INTEGRATED PLANNING AND RESOURCE ALLOCATION AS PROJECT MANAGEMENT SKILLS ON SUSTAINABILITY OF ROAD PROJECTS

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ABSTRACT

Project sustainability is a crucial aspect to donors and other stakeholders especially in ensuring that the projects are in use and in good condition for a longer period. Road projects in Kenya assist movement of goods and services, social and economic development of the nation. There is a need to improve road condition for a nation like Kenya to develop and ensure environmental impact, resource management, quality of project and road user's satisfaction on the condition of Roads. Despite the effort in contracting road network in Kericho County, there are over 10000 Km of road that are not tarmacked and are in poor condition. The study aims to evaluate the influence of planning and resource allocation on road projects sustainability in Kericho County, Kenya. The study was grounded on resource based theory. Descriptive and explanatory research design was adopted. Target population was 123 road projects. A census of 98 staff from KURA, KENHA, KeRRA and County Government was utilized to provide information on the projects. The data was collected using semi-structured questionnaires. This was subjected to interrogation by supervisors and peer review to ensure validity. A pilot test was used to ensure reliability where internal consistency was checked. Analysis of data used both descriptive and inferential statistic. Descriptive techniques adapted the mean and standard deviations while multiple linear regression and Pearson Correlation analysis as inferential techniques. Normality, homoscedasticity, multi-collinearity and autocorrelation were tested before using multiple linear regression models. Data were presented using table and charts. Finding of the study indicated that project planning had significant influence on project sustainability. This was due to budgetary estimates, inventory system and planning process reduced wastage, mismanagement and corruption. However, time scheduling required more improvement so as to reduce time wastage during construction. Resource allocation had positive significant influence on project sustainability. Human resource, physical resource and financial resource had significant influence on project sustainability. The study concluded that project planning and resource allocation had positive significant relationship with project sustainability. The study recommended to constructors and road engineers that time scheduling in project planning should be enhanced to reduce time wastage. It also recommended resource allocation to improve quality and project sustainability.

Key words: **Sustainability, Descriptive and Explanatory Research Design.**

INTRODUCTION

Projects play a fundamental purpose in investment and development of organization (UNCTAD, 2018). Project sustainability has risen to be crucial in project management where stakeholders expect values for their investment. The sustainability of project is associated

with the quality of roads, road resource management, road user satisfaction and environmental impact of the project. Projects are found in various sectors that is construction, education, healthcare, manufacturing, government among others. Therefore, it represents temporary task developed in producing results, product or services (Pinha & Ahluwalla, 2019). Projects are divided into sub-task that involve numerous resources and since resource are limited which require management. Project management is a field that has raised high interest in the recent years with most organization and researchers making projects to be important part of nation building (Ocharo & Kimutai, 2018). Project management is required for infrastructure development which includes roads, air ports, and buildings among other construction project has also demanded a lot from project management field. However, sustainability of road project is important for economic development since good road network ensures good and services reach desired location. Developing nations is reliant on contraction project but since it requires high cost there is a need in ensuring proper integrated management skills.

United State, China and majority of Europe have sophisticated road, railways and subways that interconnect cities. Due to the advancement of road and railway infrastructure this developed nations has a grown economy. In New Zealand most infrastructural development project utilized integrated project management software in order to manage effectively the performance of the projects (Wilkinson, 2013). Road construction and maintenance in Canada utilized innovative techniques as well as enhance planning for success of the projects (Pellerina, Perriera, Guillota, & Legerb, 2013). Hence road network more connected and better than Kenya roads based on majority of the nation are developed.

In Africa, majority of nation are undergoing infrastructural changes main in the road sector to much with the developing economies. Project management plays an important role in the road and infrastructural development. In Nigeria, road maintenance and construction are contracted to construction companies who have integrated component of nation's industrial and infrastructure growth (Adebayo, Eniowo, & Ogunjobi, 2018).

Mega construction infrastructural projects have been seen in Kenya lately, with the latest Standard gauge railway and Thika super highway (Mwende, 2019). These projects are also trigged down to County level through the devolved County Government. Road project in developing world form the fundamental role of government. Kenyan government embrace development and are striving to ensure that all citizen access to good quality roads and they are well networked. Currently, Kenyan government has tarmacked 14,000 out of 300,000 Km of roads since 19th century (Mburu, 2017). There is a need for roads project in Kenya which are quality and within the right standards. The projects are successful and other mired by corruption deals. Mkutano & Sang, (2018) argued that it is not a guarantee that project management succeed. In Kenya, most of the project practices are reliant on planning which involve budgeting, scheduling and quality of the project. Road projects are among the projects that require extensive integrated management skills to ensure higher performance (Ali, Mohd-Don, Alias, Kamaruzzaman, & Pitt, 2010).

Project sustainability is an area that often investigates for the purpose of sustainable economic development in public and private sector. Sustainability of project has been arising

concern for stakeholders, since it combines environmental, social and economic concepts. In the real sense the project performance is the measure of success rate of project while sustainability is the measure of long term success of running the project (Mburu, 2017). It is also an area where donors among other stakeholder are interested including scholars. Some of the concern in project sustainability ensures environmental sustainability, social sustainability and economic sustainability (Yu, Zhu, Yang, Wang, & Sun, 2018). According to Marcelino-Sadaba, Gonzalez-Jaen, & Perez-Ezcurdia (2015) argued that sustainability has three dimension that is social, economic and environemt which is considered by majority of stakeholders in project management. Road project sustainability is important of public as well as private sector since it enable the road long as well as short term sustainability socially, environmental and economically.

According to Daneshpour (2015) satisfaction, environmental impact, resource management and quality of the project plays an important. Therefore, it is important to evaluate sustainability of road based customer satisfaction which is affect the social aspect of project. Other projects that involve service delivery focus on customer satisfaction (Roque & Marly, 2013). Therefore, social sustainability indicators also include team, customer satisfaction, health and safety depending on the kind of projects. Road construction must also consider environmental benefit to the community. It is crucial to consider environment impact of the constructed roads in terms of construction of road impact on the ecological conditions. The impact of resource management based on transparency and accountability of resources allocated to the project is also important. Therefore, the current study utilized quality of roads, road resource management, road users' satisfaction and road environmental impact as indicators of measuring road projects sustainability.

Integration management skills is project management that allows contractors to monitor construction progress, forecast and allocate resources, identify risk, communicate problems and assist in planning within the project as early as possible (BIS, 2010). Its main ability is to ensure that project implementation process runs smoothly without any problem. Integrated management skills entails four major parts the planning, resource allocation, risk management and communication skills in construction project (Awad, 2012). Project Body of Knowledge (PMBOK) Guide reveals that the risk, resource, quality, product and cost require integration management of skills in order to conduct the project smoothly (Naveed, et al., 2017).

Planning is a managerial function as well as part of integrated management skills element (Shamp, 2017). Project management practices are highly reliant on planning especially in highly scientific projects that affect the human safety (Ocharo & Kimutai, 2018). Planning affects the project design, scheduling and feasibility assessment of major development. Sustainable road construction project in Kenya is associated with planning process (Mburu, 2017). Project scheduling is also a crucial part of planning that enable the time allocation as well as human resource allocation. Other planning process includes budgeting, scope definition, resource estimation and project objective. Cost planning entails estimating the cost during design and construction phased for a project. It forms the better part of financial planning in constructions (Naeem, Khanzada, Mubashir, & Sohail, 2018). Hence planning

part of the project management entails budgeting or financial planning, time scheduling and resource or inventory controls for construction.

Resources allocation assists in project management in road project (Odipo, 2013). Estimation of Financial resources is done during planning for implementation of monitoring and evaluation (Dyason, 2010). Resource management, control and allocation affect the entire project since the project relies on finance, equipment, machinery, materials and human resource for it to be complete. Hence resource allocation forms the part of a project management system. Resource allocation process entails time scheduling, financial as well as human allocation to various tasks in the project (Rugiri & Njagiru, 2018). Hence resource includes human, material, finance and time that are available for the project.

Road construction is an integral linkage of society within Kenya. It links different part of Kenya where 300,000 Km of total road only 14,000 Km are tarmacked since that start of nineteenth century (Mburu, 2017). Kenya National Highway Roads Authority (KeNHA), Kenya Urban Roads Authority (KURA) and Kenya Rural Roads Authority (KeRRA) are State Corporations under ministry of Transport, Infrastructure, Housing and Urban Development as recognized in Kenya Roads Act, 2007. They were established by the government as the local county council was faced out as a result of mismanagement of public resources. It was developed to enhance efficiency, safety, quality and adequacy in road work and construction projects (Kenya Rural Roads Authority, 2018). The County government is also given the mandate to construct road project within the County.

Hence in Kericho County, the government agencies KeNHA, KURA and KeRRA Kericho regions are responsible for road construction of major roads using both local and international firms while the County government does the maintenance of minor gravel roads using local contractors. Currently, there are several major road projects under the 10,000 Km Low Volume Seal Road which are concerned with upgrading gravel roads to Bitumen Standard which are being done by Kenya Rural Road Authority (KeRRA).

Based on the larger scope of roads that need construction and maintenance the agency is overwhelmed by road construction. This is also attributed by scarce resource in the region affecting road development (Ngetich, 2017). Sustainability of road project is crucial in ensuring increased infrastructural development in Kericho County. There is need to integrated management skills that are crucial in road project. Therefore, the study focused on investigating integrated management skills on road project in Kericho County.

Statement of the Problem

Kenya among other developing countries are trying their best to provide accessible road network through tarmacking, since the road networks are at pathetic state with most of the road network not tarmacked (Mburu, 2017). There are 40.57% of roads that are in poor condition, 40.50% that are fair and only 17.65% of roads that are in good condition. This reveals the low performance of road project in terms of quality, construction time frame, cost and scope. The roads that are currently under construction represent 1.28% of the entire roads in Kericho County which indicate issue in the performance of road construction project in the

County. The statistics further revealed that 9% of total 4,299.329 km are paved while 57% are with gravel and 34% of the roads are with earth as indicated in appendix IV (SMEC Western Report, 2018). Therefore, this study investigated on the planning and resource allocation on sustainability of road project in Kericho County.

Hypothesis

H_01: There is no significant influence of project planning on the road projects sustainability.

H_02: There is no significant influence of resource allocation on road projects sustainability.

LITERATURE REVIEW

Theoretical Literature

The study was grounded resource based theory and goal setting theory. Resource Based Theory became common around 1980s which identified the firm to be with resources and capability that could be used for competitive advantage which was developed by Wemerfelt *et al,* (1985). This is based on work of Edith Penrose in 1950s' which has been further developed by Selznick (1957), Penrose (1959), Pfeffer and Salancik (1978), Wemerfelt (1984) and Rumelt (1984). RBV theory postulates that a firm has bundles resource and capabilities that can be utilized by the firm give the competitive advantage (Barney, 1996). Resources are capabilities that are scarce in nature. The same concept is applicable in project management since project involves resource mobilization. Hence resource allocation is crucial in any project to become outstanding in construction work. It implies that without resource projects fails to pull off and have rendered a large number of projects to fail (Almarri & Gardiner, 2014). The theory is used in project management to align the resource available with the strategies, creating a competitive advantage in the organization.

Maina (2011) argued that firms while planning should be able to maximize and exploit every resource for it to successfully grow and become competitive. It implies that resource optimization in firm's project affect the performance of the organization. Owies (2012) added that organization should utilize capabilities that maximize the profitability and reduce cost. Excess resources that are transferable should utilized in projects and hence remain competitive. It is clear that resource allocation remains to significantly affect the performance of the organization and hence optimal utilization results to competitive advantage hence there is need also to link it with performance of the project hence its sustainability.

Empirical Literature

Project planning is highly linked with project success from most of empirical literature. In majority of the literature there is need for financial planning or budgeting must be within the budget. Time planning and scheduling is also crucial to ensure that the project is done on the timeframe. Inventory system and material planning is significant in project implementation.

Umulisa, Mbabazize, & Shukla, (2015) investigated planning in relation to material planning, time planning, human resource planning and financial resource planning as component of planning on projects performance. Related study by Adebayo, Eniowo & Ogunjobi (2018) in road projects require project management system that are crucial in monitoring, controlling, scheduling, planning and evaluating each step in order to reduce risk and improve performance. There is need to ensure that project management system reduce cost, time; improve quality as well as within the right scope. Similar findings were found by Idoro, (2012), Serrador (2015) and Lemma (2014) that planning process is associated with budgeting, time scheduling and material or inventory management. This was further linked with sustainability of the project.

Mwaura (2013) investigated the influence of financial planning on the financial performance. This was done in Automobile firms within Kenya. It used descriptive design that used questionnaires in collection of data. It found that planning impact on the financial performance of automobile industry in Kenya. The author further found that majored on financial planning in Automobile firms in Kenya. This study focuses on financial planning and financial performance while the current study focuses on integrated management skills and sustainability of roads projects.

Abdullah, (2015) reviewed project planning and scheduling in construction projects. The study proposed budgeting and time scheduling concept as part of planning. It also showed that scheduling assisted in allocating time and resource to various task in projects. It is also important to investigate on inventory or material as planning process for projects. There are numerous planning processes where scheduling and budgeting are significant in any project.
Bulle & Makori (2015) researched the effect of strategic planning on project performance in Nairobi County. The study had the following specific object that is to establish stakeholder involvement, monitoring and evaluation, top management support and resources allocation influencing performance of urban roads projects. The research adopted descriptive survey research design with a sample of 70 employees who participated in implementing KURA road projects. Census was used for participants in sampling. Its findings indicated that monitoring and evaluation, top management support, stakeholders' involvement, physical resources allocation, human resources and financial resource significantly influence the urban road performance in KURA. Their study therefore concluded that strategic planning had significance effect on urban roads performance hence sustainability.

Naeem, Khanzada, Mubashir, & Sohail, (2018) investigated on planning process where role of risk management mediates and role of organizational culture mediating the effect to the success of the project. The study collected data from sample of 100 project managers utilizing questionnaires. Regression and correlation analysis assisted in establishing the relationship between the planning and success of the project. Planning process affected the success of the project. It was also found that risk management affected to the relationship between planning and success of the project.

Ocharo & Kimutai, (2018) investigated effect of project management practices on power project implementation in Kenya. Project management practices that were investigated included planning, stakeholder's participation, monitoring and evaluation. The study was based on stakeholders as well as resource based view theory. It utilized exploratory survey research design that engaged accountants, project managers, procurement and top management in construction projects in the power sector. Questions were given to a census of 380 respondents. It was found that most power project were well planned but poorly implemented with low stakeholder participation in project designing stages as well as poor project monitoring and evaluation at implementation.

Mburu, (2017) investigated on the effect of project planning on road construction project sustainability in Nairobi County. Project planning were measured based on project evaluation, deliverables, timeliness, quality and cost management was assessed on sustainability of road construction project. Descriptive research design was utilizing a sample of 324. It found that cost was managed through cost budgeting, cost estimation, cost control and cost planning. Project quality management was found to be used in measuring the quality of the task. It found that project timelines management are important for sustainable road construction projects.

Resource plays a crucial purpose in any project. Resource can be classified as tangible and intangible. According to Resource based Theory they form part of capability that given an organization competitive advantage. Therefore, physical or materials, human and financial resource is crucial in development of project in an organization. Obuba and Kimutai (2017) pointed out that resource allocation includes the use of project equipment, staffing and budgeting. Construction project normally requires larger amount of resource from construction material, financial support from the government, skilled human resource and machinery. Road projects are part of development infrastructural project that are managed and funded mainly by government.

According to Selaru (2012), resources are scarce and there is a need for careful allocation. The study was concerned with resource allocation in project management. The author argued that application of tools and techniques in project management has evolved and the rise of software and technology has prompted organization to be innovative. The study proposed a model that would assist allocation of resource in real business and hence project management software came in handy in improvement and sustainability of projects in an organization especially in resource allocation.

Umulisa, Mbabazize & Shukla (2015) investigate the effect of project resource planning practices in relation with the project performance. The study was done in Kigali, Rwanda based on Agaseke project. Project resource planning used human resource, financial, material as well as time resource planning practices as the indicators. The study utilized cross-section research design that target 400 where a sample of 120 respondents was selected. Both interview schedules and questionnaire were utilized to collect data. The research found that

HR, financial, time and material resource planning had significant influence on the sustainability of projects.

Karugia & Lango (2015) assessed strategic allocation and construction of low cost housing projects in Kenya. The study focused on the challenges that affect the success and low cost housing basing it on low financial ability of majority of the Kenyan citizen. Review of existing literature indicated that planning plays a major role in construction projects. This current study focused on the need to have skills of not only managing existing resource but also sourcing other resource externally and utilizing in road projects.

Obuba & Kimutai (2017) established resource scheduling and project performance of international non-governmental organization in Nairobi City County. Resource scheduling takes centre stage in projects performance. Staffing, budgeting, project equipping and project change was investigated in relation to the performance of project. It targeted population of 187 INGOs operating in Nairobi County. It used descriptive statistics and inferential statistics by applying multiple linear regression models. It found that organization conducted periodically scheduling as well as adapted to changes in the environment in the organization. Project equipment were given to staff for them to use in the project. Project staffs were well allocated of resource. Resource scheduling was found to have significant effect on project sustainability.

Pinha and Ahluwalla (2019) established the effect of flexible resource management on project cost and duration. The study purpose was to reduce the cost as well as duration through improving the skills of project manager in resource management. Case study reported literature was used to come up with conclusion. The study concluded that resource management skills among the managers are significant in finishing the project on time and with minimum cost as possible.

Methodology

Descriptive and explanatory research design was utilized in the research. A target of 98 respondents which includes engineers, inspectors and contractors from KeRRA, KURA, KeNHA and County Government were used. This represented the unit of observation that was used in data collection. The information was based on existing projects which includes 123 road project conducted between 2015 and 2020 by both County and government agencies (County Government of Kericho, 2017). Census of 98 respondents which includes engineers, inspectors and contractors from KeRRA, KURA, KeNHA and County Government was used. Semi-structured questionnaires were used to collect information from the stakeholders involved in the construction of the road project under concern. Face and content validity of the instrument was given to university supervisor for further review. The pilot findings were analyzed where Cronbach alpha was ascertained if the value obtained is lower than the acceptable limit of 0.7. The result indicated that project sustainability, project planning and resource allocations were all reliable since Cronbach Alpha coefficient were all above 0.7. Mean and standard deviation were adopted as the appropriate descriptive statistics. In order to

obtain deduction for the set objective correlation and multiple linear regression models were done. Correlation analyses were used to determine the nature and strength of the variables.

Results and Discussion

Descriptive analysis was conducted on project sustainability. These were mean and standard deviation which represented the analysis. This was summarized and presented in table 1.

Table 1: Descriptive Statistics for Project Sustainability

	N	Mean	Std. Deviation
The quality of roads done is up to the recommended standard due to proper planning in terms of finance, inventory and materials.	85	4.0471	.81512
Road resources given are properly managed with transparency and accountability.	85	4.2941	.68701
Roads are well developed since it has satisfied the road users.	85	4.0000	.77152
Road construction have conserved original environment in terms of forest, drainage and ecological system.	85	3.9529	.80039
Average	**85**	**4.0735**	**.51151**

Table 1 indicated that roads were done satisfactorily to the recommended standard due to proper planning in term of finance, inventory and materials (mean of 4.0471). Road resources were properly managed with transparency and accountability (mean of 4.2941). According to the results road satisfactorily developed since it has satisfied the road users (mean of 4.0000). Road construction moderately conserve original environment in terms of forest, drainage and ecological system (mean of 3.9529). Sustainable projects were associated with resource planning accord to Umulisa, Mbabazize & Shukla (2015). Mburu (2017) also associated the project planning evaluation, deliverables, timeliness, quality and cost management for sustainable road construction.

Project planning was analyzed from Likert scale which presented mean and standard deviation. The results were presented in table 2 which explain the effect of project planning in the firm.

Table 2: Descriptive Statistics for Project Planning

	N	Mean	Std. Deviation
Budgetary estimates for construction projects have assisted in minimizing cost.	85	4.1765	.72664

	N	Mean	Std. Deviation
Time scheduling is provided for each road project to avoid wastage of time and resource in construction process.	85	3.6706	.93080
The projects have ensured that inventory systems are adopted in order to manage resource hence reducing cost of construction.	85	3.9882	.82367
Planning process management is effective in managing cost as from resource wastage in the road construction projects.	85	4.0941	.60991
Planning has assisted in minimizing corruption and mismanagement in the road projects.	85	4.0000	1.03510
Road project planning has enabled the road to be finished within appropriate time as well as cost.	85	3.8235	1.01391
Average	**85**	**3.9588**	**.54306**

Table 2 revealed that budgetary estimates for construction projects adequately assisted in minimizing cost (mean of 4.1765). Time scheduling provided for each road project moderately assisted in avoiding wastage of time and resource in construction process (mean 3.6706). Projects have ensured that inventory systems were adequately adopted in order to manage resource hence reducing cost of construction (mean of 3.9882). Planning process management was sufficiently effective in managing cost as from resource wastage in the road construction projects (mean of 4.0941). Results indicated that planning greatly minimized corruption and mismanagement in the road project (mean of 4.0000). Road project planning somewhat enabled the road to be finished within appropriate time as well as cost (mean of 3.8235).

Mwaura (2013) had similar results where financial planning process in construction affected performance of the organization. However, the current research found that project planning which includes cost management enable reduction of wastage in terms of cost and time. Abdullah (2015) also concurred with the current study since project planning through scheduling assisted in managing time while inventory planning assist in managing resource. Mean and standard deviation was used to explain resource allocation. These were presented in table 3 below.

Table 3: Descriptive Statistics for Resource Allocation

	N	Mean	Std. Deviation
The projects had sufficient resources allocated through evaluation of bill of quantities to ensure quality construction.	85	4.0824	.72722
Human resource was used during construction that ensured quality of roads.	85	4.0471	.95001

The project used financial resource to ensure proper allocation of resources for transparency in construction of roads.	85	4.2471	.68844
Resource allocation has assisted in ensuring long term benefit of roads projects.	85	4.0588	.77694
Physical resource allocated assist in bring all necessary machinery and material finished quality work without waste of resource.	85	3.9412	.93035
Every project has qualified personnel in managing and allocating resources to the project.	85	4.1529	.79441
Average	**85**	**4.0902**	**.52362**

Source: Research Data (2021)

Table 3 revealed that projects had sufficient resources allocated through evaluation of bill of quantities to ensure quality construction (mean of 4.0824). Human resource in construction ensured that quality of roads (mean of 4.0471). Project greatly used financial resource to ensure proper allocation of resources for transparency in construction of roads (mean of 4.2471). Resource allocation greatly assisted in ensuring long term benefit of roads projects (mean of 4.0588). Physical resource allocated somewhat assisted in bring all necessary machinery and material finished quality work without waste of resource (mean of 3.9412). Findings indicated that every project had adequate qualified personnel in managing and allocating resources to the project (mean of 4.1529).

Umuliza, Mbabazize & Shukla (2015) concurred that human resource, financial resource, time and material resource had significant role in sustainability of the projects. The current research found that physical resource allocation played an important role in quality of the road constructed. Similarly, Bulle and Makori (2015), physical and human resources were also found to significantly affect the road performance. Therefore, appropriate physical resources, human resource and financial resource assist in time, scope and cost management of the projects. Pinha and Ahluwalla (2019) added that resource management skills were significant in project time and cost minimization. This implies that it is important to acquire the right skill in management of resource to reduce

Correlation Analysis

Correlation analysis was conducted to examine the interrelationship among project planning, resource allocation and project sustainability. The significance was tested using 5% significant level.

Table 4: Correlation Analysis

		Project Sustainability
Project Planning	Pearson Correlation	.571**
	Sig. (2-tailed)	.059

	N	85
	Pearson Correlation	.586**
Resource Allocation	Sig. (2-tailed)	.000
	N	85

Source: Research Data (2021)

Table 4 reveal that project planning had a moderate positive significant relationship with project sustainability (R=0.571, P<0.05). Resource allocation had a moderate positive significant relationship with project sustainability (R=0.586, P<0.05).

Table 5. Analysis on Coefficient for Regression Summary Model

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	1.617	.515		3.727	.000
1	Project Planning	.349	.088	.398	3.966	.000
	Resource Allocation	.560	.091	.574	6.160	.000

Source: Research Data (2021)

Table 5 reveals the coefficient of regression summary model given in the equation below.
$Y=1.617+ 0.349X_1+0.560X_2$

Where; Y = Roads Project Sustainability, X_1 is project planning and X_2 is resource allocation. According to the results the project planning had positive significant effect on project sustainability (B=0.349, P<0.05). The findings indicated that resource allocation had positive significantly affect project sustainability (B=0.560, P<0.05). Similarly, Bulle and Makori (2015) found that indicated that monitoring and evaluation, top management support, stakeholder's involvement, physical resources allocation, human resources and financial resource significantly influence the urban road performance in KURA.

First null hypothesis; there is no significant influence of project planning on the road projects sustainability in Kericho County, Kenya was rejected. According to the results project planning had significant effect on road project sustainability in Kericho County (P<0.05). This implied that an increase in project planning by management result to more sustainable roads made in the County. Umulisa, Mbabazize, & Shukla, (2015) had similar finding with current study that planning in relation to material planning, time planning, human resource planning and financial resource planning which had significant relationship with projects performance. Planning through time and resource scheduling has significant influence on project times and cost minimization according to Pinha and Ahluwalla (2019). This indicated that resource planning and allocation had significant influence on success of the project. Similarly, Obuba & Kimutai (2017) also found that resource scheduling had positive significant effect on project sustainability. Abdullah (2015) also found that scheduling and

budgeting planning significantly affected the project. However, the study focused on construction project rather than road projects.

Second hypothesis; there is no significant influence of resource allocation on road projects sustainability in Kericho County, Kenya was reject. Results indicated that resource allocation had positive significant relationship with road project sustainability within Kericho County. Hence, null hypothesis was rejected and alternative adopted. It implies that an increase in resource allocation enable increase in road project sustainability. According to Umulisa, Mbabazize & Shukla (2015) human resource, financial, time and material resource planning had significant influence on the sustainability of projects. This indicated similar results that resource allocation through human resource, financial resource as well as physical resource assisted significantly in ensuring that the project is sustainable. Bulle and Makori (2015) found that resource allocation through physical resources allocation; human resources and financial resource significantly influence the urban road performance in KURA. However, the current study found that resource allocation had significant influence of project sustainability. Obuba & Kimutai (2017) found that resource scheduling had significant effect on project sustainability. Despite the study examining resource scheduling where measured using staffing, budgeting, project equipping and change. In related study Pinha & Ahluwalla (2019) revealed that resource management skills had significant influence project finishing on time with minimum cost. The current study related resource management skills to project sustainability.

CONCLUSION AND RECOMMENDATIONS

There existed positive significant influence of project planning on the project sustainability. This was attributed to budgeting; inventory control systems and planning process management which have reduce wastage of resource, cost, corruption and mismanagement. These have increase efficiency in cost management in the project allocations. However, time schedule moderately assisted in time management. There is need to improve in time planning process to reduce wasted time and reduce project cycles. Resource allocation also had positive significant influence on project sustainability. The results identified that there was sufficient resource allocation based on evaluation of bill of quantities which ensure quality construction. Similarly, human resources were adequate, skilled and competent in ensuring quality construction. Financial resources were also sufficiently managed with transparency during road constructions. Similarly, physical resources were well allocated to ensure quality of road. The results found that resource allocation had positive significant influence on road sustainability.

Recommendations

To constructors and road engineers that time scheduling in project planning should be enhance to reduce time wastage. This will enable the project to be done on time which reduces resource wastage as well as project cycle. Management of road agencies and county government should control the contractors who take longer time in delivering projects to

increase the number of project done within the same period. Management of road construction projects to ensure proper resource allocation which had the highest contribution to the quality and project sustainability. It is important to allocate sufficient resource to enable the high quality sustainable roads.

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