



**DETERMINANTS OF SUCCESSFUL COMPLETION OF ROAD MAINTENANCE PROJECTS IN KENYA: A CASE STUDY
OF KENYA NATIONAL HIGHWAYS AUTHORITY**

HENRY GAKURU NGUGI, DR. JOYCE NZULWA, MR. RONALD KWENA

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¹ Henry Gakuru Ngugi, ²Dr. Joyce Nzulwa, ³Mr. Ronald Kwena

¹Jomo Kenyatta University of Agriculture (JKUAT), Kenya

²Jomo Kenyatta University of Agriculture (JKUAT), Kenya

³Jomo Kenyatta University of Agriculture (JKUAT), Kenya

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ABSTRACT

Completion of road maintenance projects in Kenya suffers from many problems and complex issues in performance. There are many realistic reasons such as closures, amendment of drawings and designs and delayed release of funds. In addition, there are other different reasons affecting completion of road maintenance projects in Kenya such as poor management and leadership; poor relations and coordination; absence of motivation, control, monitoring or decision making systems; inadequate infrastructure, political problems; cultural problems and economic conditions. The general objective of this study was therefore to explore determinants of successful completion of road maintenance projects in Kenya. The specific objectives of the study were; environmental factors and capacity of contractors of the road maintenance projects in Kenya. A descriptive research design was adopted. The two independent variables were anchored on relevant theories as per this study. The target population for this study was composed of staff in the 10 regions of coverage of Kenya National Highways Authority and its head office in Kenya, specifically road engineers and road inspectors, since they were involved in one way or the other in decision making on roads maintenance projects. The study used a census of all the respondents. Data was collected with the help of instruments which were both structured and semi-structured questionnaires. The data for this study consisted both primary and secondary. Pilot test were done on the instruments to disclose their reliability and validity before the actual collection of data. The collected data was analyzed with the help of Statistical Package for Social Sciences (SPSS) version 23 and the findings for this study were presented in form of pie charts, graphs, tables and figures. Results implied that successful completion of road maintenance projects in Kenya was collectively influenced by Project Contractor's Capacity and Project Environment.

Key Words: Environmental factors, Capacity of Contractors, Kenya National Highway Authority

INTRODUCTION

Ahmad and Schroeder (2011) stated that project Completion is a key indicator, for the level of performance a company is able to provide correct and in-time deliveries to its customers. It is a quantitative measure to benchmark an organization against when it comes to translate project management and performance. Archer (2006) defines project Completion as "Controlling process that ensures that project objectives are met by monitoring and measuring progress regularly to identify variances from plan so that corrective action can be taken when necessary" and further identifies controlling process to have links with planning and executing process.

Weil (2005) mentions controlling as a three step process i.e. measuring progress, evaluating what remains to be done, and corrective action to achieve or exceed the objectives. While Mitnick (2005) quotes "The performance monitoring subsystem is charged with observing the transformation process and reporting deviations from the expectations to the decision making subsystem so that it can initiate corrective action where necessary", Jackson (2008) mentions "In project management, control is based on a comparison of baseline plans and contracts with actual events, and deciding what to do (i.e. re-planning) when the two do not match" as cited in (Gardiner 2005). Also, Ross, (2008) mentions that the three gorges project cost was perfectly controlled within the approved budget as cited in Shandler (2006).

Minocha (2005) mentions that base line Plans, Cost budgets, Risk Management Plan, Quality Plan and Contract document are the best inputs for monitoring road construction. Again, Lucia and Lepsinger (2009) mentions that change requests shall form the main ingredient to changes to planned documents. In view of this, monitoring is starting stage of 'Project controls' and involves report generation. Lewis (2008) mentions that

efficient monitoring and control systems will enable project participants to receive relevant and accurate information in a consistent and timely manner.

Marasini and Dawood (2006) mentions that a typical report includes executive summary, bar chart, variations to time, cost and scope including risks. However, the quality of information is important. Jackson (2008) mentions that the work sites are busy and do not provide monitoring personal with much needed information. So, getting complete and accurate data from field is very important and is also a weak link in the project control process. Lewis (2008) also mentions that monitoring report should focus on project targets, vulnerable work sections, productivity growth/decline, projected completion date, budget and outcome.

Lucia and Lepsinger (2009) mentions that a typical project reporting should be produced at regular intervals to project manager and other senior management and client, and further mentions that reports should be made in a way which can be understood by non-specialists. However, it is necessary to know how much quality information is being produced by the project controllers and how much time is being spent on data collection and what kinds of skills are required for such activity.

Again, as per Kenny (2007), 'Monitoring' includes planning parameters, risks, stakeholder involvement, milestone reviews, commitments, data management, progress reviews and 'Managing' includes analyze and take action. Janes (2010) mentions that informal project control mechanisms exist when the projects are small and the team members are highly motivated and decisions regarding formal control system are based on the risks involved and cost of control system. He further mentioned that in construction projects, the complexities are large and require dedicated control system.

Karim and Marosszeky (2009) mention that the projects are dynamic and carried out in changing environments needing monitoring and control actions. Though Jackson (2010) elaborated the details of controls in various knowledge areas, there is always a need to understand the key success factors, which when implemented effectively will enhance the control procedures in any organization. Lam et al. (2007) researched on 'critical success factors' across 63 publications and identified more than twenty factors which can influence project success.

Also, the frame work by Sambasivan and Soon (2007) broadly classified success factors as project efficiency, impact on customer, business success and preparing for the future. However achieving all the set criteria in any given project is difficult. There are also some criticisms on the concepts of success factors. Vandevorde and Vanhoucke (2006) mentions that there is no agreed understanding of the success concept. Also, Jugdev and Muller (2005) mention that "project success is a complex and ambiguous concept and it changes over the project and product life cycle".

A successful project should be measured in terms of cost, health and safety, quality and schedule performance (Hinze, 2007). It is unacceptable to have a project completed on time and within budget but with a fatality record. Levitte and Samelson(1993) reinforced Hinze's (2007) contention with: "Quality includes health, safety and productivity." Rodrigue and Jaselskis (1996) concluded that from their research with construction projects in the USA, it was found that "... projects that were consistently behind schedule and over budget experienced a greater occurrence of recordable accidents". There are also numerous advantages of investing in health and safety. Tang et. al. (2007) maintained that investing in health and safety will result in an increase in health and safety performance. Bencil (1992) cited the findings by Du Pont Safety Services which concluded that

construction firms that make health and safety a priority can reduce lost workday due to accidents by an average of 37% in the first year, and 10-20% each subsequent year.

The implementation of road maintenance projects in Lesotho and the achievement of development outcomes have been mostly affected by factors that led to cost overrun prior to or at the beginning of the preliminary works. Those issues entailed additional financing by the Government of Lesotho and significant time delays. To aggravate that situation, the implementation schedule was very optimistic which in turn led to excessive prolongation or time extension during the actual implementation of works. In one particular case, the implementation period increased from 12 to 21 months (Tan, 2005).

In Kenya, despite efforts by the government to improve road projects delivery, success has been hampered by endemic delays in project completion. The Kenyan economy has been on a growth path since the year 2002 when a new government came into place. The economy recorded a GDP growth rate of 4.6 % in 2012 and 4.4 % in 2011. The Economic Survey of 2013 also paints a rosy picture for the economy. On average, all sectors of the economy have recorded growth but this has been particularly visible in the construction sector. Construction of roads and housing has been witnessed in all corners of the country.

The construction sector has shown average GDP growth rate of over 10% in this period. For instance, in 2012, cement consumption grew by 1.7% while loans from commercial banks to the construction sector grew by 4%. This growth has been taking place despite chronic delays in project completion. If projects achieved their schedules during this time, then the economic growth would have been higher because impact on the economy from the

completed projects would have come earlier with attendant multiplier effect.

Statement of the Problem

In Kenya, road Construction projects are facing challenges of delayed completion or non-completion. Many construction projects fail due to factors like time in efficiency, lack of adequate funds and lack of advanced working equipment. Kenya Urban Road Authority, (2013) reported there were many projects which were not completed due to obstacles by client, non-availability of materials, poor infrastructure, lack of funds and lack of project managers competency.

The Thika Super Highway also known as Thika Highway Improvement Project (THIP) was funded by loans from the African Development Bank and the Chinese government. The project officially broke ground in December 2009 following the signing of an agreement between the Government of Kenya and three Chinese construction firms. It was originally expected to be completed in July 27, 2011 but was actually completed in November 2012 (UoN, 2013). However, Nyandika and Ngugi (2014) stated the initial deadline of the Thika Super Highway project was July 2011, which was later revised to July 2013.

The Kenyan public sector projects are identified, planned, and implemented by the government ministries or their implementing agencies in state corporations. The aims of these projects are to improve the country's infrastructure like transportation, health, communication networks, housing, energy, and water. Hence, expeditious implementation to realize the desired benefits to their end users is important. However, it is a well-known fact that time and cost overruns are widely prevalent in the public sector projects (Mwandali 1996, Talukhaba 1988, Karimi 1998, and Musa 1999).

Their findings showed that, poor communication, lack of experience by project manager, procurement delays, lack of planning, poor infrastructure, inadequate resources, lack of motivation, tendering methods, variations, project environment and poor project definition as being some of the major contributors to time and cost overruns. Kenya National Bureau of statistics (KNBS; 2012) records that the construction industry contributed 3.8%, 4.1 %, 4.3% and 4.1 % towards Gross Domestic Product (GDP) for the years 2008, 2009, 2010 and 2011 respectively. According to Hillebrandt (2000), this is an average of 4.1 % as compared to 10% for the developed economies.

According to Central Bank of Kenya's *Economic Survey (2015)*, the total number of paved roads reached 13,000 km in 2014, up from 11,230 km in 2013. This is a result of the government increasing access to rural areas as a part of its annuity plan, under which at least 10,000 km of roads are to be paved by 2018. Both the central and county governments have invested heavily in upgrading the roads in the last five years. In the 2014-15 financial year, the central government allocated US\$2.2bn on roads, almost twice the previous year's allocation.

Although the Government of Kenya continues to prioritize and to finance road maintenance projects as well as providing training to both the contractors' staff and public sector on technical, managerial skills, successful completion of the projects remains a challenge. Many projects are known to experience time overrun, cost overrun and poor performance. Despite numerous studies done on the performance of road maintenance projects, it is apparent that there still remains a gap which is the reason for the need to carry out this study.

Objectives of the study

The general objective of this study was to explore the determinants of successful completion of road maintenance projects in Kenya. The specific objectives were:

- To determine how Project contractor's capacity affects successful completion of road maintenance projects in Kenya.
- To establish the effect of Project environment on successful completion of road maintenance projects in Kenya.

LITERATURE REVIEW

Theoretical Review

Absorptive Capacity Theory

The Absorptive capacity (AC) (Cohen & Levinthal, 1990; Zahra & George, 2002) is an intriguing idea because it potentially bridges between the fields of dynamic capability (Teece, Pisano & Schuen, 2007; Eisenhardt & Martin, 2002; Zollo & Winter, 2002) and organizational learning (Fiol & Lyles, 1984; Easterby-Smith, 2007; Akgun, Lynn & Byrne, 2003). On one hand it draws attention to the need to appreciate and acquire knowledge from the external environment, especially from acquisitions and other interorganizational relations; on the other it focuses on learning from past experience and current actions, and the internal processes for translating this into useful action.

Some authors have used AC concept as the determinant of knowledge transfer and organisational performance. The underlying assumption in these contributions is that AC leads learning and therefore affects performance. Szulanski (1996) posits that the AC of the recipient business unit positively affects the transfer of best practices. Meeus et al. (2001) analyse the relationship between AC of the focal organisation and interactive learning with suppliers and customers. They use R&D intensity, percentage of higher educated employees and budget deficit in firms as the proxies for AC. However, their findings reveal that AC is a poor predictor of interactive learning. Tsai (2001) uses R&D intensity as a proxy

for AC and suggests that the relationship between the network position of a business unit and its performance is mediated by its AC.

Although conceptualizing AC in the form of dynamic capabilities resolves the problems associated with the extrapolation from individual cognition to organisations through introducing the organizational processes and routines to absorb knowledge, it maintains its approach to knowledge as a possession to be absorbed and processed by a set of capabilities. By making knowledge discernible from its immediate context, in dynamic capabilities view, AC consists of a bundle of routines aimed at absorption of knowledge. For example, routines to search (Lewin et al., 2011), routines to analyse market information (Jansen et al., 2005), or processes to analyse new knowledge (Zahra and George, 2002) routines to store and disseminate knowledge or combining existing knowledge with new knowledge (Lichtenthaler, 2009, Jansen et al., 2005) are among the most cited constituents of AC. This theory therefore is in line with project contractor's capacity objective.

Change Agency Theory

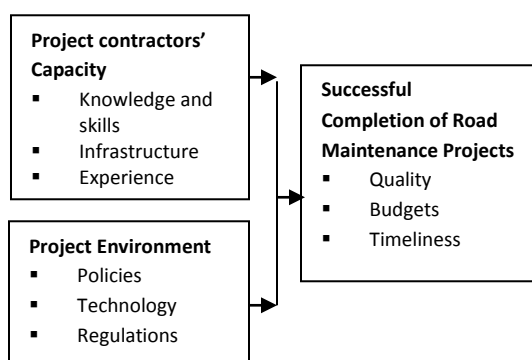
Change agency theory has been found to be of particular relevance to understanding innovation associated with financial, managerial, informational and technological constraints which tend to restrict innovativeness and entrepreneurship (Mole, 2002) whose agents can either be internal or external. Internally the owner of institutes and other sectors forces can act as champions, advocates and leaders of change (McElroy, 2010). According to Ross (2008), technology simplifies and reduces task needing manual skill and strengths especially in factories and either forms of production property applied can increase productivity.

The use of re-programmable robots for such tasks as welding, spraying, material handling and other

activities helps to eliminate repetitive work. Robots and computer aided manufacturing (CAM) enhances reducing of project costs, improvement of quality and consistency of finished products. The unused technology requirements enhance problem solving skills and the ability to interpret, and is thus likely to lead to widening gap between skilled and non-skilled workers (Leslie, 2005). According to Johnson, Kast and Rosenzweig (2012), creating an effective technology infrastructure is vital. This theory therefore is in line with Project Contractors capacity.

An effective technology infrastructure is vital to all institutions. Infrastructure directly affects the quality of service experienced by international and external users of the system in terms of speed and responsiveness to their requests for information. The selection of the software components of information is systematic. In this chapter we turn our effect to the hardware and men work components. Understanding the jargon of technology involved in the selection of information and communication technology is major challenge for non-literature office staff and business managers (DiMaggio, 2008). This theory therefore is in line with Project environment.

Conceptual Framework



Independent variables Dependent variable
Fig. 1: Conceptual Framework

Project Contractor’s Capacity

Modern road systems probably cannot be built and maintained completely by individuals, but collaborations with other individuals for example typically in the form of development companies which enables the building of most of the length of the road network typically requiring government approval and subject to regulation, but following the developer’s plans and using the developer’s capital, and local governments build more road networks than higher levels of government. Many of the more important roads have long histories, and had incipient forms that were the creation of individuals acting along or together. As Powers indicated, “our public roads are an evolution from the primary paths made by animals and by men. Of the identity of the first beings who made paths in the wilderness we are uncertain (McElroy, 2010).

Whatever their character and origin, we may be reasonably certain that they had roads of some sort." The emergence of the “roads of some sort”, without a centralized plan, must involve numerous spontaneous interactions. From individuals’ spontaneous interactions in a community, the order of road networks can evolve Xie& Levinson (2009a), that is, road networks can self-organize. What properties do these networks display? What theory underlies the mechanism? On the basis of a microeconomic model of road network growth, we develop here a positive theory of network connectivity for road networks in a decentralized context. The intent is to illustrate the feasibility of self-organization to provide insights into the dynamics of road network growth such as capture the evolution of the system rather than just its end state, and to suggest implications for planning practice. This is a critical point in that the door of alternative regulations and planning may be opened after the principles of the “invisible hand” of the market are understood (Zhang et al., 2010).

Project Environment

Roads, the environment, and the need for environmental assessment are key to maintenance of modern roads. There is a growing awareness that road development has major environmental impacts. Some of the major environmental impacts of road projects include damage to sensitive ecosystems, loss of productive agricultural lands, resettlement of large numbers of people, permanent disruption of local economic activities, demographic change, accelerated urbanization, and introduction of disease. Since environmental impacts from road development are quite common, such projects usually call for comprehensive environmental assessment studies, carried out by professionals such as specialists and generalists who support the main engineering team (Huang and Levinson, 2011).

Substantial time and effort is often required to identify potential impacts and options for minimizing them, to consult with various groups who have an interest in the project, and to develop and implement mitigation plans. In addition, contract clauses covering work procedures and staff's training need to be prepared, and work processes in relation to roadside communities, flora, and fauna given considerable attention. In order to conduct EAs successfully, road agency staff need to understand the assessment process and must coordinate it with road planning, design, and construction activities, allowing sufficient lead time and funds for the necessary additional steps. It is essential that road agency staff be able to recognize potential environmental concerns; know when to call in specialist experts; know how to specify and manage their work; and know how to implement mitigation plans and environmental contract clauses (Jacobson and Forsyth, 2008).

The project-specific environmental assessment (EA) is the most common form of EA, and there is considerable experience with its execution. Ideally,

EAs should focus on identifying potential impacts on the local and immediate environment within the context of a region or sector. However, they are nearly always carried out in isolation, with little regard for what is happening beyond the project site and without considering existing future plans for the region. Clearly, there is room for improvement in this area.

As part of the project scoping exercise, measures such as assessing the cumulative impact of multiple activities, and reviewing existing and planned developments in the region, are both desirable and necessary. Project-specific EA allows road agencies to familiarize themselves with the environmental status of the proposed site and anticipate any environmental impacts that may arise from the road project; highlight likely design problems, thus permitting the agency to make early changes and avoid costly delays at a later stage; and integrate the project into existing environment (Mwasha, 2012).

Completion of Road Maintenance Projects

Work on providing construction services in Nairobi has made considerable progress since the ministry of transport assumed responsibility for them, but the construction companies have had to build from a low base, including a huge backlog of rehabilitation and development work, few institutions, and very little funding. So, they have had to work in every difficult physical, social, political, economic and institutional circumstance. For a number of reasons, the performance of construction projects has not been as impressive, fundamentally because of the government failure to establish a coherent institutional and policy framework (World Bank, 2008).

Performance is related to many topics and factors such as time, cost, quality, client satisfaction; productivity and safety. Construction industry in the Kenya suffers from many problems and complex issues in performance. For example, construction of

10 dwelling units at Nairobi Area suffered from poor performance because of delay for about 3 months. There are many realistic reasons such as closures, amendment of drawings and amendment of the design and delayed funds release.

In addition, there are other different reasons affecting construction projects performance in the Kenya such as poor management and leadership; inappropriate participants; poor relations and coordination; absence of motivation, control, monitor or decision making systems; inadequate infrastructure, political problems; cultural problems and economic conditions (Strenman, 2012). While individual organizations have been measuring their performance for many years, there has been little consistency in the data, and the way it has been published.

The performance can be measured by key indicators for evaluation (Wang and Huang 2006). The purpose of Key performance indicators (KPIs) is that clients want their projects delivered: on time, on budget, free from defects, efficiently, right first time, safely, by profitable companies. So, Regular clients expect continuous improvement from their construction team to achieve year-on-year: reductions in project costs and time. In addition, the Key Performance Indicators (KPIs) can be used for benchmarking purposes, and will be a key component of any organization move towards achieving best practice. Clients, for instance, assess the suitability of potential suppliers or contractors for a project, by asking them to provide information about how they response to a range of factors.

Some information will also be available through the industry's benchmarking initiatives, so clients observe how potential suppliers compare with the rest of industry in a number of different areas (Weil, 2005). Construction supply chain companies will be able to benchmark their performance to enable them to identify strengths and weaknesses, and assess their ability to improve over time. The KPIs framework consists of seven main groups: time,

cost, quality, client satisfaction, client changes, business Performance, health and safety (Vandevoorde and Vanhoucke, 2006). In Kenya, there are many construction projects fail in performance. In addition, performance measurement systems are not effective or efficient to overcome this problem. Construction projects performance problem appears in many aspects in the Kenya (Weil, 2005).

There are many constructed projects fail in time performance, others fail in cost performance and others fail in other performance factors. In 2009 there were many projects which finished with poor performance because of many evidential reasons such as: obstacles by client, non-availability of materials, road closure, amendment of the design and drawing, additional works, waiting the decision, handing over, variation order, amendments in Bill of Quantity (B.O.Q) and delay of receiving drawings (Strenman, 2012). There are other factors for problems of performance in Kenya such as project management, coordination between participants, monitoring, and feedback and leadership skills. In addition, political, economic and cultural issues are three important indicators related to failures of projects' performance in the Kenya.

Empirical Review

Project Contractors' Capacity

A study by Sidwell's(2012) demonstrates that sophisticated clients (those having built projects before) and specialized clients (repeated similar buildings) have a better chance of success with their projects than novices. More than 15 years ago Ferry (1978) observed that "the uninformed client has an unrealistic idea of what he is letting himself in for". The NEDO (2008) report's research findings has more recently demonstrated the key influence of the client on the outcome of building projects which is mirrored by the client's skill in: 'clearly expressing

project objectives in terms of building requirements, cost and time budgets; defining the procurement strategy and the input that the client can make to the project; bringing together a possibly unique - configuration of specialist to work as a team; and determining the level of service expected from each member of the project team.

Sidwell (2012) study also observed that public clients (who may well, as an organisation, have much experience of commissioning buildings and also have commissioned many similar buildings) can experience higher cost and time blow-outs as compared with privately funded clients. He explains this in part by drawing attention to bureaucratic procedures that publicly funded and some privately funded clients are subject to. Client organizations may be highly experienced, but individuals acting in the role of project sponsor/client may be inexperienced or overloaded with work. Sidwell (1982) remains convinced that clients should participate actively and supportively throughout the project life cycle to facilitate project success.

Project Environment

A study by Al-Momani (2010) states that environmental assessment which normally yields an environmental impact statement consists of a rigorous study that involves a thorough documentation of existing conditions, an identification of impacts, and a comparative examination of impacts arising from the road project alternatives. A growing number of development planners and managers now recognize that EA is an excellent preventive planning tool, provided that it is implemented early in the project development sequence.

In another study by Xie and Levinson (2007) the primary concerns were the loss of land and relocation issues. However, as the project road essentially was confined to the existing road alignments, with only minor realignments and improvements to the horizontal and vertical curves to achieve the desired geometric criteria and to

meet road safety requirements, the physical disruption in human settlements and natural environment was minimal. The road construction activities were implemented with minimum property relocation and compensation issues.

GOL had engaged a Property Consultant to value the extent of damage and recommended the amount of compensation to be paid before commencement of works. This avoided further project implementation issues. A budget of UA 10,000 was allotted as compensation for houses and properties loss due to the project. The affected properties ranged from small to large quantities of loss of land for agriculture, residential and commercial purposes; and demolition of buildings located in the road reserve.

Completion of Road Maintenance Project

In a study by Lyer(2006).Regular and sufficient funds allocation for road maintenance is a necessary condition to ensure project sustainability. This allocation must be based on a sound road maintenance planning program. Although the government has expressed willingness to strengthen its maintenance regime, the lack of funds continues to be a dissuading factor. In the case of the project, the risk of inappropriate maintenance can become a constraining factor in the medium to long term. Currently routine activities are being postponed on the project road, as drainage is blocked in some cases and periodic maintenance will be needed in the near future on the project road.

Adequate institutional capacity and expertise of the Road Department on planning and executing road maintenance works is another necessary condition to ensure project sustainability in particular and the national road network in general. Enforcement of safety measures and preservation of existing safety equipment's on the road are key to ensure road users safety. Traffic Sign Vandalism can hamper

road safety. In some instances, the traffic signs are stolen from the road and then used in building dwellings or the poles of guardrails are used for firewood (Lyer, 2006).

METHODOLOGY

This study adopted a mixed research design approach of exploratory, descriptive and quantitative designs. The design refers to a set of methods and procedures that describe variables and involves gathering data that describe events and then organizes, tabulates, depicts, and describes the data. The targeted population for this study was 80 project engineers and inspectors from 10 regional offices who were currently working at Kenya National Highways Authority and its head office in Kenya. A census study was carried out to all 10 regional areas in Kenya. This census technically picked four key people who were always involved in decision making in regards to road maintenance projects in Kenya. They comprised the following; chief engineer, chief accountant, senior technician and senior procurement officer respectively. According to Kothari (2011), a population of less than two hundred should utilize a census. The main instrument that was used to collect primary data for this research was both structured and semi-structured questionnaires. This study carried out a pre-test to the instruments to disclose their reliability and construct validity. The test was done using questionnaires to a sample of the targeted population. Data that was checked for correct entries, coded and entered into the computer through Statistical Package for Social Science (SPSS) version 21 (Kothari, 2011).

DATA ANALYSIS, RESULTS AND DISCUSSION

A total number of 80 questionnaires were administered to the sample selected. The findings showed that 74 questionnaires were collected back.

The response of 92.5% facilitated towards gathering sufficient data that was generalized to reflect the opinions of respondents.

The study sought to establish the age of the respondents in order to determine if the age corresponded with Successful completion of road maintenance projects in Kenya. Majority (57.6%) of the respondents who were in the age category of 25-35 years, 26.9% both were in the age category of 36 and above years 15.38 were in the age category of below 25 years.

The study sought to establish the education level held by the respondents in order to ascertain if they were equipped with relevant knowledge and skills to understand the study. From the study findings, majority (64%) of the respondents were post graduate students followed by 21% Graduate education level and 15% who were diploma education level.

The study sought to establish the length of service the respondents worked in order to establish the familiarity with the sector. 38.89% had worked less than five years, 25.5% had worked between 5 to 10 years, 11.11% had worked 11 years and 15 years, 6.35% had worked 16 years and 20 years, 7.94% had worked between 21 years and 25 years and 10.32% are not employed.

Project Contractor's Capacity

The study sought to investigate the influence of Project Contractor's Capacity on Successful completion of road maintenance projects in Kenya. From the results in Table 1 below, 14.6 %strongly agree that Project Contractor's Capacity affected successful completion of road maintenance projects in Kenya, 32.2% agreed while 21.5% disagree and 4.6% strongly disagree. These findings were in line with Ryder (2016) that Project Contractor's Capacity affected successful completion of road maintenance projects in Kenya.

Table 1: Project Contractors capacity

	Frequency	Percent
SD	6	4.6
D	28	21.5
N	30	23.1
A	42	32.3
SA	19	14.6
Total	130	100.0

Project Environment

The study sought to investigate the influence of Project Environment on Successful completion of road projects. The results in table 2 below, 8.1 %strongly agree that Project Environment affects Successful completion of road maintenance projects

in Kenya, 25% agree while 25.8% disagree and 13.7% strongly disagree.

These findings tally with AGC (2011) that Project Environment is a critical aspect of Successful completion of road maintenance projects in Kenya.

Table 2: Project Environment

	Frequency	Percent
SD	17	13.7
D	32	25.8
N	34	27.4
A	31	25.0
SA	10	8.1
Total	130	100.0

Successful completion of road maintenance projects in Kenya

The study sought to get from the respondents the status on Successful completion of road maintenance projects in Kenya. The findings indicate that 52.9% strongly agreed that Successful completion of road maintenance projects in Kenya

was a major issue in Kenya. 35.5% agreed, 5.8% disagreed and 5.0% strongly disagreed. These findings were supported by ROK (2014) that Successful completion of road maintenance projects in Kenya was an issue that needed to be addressed with urgency.

Table 3: Successful completion of road maintenance projects in Kenya

	Frequency	Percent
SD	1	.8
D	6	5.0
N	7	5.8
A	43	35.5
SA	64	52.9
Total	130	100.0

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

The study established that Project Contractors capacity and Project Environment affected Successful completion of road maintenance projects in Kenya in Kenya. Rather, they require sustained and concerted action – by several actors over an array of policy areas.

The Kenya National Highways Authority (KeNHA) had developed the National Action Plan on Successful completion of road maintenance projects in Kenya (NAP). The NAP is an operational document – a methodology to steer country action on Successful completion of road maintenance projects in Kenya on the basis of a common agreement reached by all interested parties. All priority programmes were alignment to Kenya vision 2030 flagship projects and programmes. Basically the development plan is currently being implemented in a systematic manner under overall national macro policy framework of the sector Medium Term Plans (MTPs) for the spans of five year planning period. Within the macro context, empowerment is critical for the nation both in the short and long run.

Conclusion

From the finding, the study concludes that Successful completion of road maintenance projects in Kenya was affected by Project Contractors capacity and Project Environment. Project Contractors capacity was a major factor in Successful completion of road maintenance projects in Kenya and that policy priorities for tackling Successful completion of road maintenance projects

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in Kenya is essential. These policy priorities were not presented in any order of precedence.

An integrated approach (e.g. national action plans on Successful completion of road maintenance projects in Kenya), where not just the Ministry of transport, but also other key Ministries, addressed the issue of Successful completion of road maintenance projects in Kenya, could be helpful in this regard.

There need to prioritize the development of an Integrated system that the country meets the ever-increasing demands for Successful and accurate completion of road projects.

Recommendations

The study established that Project Contractors capacity and Project Environment successful completion of road maintenance projects in Kenya, therefore they needed to be checked in a more appropriate manner. Road maintenance programs should comply with nationally recognized quality assurance Project Designs to ensure successful completion.

Suggestions for Further Research

The results of this study can be further utilized to suggest several directions for future research. Finally, more research on this area is needed because this study has investigated a subset of the variables found to be important determinants. Other variables that may affect private label projects need be investigated. Further research can examine these possibilities and the extent of their influence.

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