of adequate controls during rural road construction. As a result, every project must have a reliable cost benefit analysis and progressive monitoring to ensure funds allocated deliver the project specifications. The findings are in line with Shapiro (2004) who indicated evaluation compares the project's impact as set to be achieved in the project plan.

Table 5: Descriptive Analysis for Project Appraisal

		Mean	Std. Dev
i.	Project appraisal is crucial in management of rural road construction and maintenance projects	3.24	.521
ii.	Majority of stakeholders in rural road construction projects participate in routine appraisal of the rural roads under construction	2.72	1.013
iii.	There are set appraisal criteria used to assess progress and workmanship of rural road construction projects	4.76	.693
iv.	There are adequate controls during rural road construction on cost, time and scope of projects	2.85	1.110
v.	The more educated stakeholders in the rural road appraisal unit, the better the management of rural road projects	4.63	.737

The study analyzed the influence of project planning on the successful completion of rural road construction projects outlined in Table 6. The findings show that there was regular participation of community and other stakeholders in rural road project identification, initiation and planning (r=3.00, std. dev=1.000).On community participation in the implementation and maintenance of the rural road projects, the respondents disagreed (mean=2.91, std. dev=1.001). The researcher established that there was little use of community participatory approach in planning rural construction projects (mean=2.26, std. dev=1.102).The findings are in tandem with Chan and Kumaraswamy (2005) stated that a number of unexpected problems and changes from original design arise during the construction phase, leading to problems in time schedule and performance. Therefore, proper project planning should be done to eliminate these unexpected project problems during implementation. Moreover, being able to manage construction stakeholders expectations and concerns is a crucial skill for managers in construction projects as failure to address these result in countless project failures (Bourne & Walker 2005), primarily because construction stakeholders tend to have the resources and capability to stop construction projects (Lim et al. 2005). Successful completion of construction projects is therefore dependent on meeting the expectation of stakeholders during the planning stage.

Table 6: Descriptive Analysis for Project Planning

		Mean	Std. Dev
i.	Community and other stakeholders participate regularly in rural road project identification, initiation and planning.	3.00	1.000
ii.	Community participates in implementation and maintenance of rural road construction projects	2.91	1.001
iii.	There is high use of community participatory approach in planning rural road construction projects	2.26	1.102
iv.	The county government regularly allocates rural road maintenance and upgrading funds in the development budgets.	2.15	1.281
v.	The county government conducts baseline studies and environmental impact assessments before design and construction of rural roads	3.40	.657

Inferential Analysis

The findings in Table 7 shows there is a strong positive and significant relationship between proper budgeting and successful completion of rural road projects ($r = 0.801$; $p < 0.05$). The results of the analysis implied that proper budgeting for rural road projects plays a crucial role in successful completion of the rural road projects. This is in line with Mohamad (2010) recommendations that adequate budgets, timely issuing of information, streamlined

management structures and efficient legal processes as some of the new project management practices that can be adopted to enhance proper budgeting for road projects.

Table 7: Results of Correlation between Proper Budgeting and Successful Completion of Rural Road Projects

		Proper Budgeting
Successful Completion of Rural Road Projects	Pearson Correlation	.801**
	Sig. (2-tailed)	.000
	N	70

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

The results in Table 8 indicates that the relationship between project team selection and successful completion of rural road projects was very strong, positive and statistically significant ($r = 0.750$; $p < 0.05$). Project teams have significant impact on the successful completion of rural road projects. Training, coordination and cohesion of project teams play a great role in delivering successful projects in line with Chua et al. (1999) who defined project participants as the key players. A construction project requires team spirit; therefore team building is important among different parties.

Table 8: Results of Correlation between Project Team Selection and Successful Completion of Rural Road Projects

		Project Team Selection
Successful Completion of Rural Road Projects	Pearson Correlation	.750*
	Sig. (2-tailed)	. 011
	N	70

*. Correlation is significant at the 0.05 level (2-tailed).

The study found there exists a positive and strong significant relationship between project appraisal and successful completion of rural road projects ($r=0.672$, $p<0.05$). The results in Table 9 infer that prior to conducting any project inspections or appraisal, the management should establish and incorporates inspection planning and control procedures in the project plan. This way, a set criterion on appraisal will save time and resources. A project appraisal process helps a government make good choices in terms of its goals. It starts with a clear understanding of the role of the project in addressing the key problems preventing achievement of goals specified in a broader rural road construction projects.

Table 9: Correlation between Project Appraisal and Successful Completion of Rural Road Projects

		Project Appraisal
Successful Completion of Rural Road Projects	Pearson Correlation	.672*
	Sig. (2-tailed)	.000
	N	70

*. Correlation is significant at the 0.05 level (2-tailed).

The findings established the existence of a strong positive and significant correlation between project planning and successful completion of rural road projects (r=0.683, p<0.05).The findings illustrated in Table 10 are consistent with Khang and Moe (2008) who indicated that effective consultations are far more important in influencing project success. Further, design and monitoring are prominent critical success factors for projects, (Diallo & Thuiller 2010).

Table 10: Correlation between Project Planning and Successful Completion of Rural Road Projects

		Project Planning
Successful Completion of Rural Road Projects	Pearson Correlation	.683*
	Sig. (2-tailed)	.000
	N	70

*. Correlation is significant at the 0.05 level (2-tailed).

The researcher conducted a multiple regression analysis so as to assess project management strategies that influence successful completion of rural road projects. The findings in Table 11 explained only 79.8% of the factors influencing successful completion of rural road projects. Further research should be conducted to investigate the other factors (20.2%) that influence the successful completion of rural road projects in Vihiga County.

Table 11: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.893	0.798	0.735	0.4513

Multiple Regressions Analysis

From Table 12, the equation

$Y = \beta 0 + \beta 1x1 + \beta 2x2 + \beta 3x3 + \beta 3x4 + \varepsilon)$ become:

$Y= 1.308+ 0.913x1+ 0.789x2+ 0.715x3 +0.764x4$

The regression equation above established that taking all factors into account (Proper budgeting, proper team selection, project appraisal and project planning) at zero, the constant is 1.308. The findings presented in table 12 also shows that taking all other independent variables at zero, a unit increase in proper budgeting will lead to a 0.913 increase in successful completion of rural road projects; a unit increase in project team selection will lead to 0.789 increase in successful completion of rural road projects while a unit increase in project appraisal will lead to 0.715 increase in successful completion of rural road projects and a unit increase in project planning will lead to 0.764 increase in successful completion of rural road projects.

Table 12: Regression Coefficients

Model	Un-standardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.308	1.341		1.622	0.357
Proper Budgeting	0.913	0.346	0.171	4.343	.0279
Project Team Selection	0.789	0.327	0.167	3.581	.0262
Project Appraisal	0.715	0.295	0.162	3.521	.0253
Project Planning	0.764	0.323	0.164	3.567	0.0258

SUMMARY

Summary of the Preliminary Findings

From the findings, the response rate was 89.7%and majority of the respondents were male. More than half of the respondents were aged 35 years and above followed by those aged between 31 to 35 years. Moreover, majority of the respondents were adequately educated. The road construction workers were the majority in the study sample analyzed. In terms of working experience, 47.2% had worked between 1 and 5 years. The findings imply that working experience is very critical in determining the successful completion of rural road projects in Vihiga County.

Proper Budgeting

The study established that the performance of road construction projects is affected by county and national financing. As a result, successful completion of rural road projects is directly related to factors such as time, cost, quality, client satisfaction; productivity and safety. These factors fundamentally depend on proper budgeting for rural road projects. The findings indicated

respondents were indifferent on adequate budgeting for rural road construction projects and upgrading. Availability of finances as a determinant in the rural road construction and upgrading was supported by the majority of the respondents. However, on Vihiga county government giving higher financing priority to rural road construction, majority of the respondents were indifferent. In conclusion, Vihiga County government should address gaps in budgeting, stakeholder participation and prioritizing funds for rural road projects. Inadequate financing and delay in the payment of contractors, design changes or variations, low motivation for project teams, poor planning and supervision affects rural road construction projects' performance. This in essence affects successful completion of the rural road projects.

Project Team Selection

On the selection of project teams based on qualifications and competencies, most respondents strongly agreed. In addition, majority of the respondents agreed that there was clear definition of tasks and schedules for the project teams. Further, the top management was found to give support to project teams in executing their tasks. However, on training project teams regularly to enhance their technical capacities and competency, majority disagreed. The rural road projects should endeavour to build technical capacity and expertise in conducting evaluations. This can be achieved by allowing the participation of project team during the decision making. Project teams should be given clear job allocations as well as designations which match their expertise. If the human resources in the project are lacking in skills, proper training should be carried out.The findings imply that project teams while carrying out project activities on their own should get continuous support to ensure quality. Similarly, project team training should be integrated and include learning approaches for best practices and positive effect.Incidences of payment delays have the potential to slow road project completion and create conflicts. This will lower the motivation and spirit of the project teams to carry out their duties.

Project Appraisal

Project appraisal was found crucial in management of rural road construction and maintenance Stakeholders' participation in the routine appraisal of the rural roads under construction was minimal as indicated by most respondents. The findings imply there were gaps or barriers to effective monitoring which helps in tracking and documentation of resources throughout the life of the rural road projects.The study found that there is set criteria used to assess the progress and workmanships of rural road construction projects. Moreover, there were no adequate controls during rural road construction in terms of cost, time and scope of the projects. It is clear that stakeholders did not adequately participate in routine appraisal of road construction

projects. This was supported by inadequate controls during rural road construction. As a result, every rural road project must have a reliable cost benefit analysis and progressive monitoring to ensure funds allocated deliver the project specifications.The appraisals and evaluation of rural road projects should compare the impact of the project as set to be achieved in the project plan.

Project Planning

The study analyzed the influence of project planning on the successful completion of rural road construction projects. Findings show there was regular participation of the community and other stakeholders in rural road project identification, initiation and planning. But during the implementation and maintenance of the rural road projects, there was low community participation. Apparently, there are disparities in the participation of the community during planning and implementation of the rural road projects. In addition, the researcher established there was little use of community participatory approach in planning rural construction projects. These may lead to unexpected problems and changes during the construction phase for time, scheduling and performance. Therefore, proper project planning should be done to eliminate these unexpected project problems during implementation. Moreover, being able to manage construction stakeholders' expectations and concerns is a crucial skill for managers in construction projects as failure to address these may result in countless project failures. Key construction stakeholders tend to have the resources and capability to stop road construction projects and their expectations should be properly analyzed during the planning stage.

CONCLUSIONS

The study concludes that financing is a major determinant for successful completion of rural road projects is directly related to factors such as time, cost, quality, client satisfaction; productivity and safety. There should be adequate and proper budgeting for rural road projects. Vihiga county government should prioritize funding for rural roads to avoid inadequate financing and delay in the payment of contractors. The selection of project teams should be based on qualifications and competencies. There should be clear definition of tasks and schedules for the project teams coupled with the top management support. Further, project teams should be regularly trained to enhance their technical capacities and competencies to deliver quality results within specified time and schedule. Similarly, project team training should be integrated and include learning approaches for best practices and positive effect.In addition, project teams should be involved in project planning and decision making processes.If the human resources in the project are lacking in skills, proper training should be carried out.Project appraisal is crucial in management of rural road construction and maintenance when it integrates stakeholders'

participation. The rural road construction projects should reduce barriers to effective monitoring to track and document resources throughout the life cycle of the projects.Moreover, adequate controls during rural road construction in terms of cost, time and scope of the projects must be ensured through a reliable cost benefit analysis and progressive monitoring of allocated funds. Regular participation of the community and other stakeholders in rural road project identification, initiation, planning and implementation should be encouraged. The use of community participatory approach in planning helps resolve unexpected problems and changes during the construction phase for time, scheduling and performance. Moreover, managing stakeholders' expectations and concerns is a crucial skill for managers in construction projects as failure to address this may result in countless project failures.

RECOMMENDATIONS

The study recommends adequate and proper budgeting for rural road projects to be done. Vihiga county government should prioritize funding for rural roads to avoid inadequate financing and delay in the payment of contractors. The selection of project teams should be based on qualifications and competencies. There should be clear definition of tasks and schedules for the project teams coupled with the top management support, training on technical capacities and competencies and integration of learning approaches. In addition, project teams should be involved in project planning and decision making processes.If the human resources in the project are lacking in skills, proper training should be carried out. Project appraisal should integrate stakeholders' participation to reduce barriers to effective monitoring to track and document resources throughout the life cycle of the projects.Moreover, adequate controls during rural road construction in terms of cost, time and scope of the projects must be ensured through a reliable cost benefit analysis and progressive monitoring of allocated funds. Regular participation of the community and other stakeholders in rural road project identification, initiation, planning and implementation should be encouraged. The use of community participatory approach in planning helps resolve unexpected problems and changes during the construction phase for time, scheduling and performance. Moreover, stakeholders' expectations and concerns is a crucial skill for managers in construction projects as failure to address this may result in countless project failures.

LIMITATIONS OF THE STUDY AND FURTHER RESEARCH

This study analyzed only four strategies (proper budgeting, project team selection, project appraisal and project planning) and their influence on successful completion of rural road construction projects in Viihiga County. Also, the respondents were a bit reluctant to provide

relevant information at the beginning for fear of being investigated on their performance in rural road construction projects in Vihiga County.

The study recommends a longitudinal study on assessment of project management strategies influence on successful completion of rural road projects across Counties in Kenya for validation and replication of best practices.

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