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ROLE OF MONITORING AND EVALUATION ON PERFORMANCE OF NATIONAL GOVERNMENT FUNDED RURAL ROADS CONSTRUCTION PROJECTS IN KENYA

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ABSTRACT

Roads projects in Kenya have been characterized by low rates of budget absorption with only about 60% of the budget spent in 2016. There also have been cost overruns of as much as 80% over the original contract amounts, and completion periods of twice the initial contract implementation period. This study therefore sought to examine the role of monitoring and evaluation on performance of rural roads construction projects in Kenya. Specifically, the study sought to establish the influence of human capacity on the performance of rural roads construction projects in Kenya and to identify the influence of financial capacity on the performance of rural roads construction projects in Kenya. This study adopted cross-sectional design research approach. The population of this study is all the 1,032 Professional Engineers as well as Civil and Structural Engineers registered by the Engineers Board of Kenya. The sample size of the study was 267 respondents. Primary data was collected through use of questionnaires. SPSS version 25.0 was used to code the data collected. Correlation analysis was used in establishing how the variables under investigation relate with each other. A multiple regression analysis was used to assess the relationship between the dependent and the independent variables. The study results were presented in tables and figures. The study concludes that human capacity has a positive and significant effect on the performance of rural roads construction projects in Kenya. In addition, the study concludes that financial capacity has a positive and significant effect on the performance of rural roads construction projects in Kenya. From the results, this study recommends that the road authorities in Kenya should ensure their project teams have adequate training and skills to implement road projects. In addition, the road authorities in Kenya should ensure the correct tools are applied to implement road projects. Further, the authorities should ensure the correct techniques are adopted

Key Words: Monitoring and Evaluation, Human Capacity and Financial Capacity

Background of the Study

The construction industry accounts for a significant portion of the world's gross domestic product (Basheka & Tumutegyereize, 2018). In the unindustrialized world, the construction sector provides a extensive source of employment to the majority of poor citizens of i, Abdul-Aziz, & Abushaban, 2018; Omran, Abdalrahman, & Pakir, 2018). Functionality, profitability to contractor's absence of claims and court proceedings and "fitness for purpose" for occupiers has also been used as measures of project success (Omran et al., 2018). Other performance indicators include commerce performance, health and safety (Enshassi et al., 2018).

The PricewaterhouseCoopers LLP (2018) conducted a global survey that established a direct relationship between project management maturity levels and project performance. Nenni et al. (2014) avers that the effect of project management maturity on project performance may be contingent on certain environmental factors (industry, competition, political interference, etc.), structural factors (technological capacity, administrative culture, management systems, financial management and employee morale) and contextual factors (social, political and financial) in which the project operates. Nenni et al. (2014) also identifies external factors (economic, regulatory and market driven) as potential influences on the maturity level and project performance by extension.

A number of empirical studies such as Anantatmula (2010), Basheka and Tumutegyereize (2018), Enshassi et al. (2018), Enshassi, Sherif, and Saleh (2009), Hyväri (2006), Mir and Pinnington (2014), Nyandika and Ngugi (2014), Omran et al. (2018) and Sweis, Bisharat, Bisharat, and Sweis (2014) have investigated project performance factors in developed and developing world. A study by Anantatmula (2017) in the United States of America (USA) established that leadership plays a big role in ensuring project performance. In Jordan, leading factors found to influence contractors' performance on public construction projects include financial difficulties faced by contractors, manpower shortages and excessive change orders (Sweis et al., 2014). Shortage of skilled manpower, poor supervision and poor site management, unsuitable leadership, shortage and breakdown of equipment among others contribute to construction delays in the United Arab Emirates (Faridi & El-Sayegh, 2016). In the United Arab Emirates, Mir and Pinnington (2017) established a correlation between project management performance and its contributing variables of project success otherwise called 'enablers' which include project management leadership, staff, policy and strategy, partnership and resources, and project life cycle management processes.

The five most persuasive factors of project performance in Sudan construction industry are project team leader's experience, planning effort, adequacy of design and specification, cost progress observing and leadership skill of leader (Omran et al., 2018). In South Africa, controllable factors which include quality and attitude account for 67% of the perceived discrepancies between expected and actual outcomes of project development (Mbachu & Nkando, 2017). According to Zulu and Chileshe (2018) contractors' performance In Zambia was found to be below expectation with projects being delayed or not being completed with huge implications in terms of the competitiveness of the contractors. Zulu and Chileshe argued that nothing can be learnt from ongoing or delayed projects in the Zambian construction industry. In Kenya, the determinants of timely completion of power projects are procurement procedures, climatic factors, timely availability of funds and project planning tools (Kariungi, 2014).

Infrastructural development through construction of new roads and maintenance of existing ones is a essential aspect in development of every economy (Gitahi, 2015). According to Hassan (2017) developments in the road construction industry in Kenya are increasing in size, technology complexity, interdependencies, and variations in demands from clients. Enormous

donor and government resources are provided for the construction of road projects. Monitoring and evaluation of road projects implementation is therefore paramount in determining the success of road construction projects. This study seeks to investigate the role of monitoring and evaluation on the performance of rural roads construction projects in Kenya. The monitoring and evaluation factors to be studied include human capacity, financial capacity, tools and techniques and Utilization of findings. The moderating influence of project control on the relationship between monitoring and evaluation and performance of rural roads projects will also be investigated.

The arena of monitoring and evaluation has gained prominence over the past two decades, to its current status where there is an impressive body of literature, a community of practice and even a profession of persons called "evaluators" (2019). In the ambitious 2030 Agenda for Sustainable Development, the development community has committed to a large number of sustainable development goals and targets. The resolution that seals this renewed global partnership for development reiterates the importance of M&E by promoting reviews of progress achieved that are "rigorous and based on evidence, informed by country-led evaluations and data which is high quality, accessible, timely, reliable and disaggregated" (United Nations, 2015:Parapraph 74).

In Zambia, an evaluation report on the rehabilitation of Trunk Road T1 from Zimba to Livingstone project indicated that though the project was wholly relevant to the needs of the Government of the Republic of Zambia (GRZ) and the aspirations of the EU/GRZ co-operation. The project however had several shortcomings in that the Log frame attached to the FA but was not used as a management tool in the project, specific baseline data were not collected, and a detailed stakeholder analysis did not take place. There was also an extremely high turnover of senior management in the Road Administration. There was serious over-commitment and inadequate budget provision for contracts, the quality of contract documents was poor, consultants were appointed late, there was poor contract administration and there were many instances of delayed payments and poor quality of works (Planet SA, 2013).

Efforts were made to establish individual project- and programme-based M&E in the country in the 1980s and 1990s. Most development plans prepared during this period included a section on M&E. However, most of these M&E plans were prepared in response to donor demands, leading to very specific project and programme evaluations. As a consequence of the dominance of donor requirements, the M&E reports produced were rarely shared with the intended project/programme beneficiaries (GoK, 2016). Maendo, James, and Kamau (2018) in a study on effects of Project Monitoring and Evaluation on Performance Of Road Infrastructure Projects Constructed By Local Firms In Kenya established conducting M&E on regular basis, allocating sufficient finances for M&E activities and employing of staff with required skills play a critical role in the performance of road infrastructure projects. The study was carried out in the Lake Basin Region, Kenya and covered 41 road projects.

Despite enormous allocation of the fund by the Government of Kenya in all its financial budget, the sector face a challenge in performance with poor management of funds and poor delivery of services to the road user being mostly cited as the major drawback in the performance of the road sector (Njenga, 2014). A number of researchers such as Choge and Muturi (2014), Njenga (2014), Wambui, Ombui, and Kagiri (2015), Ogweno, Muturi, and Rambo (2016), Oguya and Muturi (2016), R. G. Kithinji and Kamaara (2017), Obare (2017), Ogutu and Muturi (2017), Seboru (2015), Wafula (2017), (Nyandika & Ngugi, 2014) and have studied various factors influencing roads projects performance in Kenya.

Seboru (2015) designates that majority of road construction projects in Kenya do not get completed within the initially set targets of time due to delayed payments by the client, slow decision making and bureaucracy in client organization, inadequate planning and scheduling,

Performance of road projects is also influenced by user involvement, technology, top management support and stakeholders' participation (Nyandika & Ngugi, 2014). This is in addition to design variations together with contractor's experience which have an influence on adherence to cost estimates (Choge & Muturi, 2014).

In a case study of Meru County to evaluate factors influencing completion of government road infrastructure projects in Kenya, R. G. Kithinji and Kamaara (2017) established that project finance, and project technology modernization largely influenced infrastructure project completion. Ogutu and Muturi (2017) determined that procurement process and communication influences successful completion of road construction projects. Ogweno et al. (2016) indicated that top management support is critical in determining the timely completion of road construction projects. Thus, stakeholders in road construction projects should consider top management support related factors as significant determinants for timely delivery of road construction projects.

Oguya and Muturi (2016) Evaluated the factors affecting performance of road construction projects in arid and semi-arid areas in Kenya. The study found that contractor's competency, construction parties' financial management, timely availability of construction resources, and conflicts affect the performance of road construction projects in arid areas in Kenya. In a case study of Nairobi County to determine factors influencing performance of road in Kenya, Njenga (2014) found that most construction organizations occupation benchmarking as a tool for achieving partnering excellence in construction projects. The study also revealed that project management, choice of procurement method, communication and use of information technology (IT) influence road contractor's performance. Wambui et al. (2015) Established that road construction project achievement is greatly influenced by project equipment, project managers competency, project funds and project technology.

In a case study of Machakos County, Wafula (2017) established that capital availability, managerial skills, organizational culture and technical skills influence the performance of road projects in Kenya. Obare (2017) studied the influence of project team diversity on performance of rural roads construction projects in Kenya. The study established that project team demographic variety, training diversity, experience diversity and work-culture diversity significantly influence performance of rural roads construction projects. The study further determined that combined project team diversities and performance of rural roads construction projects in Kenya depends on the implementation process of project control systems.

Statement of the Problem

Roads projects in Kenya have been characterized by low rates of budget absorption with only about 60% of the budget spent in 2006 (World Bank, 2018). There also have been cost overruns of as much as 80% over the original contract amounts, and completion periods of twice the initial contract implementation period. The quality of the road works has also suffered leading to shortened life (sustainability) of public works. This has been ascribed to inadequacies in the system for supervising the construction projects (World Bank, 2018). Consistent with these findings, the Kenya Roads Board (KRB, 2015) submits that 76% of the 29 roads projects under implementation by KeNHA in 2014-15 Financial Year, were behind schedule. The KRB recommended preparation of regular progress report for progress monitoring and overall improvement of supervision of works to ensure timely delivery of projects.

The construction of Thika Superhighway in Kenya was estimated to cost Ksh. 26.44 billion but the final cost escalated to Ksh. 34.45 billion a 30% increase. In addition the completion of the project was delayed by two years with the initial completion date of July 2018 being revised to July 2013 (Nyandika & Ngugi, 2014). A report by the Office of the Auditor General (KeNAO,

2016) on management of road projects by the Ministry of Transport and Infrastructure established that there were contract variations in 44% of the 34 projects selected for review which resulted in increased cost and delayed completion of the projects. The KeNAO report attributed this to weak project management practices. The poor performance of the roads projects has also attracted the attention of the Parliamentary Budget Office (PBO) which has recommended screening, appraisal, selection/rejection, budget allocation and, monitoring and evaluation to improve project performance (PBO, 2016).

According to the KeRRA Monitoring, Evaluation report (KeRRA, 2016) the monitoring and evaluation exercise of the ongoing road development projects is faced with challenges which include; lack of budgetary provision for monitoring and evaluation activities, inadequate capacity and delayed submission of monthly project progress reports. The report noted lack of implementation of monitoring and evaluation findings in a timely manner and cited the Naromoru-Mweiga-Brookside project which had not implemented 60% of prior monitoring and evaluation findings. Lack of consistent of monitoring and evaluation with Mumbuni - Kathiani - Thwake River road project as an example whose monitoring and evaluation was last undertaken in 2014/2015 Financial Year.

The Kenya Rural Roads Authority (KeRRA) has undertaken to monitor, evaluate and report quarterly and annually on the implementation status of the project under its jurisdiction thereby identifying bottlenecks to projects' implementation and propose strategies for remedial measures and also to fast-track the pace of implementation (KeRRA, 2016). However, the monitoring and evaluation exercise of the ongoing road development projects is faced with challenges which include; lack of a budgetary provision for monitoring and evaluation activities, inadequate capacity and delayed submission of monthly project progress reports (KeRRA, 2016). KeRRA for intended to extend the contract for the Management Support Consultant undertaking the social economic monitoring and environmental and social impact assessments but could not due to lack of funds (Egis International, Norken, & Cape, 2016).

To address these challenges, the National Treasury has developed a policy that recommends that each ministry and state agency dedicate one per cent of their development budget to monitoring and evaluation (Igadwah, 2018). A limited number of studies have so far examined impact of monitoring and evaluation on road construction projects in Kenya (Gitahi, 2015; Hassan, 2017; Maendo et al., 2018; Sialala, 2016). However, the role of monitoring and evaluation on performance of government funded rural roads construction projects in Kenya remains unknown. This study sought to fill this gap.

General Objective

To examine the role of monitoring and evaluation on performance of rural roads construction projects in Kenya.

Specific Objectives

i. To establish the influence of human capacity on the performance of rural roads construction projects in Kenya.
ii. To identify the influence of financial capacity on the performance of rural roads construction projects in Kenya.

Theoretical Framework

The following theories and models underpinning this study will be reviewed: Human Capacity Theory that supports Human Capacity variable; Theory of Discounted Cash flow that supports the Financial Capacity variable; Theory of Change that supports Tools and Techniques variable and Stakeholder Theory that supports utilization of findings variable. The Project Control

variable is supported by the Theory of Constraints. The origin, the attributes, the critique of each of these theories, and their relevance to the study will be discussed.

Human Capital Theory

Theodore W. Schultz and Gary S. Becker, Nobel Prize Laureates for Economic Science in 1969 and 1992, respectively, developed the theory of human capital in terms of growth and development. They developed Adam Smith's original notion [described in The Wealth of Nations] that investment in education and skill formation was as significant a factor in economic growth as investment in physical plants and equipment (Schuller & Field, 1998). The theory originates from the economists' interest in incorporating human capital into economic growth equations in the 1960s (Chuang, 1999; Nordhaug, 1993).

Schultz's work concentrates on education as a key to raising productivity, and lead to the modern emphasis on human capital as a factor in production. As Schultz (1971:54) argues: education is one of the major sources for economic growth after adjusting for differences in innate abilities and associated characteristics that affect individual earnings. His research contribution, paved the way for Becker's more elaborated analyses of human skills as a source of productivity growth, applicable to innovations in labor economics (Becker, 1976). In 1964, Gary S. Becker advanced the Theory of Human Capital in his book "Human Capital." (1975, 2nd ed.). He provided empirical evidence that investment in training and education to increase one's human capital was as important (and measurable) as an investment in other forms of capital (McIntyre, 2018).

A significant aspect of this theory is that the investment in knowledge, skills and health would not only benefit the individual; it could also increase an employer's or country's human capital resource pool and potential productivity. However, if sufficiently skilled labour was plentiful, such as in developing countries or service industries requiring minimum skills, most employers do not see the need to invest in their employees' education (Galor & Moav, 2001). The Human Capital Theory distinguishes among several types and means of education. There is formalized education at primary, secondary, and higher levels, informal education at home and at work, on the job training and apprenticeship and specialized vocational education at secondary and higher levels (Sweetland, 1996).

On the other hand, Block (1990) cited in (Makhamara, 2017) argued that Human Capital Theory is a poor concept. The theory is unable to understand human activity other than seeing it as the exchange of commodities while the idea of capital employed is purely a quantitative one. This misses the point that capital is an independent social force where the creation of value comes about through its capital accumulation. Given this explanation then, human capital is an abstract form of labour – a commodity and not capital. Another criticism is the assumption that education improves productivity and thus could explain higher wages. The theorists here did not take into account the transfer of learning. Does the duration of education and training increase productivity? A higher productivity indeed does not increase the wages. But many other factors could influence productivity. The pay could depend on the industry, while wages differ in different regions and in some organizations, while unions also do regulate pay system (Denvor, 2009) cited in (Makhamara, 2017).

In linking this theory to the road sector in Kenya, the study notes that the Human resource is a key resource for the road sector. The theory confirmed that knowledge, skills and abilities of individuals created value. As a result, focus had to be on the means of attracting, selection, retaining and developing human capital. Engineers, Surveyors, laboratory technicians, road works inspectors and other workers should have the abilities and skills necessary to add value to the entire road sector.

Theory of Discounted Cash flow

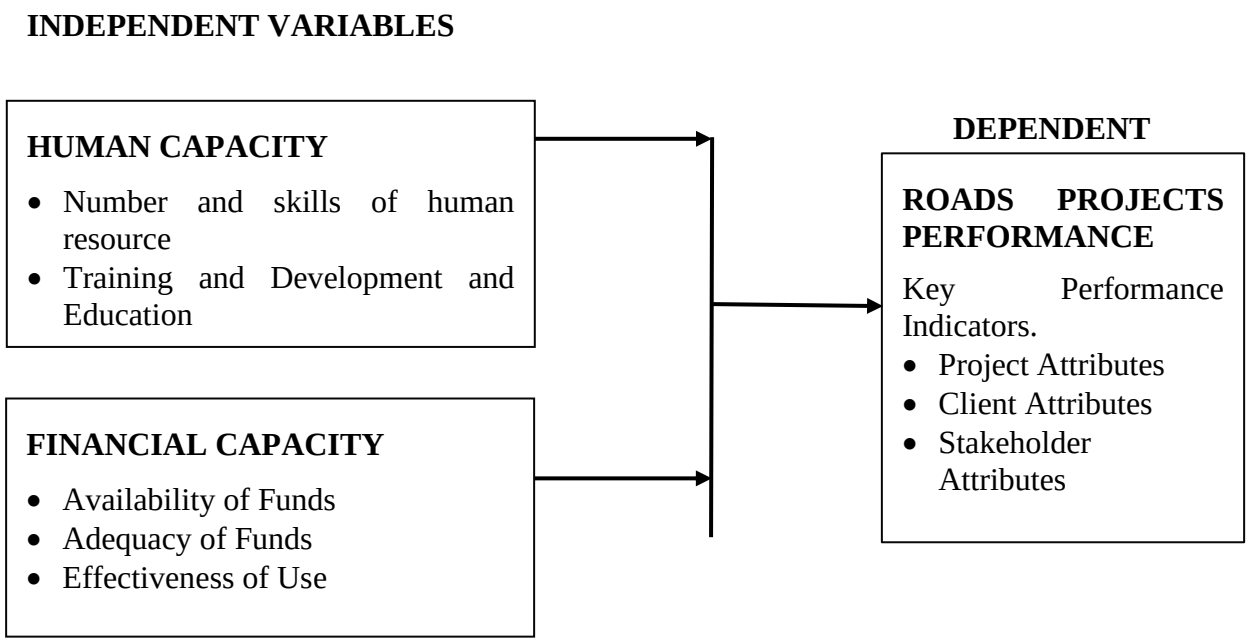
Irving Fisher in his 1930 book, "The Theory of Interest" and John Burr William's 1938 text 'The Theory of Investment Value' first formally expressed the discounted cash flow (DCF) method in modern economic terms following the stock market crash of 1929 (Arumugam, 2007). The theory of DCF is employed in capital budgeting, or project valuation, or asset valuation, or securities valuation (Myers, 2001; Shrieves & Wachowicz, 2001). The theory compares the future returns of potential projects by discounting the future cash flow at a rate that reflects the yield of similar securities in the market. Some of the techniques adopted in respect of DCF according to (Brounen, De Jong, & Koedijk, 2004) include net present value (NPV), adjusted present value (APV) and discounted payback period (DPP).

Myers (2001) underscores the importance of NPV but also cautions about the difficulties when defining discount rates, forecasting cash flows, estimating time series, and dealing with the stringent accounting principles (Shrieves & Wachowicz, 2001). The technique employed under DCF varies from one country to another; from one firm to another; and indeed from one project to another (Saisi, Ngahu, & Kalio, 2015). Brounen et al. (2004) using a survey of 6,500 firms across the United Kingdom (UK), Netherlands, France, Germany, and the United States (U.S.) exemplifies that, European firms do not apply DCF techniques as much as they do payback technique. The scholars reasoned that, the limited academic and professional qualifications of the small firms' management team limited their use of discounted techniques. DCF main critiques derive from the use of traditional financial reporting (Shrieves & Wachowicz, 2001) and the vulnerability to political forces within the organization (Myers, 2001).

Conceptual Framework

In a conceptual framework, descriptive categories are systematically placed in a broad structure of explicit propositions, statements of relationships between two or more empirical properties to be accepted or rejected (Parsons &Shils, 1962). It comprises of independent variables and dependent variables. An independent variable (IV) or the exploratory variable is the presumed cause of changes in the dependent variable (DV). It is caused or influenced by the dependent variable(s). Dependent variable(s) is the variable the researcher wishes to explain. It is also called criterion or predictor variable (Kothari, 2004). Figure 2.1 shows the conceptual framework. In this study the dependent variables were human capital, financial capacity, tools and techniques and utilization of findings. On the other hand, the dependent variable was performance of road projects

Figure 2. 1: Conceptual Framework



Empirical Review

Human Capacity and Project Performance

According to UNAIDS (2008) the key principles to keep in mind when setting M&E priorities are; pay close attention to human resources and; adequately trained staff with dedicated time for M&E. The technical capacity and expertise of the organization in conducting evaluations, the value and participation of its human resources during the decision making process as well as their motivation in implementing the decision can hugely impact on the evaluation (Waithera & Wanyoike, 2015).

According to Magondu (2013) staff capacity both in numbers and skills are very instrumental in any effective implementation and sustainability of M&E. Sharing similar views, Waithera and Wanyoike (2015) indicates that there is need to have an effective M&E human resource capacity in terms of quantity and quality, hence M&E human resource management is required in order to maintain and retain a stable M&E staff. This is because monitoring and evaluation carried out by untrained and inexperienced people is bound to be time consuming, costly and the results generated could be impractical and irrelevant. This will definitely impact the success of projects (Mulandi, 2013). Therefore, the staffs need to be equipped with the relevant skills for performance and success (Magondu, 2013).

Project quality is improved by application of relevant monitoring and evaluation tools yet firms lack skills on it and have informal approach to it (Ramaloko, 2018). The UNDP (2009) handbook on planning, monitoring and evaluation for development results, emphasizes that human resource is vital for an effective monitoring and evaluation, by stating that staff working should possess the required technical expertise in the area in order to ensure high-quality monitoring and evaluation. Implementation of an effective M&E demands for the staff to undergo training as well as possess skills in research and project management, hence capacity building is critical.

Organizations need to invest in skilled personnel to run M&E either by: hiring already trained people, which may be very difficult for most projects to achieve because few people are skilled in conventional M&E; training the people you need either on-the-job or through external courses; hiring external consultants for focused inputs (C. Kithinji, Gakuu, & Kidombo, 2017). The ability to draw on technical assistance, when and where needed, is equally important (Waithera & Wanyoike, 2015). The level of skills required depends on the complexity of the project with those using contracting and involvement of a wide range of stakeholders across several subprojects being more demanding in M&E implementation capacity (Magondu, 2013).

Phiri (2015) indicates that the most important part of the training is the development of M&E tools which should involve would-be users. The ability to gather and interpret data to make it usable and the ability to themselves use the same is the key element of investing resources in M&E personnel (Briceño, 2010). Consistent with this, Phiri (2015) indicates that once the project team has been identified, training and capacity building for M&E reporting is important regardless of the experience of individual member. This, it has been observed, enhances understanding of the project deliverables, reporting requirements and builds the team together.

Training of implementers in M&E is deliberately participatory to ensure that those responsible for implementing and using the system are familiar with its design, intent, focus, and how to use the M&E tools (Phiri, 2015). According to Gwadoya (2018) the focus on capacity building of the project staff ensures a workforce with appropriate skills to promote participatory and sustainable implementation of the project. This indirectly empowers the community to be more analytical about their situations, resources and develop appropriate interventions, to address their challenges. Capacity building also promotes competent managerial leadership that guide the adaptations and achievement of sustainable projects outcomes (Gwadoya, 2018). In building capacity for M&E several strategies and interventions have been suggested. These include; leadership development; sufficient allocation of resources; team-building; coaching; mentoring; exchange visits; technical assistance; and, short and long-term training (C. Kithinji et al., 2017).

Financial Capacity and Project Performance

The financing process, such as raising and maintaining adequate funds for project activities, is clearly of critical importance to the progress of a project (Gwadoya, 2018). The commitment of resources, particularly financial resources, by beneficiary communities is seen as an important indicator of the expected value of the project to these communities (Gwadoya, 2018). Clear and adequate funding need to be devoted to implement and operate a strong and effective monitoring and evaluation system (Gwadoya, 2018; Jha, Barenstein, Phelps, Pittet, & Sena, 2010; Njama, 2015). Lack of sufficient funds hinders performance of the monitoring and evaluation systems (Oluoch, 2018). C. Kithinji et al. (2017) indicate that the credibility of information gathered from M&E system that is underfunded would be questioned more so on the quality of that information as crucial data may have been left out.

Financial resources that will be needed to carry out M&E should be planned for and set aside before the project starts being implemented, and not as additional cost (UNDP, 2009). Consistent with this, Chaplowe (2008) indicates that M&E activities and their cost should be

estimated and properly planned to ensure funds needed are sufficiently allocated. This should be done at the project design stage so that funds are allocated specifically to M&E and are available to implement M&E tasks (Chaplowe, 2008). The availability of finances will determine what can be achieved as far as implementation, strengthening and sustainability of monitoring and evaluation system is concerned (Shihemi, 2016).

The availability of budget for M&E that is tied to numerous accomplishes which include money to hire staff, train staff, and acquires M&E resources, reward or work as incentives to those who have achieved the targets of the project and many more (UNDP, 2009). Consistent with this, Sanganyi (2016) argues that human capital, with proper recruitment and scrutiny, training and experience, proper working environment and many more is vital for the production of M&E results. Sanganyi (2016) adds that there is need to have an effective M&E human resource capacity in terms of quantity and quality, hence M&E human resource management is required in order to maintain and retain a stable M&E staff, and this is greatly tied to finances for acquisition. Smith and Chircop (2010) cited in Shihemi (2016) and Musomba, Kerongo, Mutua, and Kilika (2013) say that quality systematic learning carries a cost implication. Financial resources will always be required to compensate people for the time they spend, for the support of systems supporting information, training, transport and so forth. It should also include labour cost, focused labour input, training and study tours for raising the level of knowledge on M&E and non-operational costs like stationery, meetings, allowances for primary stakeholders and project implementers.

Wachaiyu (2016) undertook a study to determine the monitoring and evaluation factors influencing success of development projects in Starehe Sub- County, Kenya. The study employed a descriptive survey research design and targeted 231 respondents and a sample size of 144 respondents. Stratified sampling technique method was used, and primary data was collected using questionnaires. The study revealed that strength of monitoring team, budgetary allocation, M&E plan and selection of tools and techniques played an important role in determining the success of development projects.

In Ethiopia H/Mariam (2007) using a sample size of 354 employees from two organizations from a population of 1305 employees conducted a research project aimed at identifying the gap between expectations and practices of Monitoring and Evaluation system in Ministry of Mines (MoM) and Geological Survey of Ethiopia (GSE). The research established that inadequate financial resources for monitoring and evaluation of projects implemented by the public organizations means that the organizations may not be in a position to bring in external evaluators; they may not be able adequately collect all the necessary data. It may also mean that they may not be able to afford computers and any other technology to serve the monitoring and evolution function. The research also found a critical lack of expertise and common understanding about monitoring and evaluation of projects implemented by the public organizations

RESEARCH METHODOLOGY

Research Design

This study adopted cross-sectional design research approach. In descriptive cross sectional survey, either the entire or part of the population is selected for study where independent or dependent variables are measured at the same point in time using a single questionnaire

(Bhattacherjee, 2018). Cooper and Schindler (2018) posit that, cross-sectional survey research design is one of the most widely used non-experimental research designs across disciplines to collect large amounts of survey data from a representative sample of individuals sampled from the target population. Cross-sectional survey design, helps with hypothesis formulation and testing the analysis of the relationship between variables (Kothari, 2004). Previous researches examining the relationship between monitoring and evaluation and project performance have used the descriptive survey design

Target Population

Population is the entire group of individuals or objects for which the study data are to be used to make inferences; is the researcher's 'universe.' (Kothari, 2004). According to (N. Burns & Grove, 2003) population is all the elements that meet the criteria for inclusion in a study. Cooper and Schindler (2008) observe that a population is the total collection of elements about which one wants to make inferences. It is the entire set of individuals (or objects) having some common characteristics as defined by the sampling criteria established for the study (Ngechu, 2004). The population of this study is all the 1,032 Professional Engineers as well as Civil and Structural Engineers registered by the Engineers Board of Kenya (http://ebk.or.ke/registered-professional-engineers/) as at August 2018.

Sample and Sampling Technique

A sample is a representative of certain known percentage, frequency distributions of elements' characteristics similar to the corresponding distributions within the whole population (Kasomo, 2007).

Sample Size

Kothari (2010) explains that a sample size refers to the number of items to be selected from the universe to constitute a sample while sampling procedures refers to the technique used in selecting the items of the sample. Generally, sample sizes larger than 30 and less than 500 is recommended for statistical data analysis (Churchill & Brown, 2004; Mugenda & Mugenda, 2003). The overall sample size for this study was determined using a formula by Krejcie and Morgan (1970). Using Cohen (1988) statistical power analysis, the sample required to perform a correlation analysis from a population of 500 would be 85 while that which is required to perform a multiple regression analysis would be 116 (Cohen, 1992). From this argument (C. Kithinji et al., 2017) argues that for a population of about 500, the sampling size can range from a minimum of 85 for performing correlation analysis to a maximum of 217 as recommended by Krejcie and Morgan (1970). Kiioh (2015) adopted the Krejcie and Morgan formula in her study aimed at establishing the influence of leadership aspects on performance of Information Technology projects at Fintech Kenya and determined the sample size to be 80 from a population of 100 employees. The sample size for this study is 200 as determined below.

$$\text{Required sample size } \mathbf{(s)} = \frac{X^2NP\,(1-P)}{d^2\,(N-1) + X^2P\,(1-P)}$$

X^2=the table value of chi-square for 1 degree of freedom at the desired confidence level 1.96 x 1.96 = 3.8416.

N = the population size.

P = the Population proportion (assumed to be .50 since this would provide maximum sample size).

d = the degree of accuracy expressed as a proportion (.05).

Table 3. 1: Study Population

Organization	**Number of Projects**	**Number of Resident Engineers**
Kenya National Highways Authority	114	114
Kenya Rural Roads Authority	136	136
Kenya Urban Roads Authority	17	17
Total	**267**	**267**

Sampling Procedure

N. Burns and Grove (2003) contends that sampling is a process of selecting a group of people, events or behavior with which to conduct a study. Sampling is appropriate when it is not feasible to involve the entire population in the study (Cooper & Schindler, 2003). This study employed stratified random sampling. Babbie (2007) posit that stratified random sampling is appropriate when the population is not homogeneous. Stratified sampling is regarded as the most efficient system of sampling as there is little possibility of any essential group of population being completely excluded (Gupta & Gupta, 2009).The basis of stratification was the Roads Authorities. The identified strata are Kenya National Highways, Kenya Rural Roads Authorities and the Kenya Urban Roads Authorities. Random sampling was used to ensure that each element in each stratum had equal probability to be selected for the study.

Data Collection Instrument

Research instruments are the tools that are used for data collection from respondents (Kothari, 2018). The study used primary data collected by way of questionnaires which were made up of close-ended questions that were standardized to enable comparisons of the results from the different respondents. The questionnaire used a Likert scale point slanting scale with fixed responses used to measure respondents' agreement to the questions. It was made up of two parts. Part, one captures the profile of the demographic and respondents while the second part captures information on the dependent and the independent variables. Data, in this case, is the information gathered during the research (Yin, 2013).

By use of the questionnaire, there was high uniformity all through the data collection process since all the respondents responded to a similar type of questions. It also gave time to the

respondents to respond as they were given enough days to return the questionnaires. The answers given were more likely honest due to the element of anonymity that comes with the questionnaire (Kothari, 2018).

Data Collection Procedure

The researcher collected an authorization letter from JKUAT which was used to apply for a research permit from National Commission for Science, Technology and Innovation (NACOSTI). The questionnaires were self-administered to the selected respondents using the drop and pick alter technique. The respondents were allowed two weeks to fill the questionnaire. This allowed the respondents a humble time to fill and return the questionnaires owing to their busy schedule. The researcher also maintained a register of the questionnaires issued and those that were returned to facilitate a high response rate.

Pilot Test

A pilot study is a primary test carried out before the final study to make sure that research tools are working properly (Polit & Beck, 2019). According to Orodho (2019), a pre-test comprises 1 to 10 percent of the target population since it was a good representation of the respondents. The advantage of carrying out a pilot study was that it could offer prior caution with regards to errors in the instrument in an anticipated study (Simon, 2017). The pilot test was carried out with 10% of the target population hence 26 respondents took part in the pilot study. The respondents in the pilot test did not take part in the actual data collection.

Data Processing and Analysis

SPSS version 25.0 was used to code the data collected. Quantitative data collected was analysed using descriptive statistics (means, SD, frequencies and percentages) and displayed using graphs, bar charts and pie charts. Content analysis was used in analyzing qualitative data. Correlation analysis was used in establishing how the variables under investigation relate with each other. A multiple regression analysis was used to assess the relationship between the dependent and the independent variable. The modeled regression equation was of the form:

$$Y= \beta_0+ \beta_1X_1+\beta_2X_2+ \varepsilon$$

Where:

Y= Performance of road Projects

B_0 = Constant Term

X_1= Human capacity

X_2= financial capacity

ε=error term, β_1 and β_2 are coefficients of determination and ε is the error term.

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

Descriptive Statistics Analysis

Human Capacity and Performance of Rural Roads Projects

The first specific objective of the study was to establish the influence of human capacity on the performance of rural roads construction projects in Kenya. The respondents were requested to indicate their level of agreement on various statements relating to human capacity and the performance of rural roads construction projects in Kenya. A 5 point Likert scale was used where

1 symbolized strongly disagree, 2 symbolized disagree, 3 symbolized neutral, 4 symbolized agree and 5 symbolized strongly agree. The results were as presented in Table 4.2.

From the results, the respondents agreed that human capacity influences the performance of rural roads construction projects. This is supported by a mean of 3.868 (std. dv = 0.636). In addition, as shown by a mean of 3.840 (std. dv = 0.972), the respondents agreed that number and skills of human resource influences the performance of rural roads construction projects. Further, the respondents agreed that training and development and education influences performance of rural roads construction projects. This is shown by a mean of 3.812 (std. dv = 1.005). The respondents also agreed that roles and responsibilities of the team members influence performance of rural roads construction projects. This is shown by a mean of 3.810 (std. dv = 0.608). With a mean of 3.773 (std. dv = 0.983), the respondents agreed that there is need for regular training of project team employees to improve project performance.

Table 4. 1: Human Capacity and Performance of Rural Roads Projects

	Mean	**Std. Deviation**
Human capacity influences the performance of rural roads construction projects	3.868	0.636
Number and skills of human resource influences the performance of rural roads construction projects	3.840	0.972
Training and development and education influences performance of rural roads construction projects	3.812	1.005
Roles and responsibilities of the team members influences performance of rural roads construction projects	3.810	0.608
There is need for regular training of project team employees to improve project performance	3.773	0.983
Aggregate	**3.798**	**0.873**

Financial Capacity and the Performance of Rural Roads Projects

The second specific objective of the study was to identify the influence of financial capacity on the performance of rural roads construction projects in Kenya. The respondents were requested to indicate their level of agreement on various statements relating to financial capacity and the performance of rural roads construction projects in Kenya. A 5 point Likert scale was used where 1 symbolized strongly disagree, 2 symbolized disagree, 3 symbolized neutral, 4 symbolized agree and 5 symbolized strongly agree. The results were as presented in Table 4.3.

From the results, the respondents agreed that financial capacity influences the performance of rural roads construction projects. This is supported by a mean of 3.878 (std. dv = 1.064). In addition, as shown by a mean of 3.879 (std. dv = 0.858), the respondents agreed that availability of Funds influences the performance of rural roads construction projects. Further, the respondents agreed that adequacy of funds influences performance of rural roads construction projects. This is shown by a mean of 3.855 (std. dv = 0.902). With a mean of 3.788 (std. dv =

0.910), the respondents agreed that effectiveness of use of available financial resources influences performance of rural roads construction projects. The respondents also agreed that they are satisfied with the utilization of financial resource during project implementation. This is shown by a mean of 3.781 (std. dv = 0.862).

Table 4. 2: Financial Capacity and the Performance of Rural Roads Projects

	Mean	Std. Deviation
Financial capacity influences the performance of rural roads construction projects	3.878	1.064
Availability of Funds influences the performance of rural roads construction projects	3.879	0.858
Adequacy of funds influences performance of rural roads construction projects	3.855	0.902
Effectiveness of use of available financial resources influences performance of rural roads construction projects	3.788	0.910
Am satisfied with the utilization of financial resource during project implementation	3.781	0.862
Aggregate	**3.792**	**0.841**

Inferential Statistics

Inferential statistics such as correlation analysis and regression analysis were used to assess the relationships between the independent variables (human capacity and financial capacity) and the dependent variable (the performance of rural roads construction projects in Kenya).

Correlation Analysis

This research adopted Pearson correlation analysis determine how the dependent variable (the performance of rural roads construction projects in Kenya) relates with the independent variables (human capacity and financial capacity). The findings were as depicted in Table 4.7.

From the results, there was a very strong relationship between human capacity and the performance of rural roads construction projects in Kenya (r = 0.811, p value =0.000). The relationship was significant since the p value 0.000 was less than 0.05 (significant level). The findings are in line with the findings of Cervone (2017) who indicated that there is a very strong relationship between human capacity and project performance.

Moreover, there was a very strong relationship between financial capacity and the performance of rural roads construction projects in Kenya (r = 0.830, p value =0.001). The relationship was significant since the p value 0.001 was less than 0.05 (significant level). The findings are in line with the findings of Wachaiyu (2016) who indicated that there is a very strong relationship between financial capacity and project performance.

Table 4. 4: Correlation Coefficients

		Project Performance	Human Capacity	Financial Capacity
Project Performance	Pearson Correlation	1		
	Sig. (2-tailed)			
	N	267		
Human Capacity	Pearson Correlation	.811**	1	
	Sig. (2-tailed)	.000		
	N	267	267	
Financial Capacity	Pearson Correlation	.830**	.297	1
	Sig. (2-tailed)	.001	.060	
	N	267	267	267

Regression Analysis

Multivariate regression analysis was used to assess the relationship between independent variables (human capacity and financial capacity) and the dependent variable (the performance of rural roads construction projects in Kenya). The model summary was used to explain the variation in the dependent variable that could be explained by the independent variables. The r-squared for the relationship between the independent variables and the dependent variable was 0.851. This implied that 85.1% of the variation in the dependent variable (the performance of rural roads construction projects in Kenya) could be explained by independent variables (human capacity and financial capacity).

Table 4. 5: **Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.923[a]	.851	.853	.10482

The ANOVA was used to determine whether the model was a good fit for the data. F calculated was 48.958 while the F critical was 2.406. The p value was 0.002. Since the F-calculated was greater than the F-critical and the p value 0.002 was less than 0.05, the model was considered as a good fit for the data. Therefore, the model can be used to predict the influence of human capacity, financial capacity, tools and technique and utilization of finding on the performance of rural roads construction projects in Kenya.

Table 4.6: Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	102.028	2	51.014	48.958	.002[b]
	Residual	13.668	264	.0521		
	Total	115.695	266			

a. Dependent Variable: Performance of rural roads construction projects

b. Predictors: (Constant), human capacity and financial capacity

The regression model was as follows:

$$\mathbf{Y = 0.342 + 0.397X_1 + 0.387X_2 + \varepsilon}$$

According to the results, human capacity has a significant effect on the performance of rural roads construction projects in Kenya β_1=0.397, p value= 0.000). The relationship was considered significant since the p value 0.000 was less than the significant level of 0.05. The findings are in line with the findings of Cervone (2017) who indicated that there is a very strong relationship between human capacity and project performance.

The results also revealed that financial capacity has a significant effect on the performance of rural roads construction projects in Kenya, β1=0.387, p value= 0.001). The relationship was considered significant since the p value 0.001 was less than the significant level of 0.05. The findings are in line with the findings of Wachaiyu (2016) who indicated that there is a very strong relationship between financial capacity and project performance.

Table 4. 7: Regression Coefficients

	Unstandardized Coefficients		**Standardized Coefficients**	**t**	**Sig.**
	B	Std. Error	Beta		
(Constant)	0.342	0.089		3.843	0.002
Human Capacity	0.397	0.097	0.398	4.093	0.000
Financial Capacity	0.387	0.097	0.389	3.990	0.001

Conclusions

The study concludes that human capacity has a positive and significant effect on the performance of rural roads construction projects in Kenya. Findings revealed that number and skills of human resource, training and development and education and roles and responsibilities influence the performance of rural roads construction projects in Kenya.

In addition, the study concludes that financial capacity has a positive and significant effect on the performance of rural roads construction projects in Kenya. Findings revealed that availability of Funds, adequacy of Funds and effectiveness of use influence the performance of rural roads construction projects in Kenya.

Recommendations

The study found that human capacity has a positive and significant effect on the performance of rural roads construction projects in Kenya. This study therefore recommends that the road authorities in Kenya should ensure their project teams have adequate training and skills to implement road projects

Further, the study found that financial capacity has a positive and significant effect on the performance of rural roads construction projects in Kenya. This study therefore recommends that the road authorities in Kenya should ensure there is timely allocation of financial resources to facilitate implementation of road projects.

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