

**EFFECTS OF TENDERING PROCEDURES ON QUALITY OF
RURAL ACCESS ROADS IN ELGEYO MARAKWET COUNTY,
KENYA**

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STUDIES IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD
OF A DEGREE OF MASTER OF ARTS IN PROJECT PLANNING AND
MANAGEMENT.**

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DECLARATION

This project is my original work and has not been submitted for a degree or any other award in any university.

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DEDICATION

This project is dedicated to my parents, Mr. and Mrs. John kiptum Barmao for support and patience during the entire preparation period.

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ABSTRACT

Effective tendering procedures enables management to deal with rapidly changing economic and competitive environments, shifting customer demands and priorities, and restructuring for future in many government. Thus, the main aim of the study was to determine the effects of tendering procedures on quality of rural access roads in Elgeyo Marakwet County. The study was to establish the effects of tender application procedures on quality of rural roads, effect of tender advertisement procedures on quality of rural access roads, the influence of tender evaluation procedures on quality of rural roads, the contribution on qualification requirements on quality of rural access roads. This study was guided by tendering Theory. Explanatory research design was used in the undertaking of this research. The study targeted 13 Construction Companies in Elgeyo Marakwet County. A census of all the 13 Construction Companies were surveyed. The unit of analysis was engineers, supervisors, technician and manual laborers was investigated giving a total of 138 respondents. Data for the study was collected using a semi-structured questionnaire. Multiple regressions were used to determine the effect of tendering procedures on quality of rural roads. The findings showed that quality of tender document enhances quality of roads, similarly, qualification requirement was also shown to positively affect the quality of roads. However, more time spent in tendering process reduces quality of rural roads. Nevertheless, adoption of technology in tendering had no effect on quality of rural roads. Study encourage download of tender document from the internet and submits tender document online. Firms should take advantage of M-pesa and e-banking and m-banking in tendering process. Qualification of employee is highly considered in tender process, qualification should also put into consideration the quality of materials is observed.

LIST OF ACRONYMS

KERRA – Kenya rural roads authority

RICS – Royal institute of chartered surveyors

LCPN- liaison committee practice notes

CCPI - Co-coordinating Committee for Project Information

CITE – Canadian institute of transportation engineers

WTR – World trade report

PQS - Private Practice Quantity Surveyor

CHAPTER ONE

1.0 Introduction

This chapter presents of the background of the study, statement of the problem, objectives of the study, research hypotheses. This is followed by significance of the study, scope of the study, limitations of the study, delimitations of the study, assumptions and operational definitions of terms.

1.1 Background of the Study

A country's social-economic development is dependent on quality of Roads. Ideally, a good road network has an important bearing on the economic growth of the country. Rural connectivity is perceived as one of the major component in increasing the agricultural output and earning capacity of the rural population. However, most of the rural roads are poorly constructed particularly in emerging economies (World Bank, 2009). This is attributed by tender application procedures, tender advertisement procedures, tender evaluation procedures, qualification requirements and qualification requirement. Roads with low quality are inaccessible thus providing poor governance and provision of facilities like post offices, access to police in case of emergencies and other communication system like telephones (National Rural Roads Development Agency,2007). According Mcgorwn (2001), inefficiencies in tendering process would result in irregularities in the construction of roads resulting to poor quality roads.

In ideal circumstance tender documents used in application procedures are supposed to be of high quality so as to reflect international procurement standards. However, According to Hauge (2011) in Norway one of the main barriers for tendering was low quality of tender documents where tendering process was made competitive to increase the marginal subsidies and

ensure low supply of quality ferry transport. Domberger and Jensen (1997), report on the findings of the Japan Industry Commission's study in which it was found that quality tender documents leads to quality roads improvements. This was mainly for three reasons, one is because it provides much clear focus on what is required in the service, secondly, it presents an opportunity to choose among alternative providers, and last, it encourages the buying entity to lower performance monitoring. In South Africa the low quality tender document can be identified as one of the inhibitor in the construction process and competitive tendering (Winch, 2010)

In tendering advertisement procedure time spent in tendering process is a major component that determines, speed, and efficiency in tender advertisement, thus it is vital to minimize time of tendering process. However, the rigid systems of tendering and contracting for any procurement items in Japan have hardly changed since decades ago. They are inflexible systems where the regulations of the Public Accounting Law and the Budget, Settlement of Accounts and Accounts Regulations are applied obdurately for all cases. Also, the Public Accounting Law permits no contracting method other than open tendering, selective tendering and free contract. In Zimbabwe time spent in tender advertisement has been observed to be higher than any other country in Africa creating inflexibility is within the orderer's discretion in practice, the legal system does not allow flexible application of the tendering and contracting systems in order to accommodate the characteristics of varying procurement items (Ohno, 2004). More time in tender advertisement increases the chances of corrupt procurement officers who are likely to give the tender to under qualified constructions company, a vice which leads to low quality roads (ibid, 2004).

ETendering has been adopted in evaluation of tenders to improve tendering process, in ideal situations, most government procurement department need to adopt modern technologies to improve tendering performance. However, According to Smith *et al* (2008), most countries in North America like Brazil have low level of in their evaluation procedures in their tendering procedures in the beginning of a project and reach its highest level during the tendering process where the project uncertainty is at its peak. When the production starts, risks are either actualised or expired and the level of risk will decrease as the project progresses. As a result, risk management becomes most vital in the tendering process. Such a study carried out with the Northern Ireland Department of Environment found that a saving of 95% on time was accrued due to the tender being sent to the contractor in an electronic form. This 95% saving was generated by elimination of the possibility of 50 pages of the tender not having to be scanned, printed and verified, an exercise which could have taken upwards of three hours. Instead, the documents were received in an electronic format leading to a download time of just three minutes to the surveyor's computer (Building Centre Trust, 2000). In addition, tendering processes is in the first stage (Vee, and Skitmore, 2003). Technology used in tendering processes in India construction industry is fragmented and different with the other domain of tendering practices (Kong, and Gray, 2001). Managing tender evaluation procedures, involves coordination of many tasks and individuals thereby use of technology, improves quality services delivery to the public.

Qualification procedure in tendering is highly regarded as the most important aspect of quality enhancement in construction industry. Nevertheless, According to Gildenhuis (2002), In Columbia calling for tenders for the supply of goods and services is corrupt without proper qualification procedures. Legislation compels governments to look into qualification of the

tenderers before buying any goods or services. For any national department to deliver services to people successfully nowadays requires it to manage tendering and become involved in the way its suppliers do business. A successful department is often seen as symbol of a country's economic success. In Pakistan the introduction of qualification requirement in tendering into the solicitation and / or evaluation of tender procedures provide a viable means of managing the risk of non-conformance and the failure to attain project outcomes, without violating the principles of fairness, transparency and value for money, particularly in respect of professional service contracts. This approach has in the past been widely used in South Africa prior to the commencement of the reform process in the form of awarding preferences to tenderers who offered goods with the SABS mark (CIDB, 2006). Thus, these simple changes in the process were implemented in case studies by the Building Centre Trust (2000). Cost estimation is the phase of the tendering process where the contractor specifies a price on their commitment to the client. Kim et al. (2008) say that the cost estimate has to be low enough to win a project but high enough to get the required rate of return. Therefore the estimate is a consideration of the two extremes and it has become crucial to the existence of the company. A major part of the cost estimation is performed in the tendering process where risks are assessed and added to the tender price

In her study in Kenya, Nyangara (2012) found that there was practice of favoritism, poor timing and poor procedure design in the tendering process in public sector. The lack of a strong procurement profession and inadequate training of staff has led to failure to employ good practices in procurement, creating inefficiencies and high costs in the tendering process in the county. She recommended that authority involved in road construction like Kenya Rural roads authority (KERRA) should ensure tendering is done in way it will improve effectiveness and

efficiency in tendering process, the Government should also improve Staff remuneration more particular those involved in tendering process since they handle large sums of tenders to avoid being corrupt, the authorities should ensure that procurement policies and regulations are adhered to, should train all the procurement staff in order to provide them with skills and knowledge of procurement process. However, there is still ineffectiveness in the tendering process in Kenya (KNBS, 2009).

1.2 Statement of the Problem

Rural access roads act as a facilitator to promote and sustain agricultural growth, improve basic health, provide access to schools and economic opportunities and thus holds the key to accelerated poverty reduction, achievements of Millennium Development Goals (MDG), socio-economic transformation, national integration and breaking the isolation of village communities and holistic and inclusive rural development (Building Economic Development Council 1987). It is a public knowledge and by government's own admission that the current system is outdated and is faced with lots of challenges such as corruption, conflict of interest, lack of uniformity, theft, inflate prices, inadequate process and lack of proper monitoring. In addition, Visser and Erasmus (2007) states that government, as the largest buyer in the country, is responsible for ensuring that the tender system supports and attains overall economic objectives.

The tender system in Kenya's national government must be fair, equitable, transparent, competitive and cost effective. Because of the adoption of the tender system in Kenya by national government, this study aimed to address and explore the how tendering procedures affect quality of roads

1.3 Purpose of the Study

The main purpose of the study was to determine the effects of tendering procedures on quality of rural access roads in Elgeyo Marakwet County.

1.4 Research Objectives

In order to attain the main objective the following specific objectives were formulated

1. To establish the effects of tender application procedures on quality of rural roads
2. To determine the effect of tender advertisement procedures on quality of rural access roads
3. To determine the influence of tender evaluation procedures used on quality of rural roads
4. To examine the contribution qualification requirements procedures on quality of rural access roads

1.5 Research Hypothesis

Based on the study objectives the following research questions were formulated:

H₀₁: Tender application procedures has no significant effects of on quality of rural roads

H₀₂: Tender advertisement procedures has no significant effects of on quality of rural roads

H₀₃: Tender evaluation procedures has no significant effects of on quality of rural roads

H₀₄: Qualification requirement has no significant effects of on quality of rural roads

1.6 Significance of the Study

The study aimed at demonstrating the importance of tendering process as a means of gaining competitive edge in the public sector. The study is of great help to the purchasing managers in understanding the impact of tender process on quality roads and the overall success of the public sector firm (Krause et al 2000)

The study would go a long way in providing up-to-date information relating to the significance of effectiveness of tender process in provision of quality roads for mutual benefits.

Finally, the findings of this study helps bridge the existing gap between the tendering processes and provision of quality roads and provide direction for further research on the same topical area in the future

1.7 Basic Assumptions

The study assumed that all constructing companies in Elgeyo Marakwet offered correct and actual facts on tendering procedures. The researcher also assumes that the respondents would co-operate by responding to the questions and returning the questionnaires. The information required was assumed to available and retrievable and that the responses would be honest, considering tendering procedures touch on the image of company as will public procurement.

1.8 Limitations of the Study

The fact that tendering of local contracting companies is recent in Kenya, there was limited literature review due to little previous research in the country and hence limited information; the researcher's duty was bound to look outside for literature on tendering process.

Some respondents were reluctant to release information for fear of being evaluated; this could be a limitation in relation to accuracy of data.

1.9 Delimitations of the study

The scope of coverage of this work was limited to construction companies in Elgeyo Marakwet County to determine issues related to effects of tendering procedures on quality of rural access roads. The restriction to Elgeyo Marakwet County was informed by the fact that the vast majority of rural access roads in the county are not tarmac roads. The target population comprised of Building/Construction Industry players in the County

1.10 Operational Definition of Terms

Road quality The ability of the contractor to do a thorough job that satisfies the client specification

Tendering is a process whereby an organization invites for the supply of goods and services, and awards the contract to the best offer according to predetermined criteria without negotiation Woods (2008:235)

Tender is a proposal to provide a good or service in competition with other potential suppliers

Prequalification and quality the ability to select several firms is a necessity that guarantees adherence to quality

Awarding and quality The culmination of the tendering procedure allows the awarding of the tender to the best which allows it provide the best quality possible to the client

Quality	is the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs. This definition captures both stated and implied procurement requirements (ISO 9000)
Tender register	means the hard-copy (bound) book in which the details of tenders received are recorded and are signed for by the Director: Procurement or his/her nominee and the Manager: Purchasing or his/her nominee;
Tender Committee	refers to the Committee constituted by the Management Committee to administer the tender process of KERRA;
Tenderer	is a person who responds to a specific invitation to tender by formally submitting a tender at the designated tender address before the closing date, including the tenderer's personal legal representative, heir, successor and assignees;
Tender address	is the address as stipulated in the tender advertisement;
Tender documents	are documents (forms) as prescribed by the Tender Committee, including any other documentation submitted by the tenderer to the University in response to a specific invitation to tender

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The main purpose of studying literature review is to assess what has been done in the past studies by scholars concerning the subject under study and identifying the gap to be addressed by the study. This review also assists the researcher to limit the research problem to define it better. A detailed knowledge of what has been done helps the researcher to avoid unnecessary and unintentional duplication of the projects, demonstrates familiarity with the existing body of knowledge, form a framework within which the research findings are to be interpreted and finally to overcome limitations of previous studies. The literature review was sourced from the published materials and website.

2.2 Global View on Tendering Procedures

Tendering is a process whereby an organization invites for the supply of goods and services, and awards the contract to the best offer according to predetermined criteria without negotiation Woods (2008:235). Woods goes further to argue that tendering can be seen as an essential anticorruption approach and according to Moeti et al. (2007:124), tender is a proposal to provide a good or service in competition with other potential suppliers. According to Kovacs (2008:254), open tendering procedures and restricted tendering are the two normal tendering methods.

Kovacs (2008:254), further states that open tendering procedures happens when theoretically all potential bidders from the four corners of the world are allowed to submit a bid. There are no limitations and restrictions of partaking, and the procurement is advertised nationwide. On the other hand restricted tendering means a procurement where by the group of eligible bidders is significantly reduced to a few qualified bidders who are invited to partake in competition.

According to Woods (2008:234), tendering has its own rules and emphasis. Procurement transactions which are conducted through formal tendering systems are usually done so because of their relatively high value. The general rule concerns a predetermined limit above which the transaction should be subject to more stringent tendering rules. As with many other aspects of public sector management reform in South Africa, tendering activities and their control has recently been devolved down from a centralized arrangement to the individual organisations themselves. All the associated best practice tendering requirements remain in force.

Woods (2008:234) states that tendering, and capital expenditure for that matter, does not only apply to fixed asset type items but also to what are known as capital projects, which could be building of a new hospital, road or any of other large infrastructural developments a government decides upon. Such capital spending is even more complex and the investment appraisal methods used even more critical. This is where the result of the tendering process is to award a contract to supply to the winning tender or bid. Public tenders, limited public tenders, private tenders, negotiated contracts, serial contracts, divided contracts and concessions are some of the ways in which tenders can be called for and contracts are concluded (Gildehyns, 2002: 604).

Results indicate that one of six tenders turns out to be a winning tender. Thus it is important to decide whether to tender or not (Wilson and Kusomo, 2004). Two studies investigate factors to determine the decision whether to tender. Fayek et al. (1998) lists 15 factors which decide whether to tender or not. The results from the study aligns with Bajaj et al. (1997), who rank the most important factor to what project type it concerns. The type of project answers how well the project is suited to the business plan, number of competitors and time for tender. The second most important factor whether to tender or not, relies on the availability of personnel. Additionally, a contractor can have several intentions to tender on a project. Fayek et al. (1998) identify the most usual intention to win the contract, but also to enhance reputation.

In Africa Tendering is very critical and important for the operation of national government, since national government relies heavily on supply of goods and services, information and others inputs and these are obtained through tendering system. According to

Water (2002:562), tendering is essential, and unless it is done well, operation is interrupted, product quality is poor, deliveries are late, the wrong quantities are delivered, costs rise, and customer services declines.

2.2 Tender Application Procedures on Rural Roads

Tendering is one of the stages in a construction project that requires extensive information and documents exchange. Clients typically provide contractors with a set of tender documents for a bid proposal upon which a contract may be let and executed (as explained in a standard textbook on construction contracts by Murdoch and Hughes, 2008). Such tender documents often contain the information about a client's project plans so that a contractor can price it. However, in practice, tender documents are not always clear, consistent and adequate. This makes the calculation of a tender programme and price for a construction project difficult. Several aspects of the literature in construction management indicate that the quality of tender documents is often "poor" in practice (see for example, studies by Liu and Ling, 2005; Fang et al., 2002; Akintoye and Fitzgerald, 2000 and Smith and Bohn, 1999).

Poor specification writing, disparities between bill of quantities and drawings and specifications, and poorly prepared tender documents are common problems associated with tender documents in the UK according to Brook (2004: 46). The tendering documents are presented by the client, which is normally done electronically (Tindsley, 2008). According to Brandt and Franssen (2007) the tendering documents can be divided into two parts; where the first part is technical specification, and the second part is the administrative conditions. Technical specifications can include general drawings, bill of quantities and descriptions. The administrative part contains contractual issues and other construction details concerning the project. Preparation for tendering can be related to high costs as well as time consumption

(Wilson and Kusomo, 2004; Hassel and Långström, 2004). The cost for tendering varies between 5-15% of the contract sum, depending on size and complexity of a project.

2.2.1 Design and specification

A study conducted in Cosenza (Italy) by Eboli and Mazzulla (2008) on service quality of public transport implemented a Stated Preference experiment to measure service quality, after they used Multinomial Logit model. The finding showed that Improvements of design and specification is one of the attributes that showed correct sign and was statistically significant at the 95% level of significance in improving quality of roads. Abu Hamam (2008) stated that roads structures in Gaza may face several defecting criteria in design and specification of tender documents leading to faults in design, faults in construction process, and defects in materials thus affecting the quality of roads to be constructed. In addition, In Nigeria Adenuga *et al* (2007) stated that design and specification are two important elements in the tender documents are required to improve the maintenance and constructions of quality roads. Further, the cost of maintenance which is contained in design in specifications of tender documents can have a significant detrimental effect quality of roads (Ishak *et. al*, 2007).

2.2.2 Disparities between bill of quantities drawings and specifications

Tadelis and Bajari (2006) argue that open competitive tendering is known for transparency and providing equal opportunity among potential suppliers. This makes it easier to prevent corruption both in the public and private sector where procurement managers may have incentives to rig the system in return for bribes and other benefits due disparities between bill of quantities drawings and specifications (Pauw., Woods, Van Der Linde, Fourie, & Visser, 2002). Transparency and equal opportunity are among the aspects that are highly emphasized in the Norwegian public procurement regulations. This is because transparency and equal opportunity

are very important in building the public confidence through construction of quality road. Domberger and Jensen (1997), report on the findings of the China Industry Commission's study in which it was found that competitive tendering leads to roads quality improvements. This was mainly for three reasons, one is because it provides much clearer focus on what is required in the service, second, it presents opportunity to choose among alternative providers, and last, it encourages the buying entity to improve performance monitoring (Naude, 2011)

Poor specification writing, disparities between bill of quantities and drawings and specifications, and poorly prepared tender documents are common problems associated with quality of roads in the South Africa according to Brook (2004). Problems associated with technical information prepared by designers led to the appointment of a Co-coordinating Committee for Project Information (CCPI) in 1979 (Masterman, 2005)

2.2.3 Specifications and Bills of Quantities

The CCPI report (1987) in Germany indicated that major problems associated with quality of information in drawings, specifications and bills of quantities included missing information, late information, wrong information, insufficient detail, impracticable designs, inappropriate information, unclear information, provisional information, poorly arranged information, uncoordinated information and conflicting information (Van Weele, 2006; Shaw, 2010; Puschmann, 2005.). Specifications and Bills of Quantities cover design review and detailed design, preparation of tender documents, tendering and construction supervision for periodic maintenance of quality roads (Waters, 2002)

Pradhan (2000) noted that a good road network has an important bearing on the economic growth in India. There is a marked improvement in quality of roads as results of improved

specifications and bills of quantities a statement that was echoed by Government of India (2011). The management systems developed for implementation of the programme is centered on quality and the guidelines clearly prescribe to provide good all-weather connectivity to target habitations (Stevensons, 2009). Woods (2008) in Capetown stipulated that tender documents specifications aims to ensure that specification documentation relating to the procedure such as wrong information, insufficient detail, impracticable designs, inappropriate information, unclear information, provisional information can interfere with quality of roads if the specifications are not properly stated (Van Bon, 2005)

2.2.4 Size of the Tender Document

Tender documents observed and examined in Uk and Germany contained a significant amount of information that contractors were required to process into a single price and programme in 6-7 weeks. In Ghana, the tender documents for the £6.5m project comprised of 213 pages of drawings, 358 pages of specifications and 1053 items specified in the bill of quantities. This was in addition the standard Highway Agency Specifications that contractors were expected to know. In Germany, the tender documents for the £7.5m project were contained in 1090 pages of information spread across 33 Appendices comprising of drawings, specifications and conditions of contract. The literature in the CIOB (1997) Code of Estimating Practice and standard estimating and textbooks, for example Brook (2004); Buchan et al. (2003); Smith (1986) does not typically reveal the size of tender documents in such terms. The Managing Estimator revealed a notion among contractors that “whoever wins a tender probably won because they left something out which ought to have been priced”. “There is a huge amount of documents that need to be read.

2.3 Tendering advertisement Procedures and Quality of Rural Roads

Most of the tendering time is used to perform accurate estimates on material and labour, choice of construction method, setting the design and to assessing risks (Fayek et al., 1998). According to Woods (2008:234), tendering has its own rules and emphasis. Procurement transactions which are conducted through formal tendering systems are usually done because of their relatively high value. The general rule concerns a predetermined limit above which the transaction should be subject to the more stringent tendering rules. As with many other aspects of public sector management reform in South Africa, tendering activities and their control has recently been devolved down from a centralized arrangement to the individual organisations themselves.

Booty (2004), in an interview with Leigh Fyffe of Scottish Life, also found that there was up to 1.5 days saved per tender, when an eTendering system was introduced to their facilities management department. However, it was stressed that when tendering for large construction projects with numerous companies, this time saving could be greater. These time savings can be viewed as substantial, when seen from the employer's perspective. The time saved by reducing such tedious and repetitive tasks, which includes the re-keying of information, can be utilised more effectively by a highly qualified member of staff.

Time savings can also be evident in the tender appraisal. The RICS guidance notes state that the return of an e-Tender should allow for more rigorous assessment. This is due to the tenders being returned in a standard computerized format, which means all the information can easily be inserted into one spreadsheet showing all the relevant figures. This removes the re-keying and re-typing exercise that is still required of the client's quantity surveyor's staff.

Time savings were also seen in a pilot study by Woking Borough Council (2003). They found that, through the use of e-tendering, they reduced the time required to complete the processes of sourcing tenderers, to creating tenders, distributing tenders and assessing the final tenders, by over 75%. They verified these figures by undertaking the same tender process in the traditional method, as well as electronically

According to WTR (2003), all communications regarding tenders, from the time tenders are received and opened until a decision is made on the acceptance or otherwise of the tenders must be classified as restricted (tender). Correspondence on prequalification and single/restricted tendering should also be classified as restricted (tender).

Wong et al. (2000) ascertained that the U.K. construction industry was, in fact, moving away from the 'lowest price wins' philosophy towards a best value for money assessment approach. Wong contends that thirty-seven factors, ranging from time to complete the project, to the contractor's head office location relative to the site location, could be considered. Each factor could be given a specific rank and value to help evaluate the tenderers bid for the works. Their survey concludes, however, that the vast majority of clients still opt for a 'lowest price wins' criterion. Sixty six percent of the public sector and 62% of the private sector still consider the tender price to be more important than any other project specific criteria

Woods (2008:234) states that tendering, and capital expenditure for that matter, does not only apply to fixed asset type items but also to what are known as capital projects, which could be building of a new hospital, road or any of other large infrastructural developments a government decides upon. Such capital spending is even more complex and the investment appraisal methods used even more critical. This is where the result of the tendering process is to

award a contract to supply to the winning tender or bid. Public tenders, limited public tenders, private tenders, negotiated contracts, serial contracts, divided contracts and concessions are some of the ways in which tenders can be called for and contracts are concluded (Gildehyns, 2002: 604).

In the literature many service quality aspects are studied. This aspect is very complex due to the specific characteristics of rural roads, such as intangibility, heterogeneity and inseparability of production and consumption (Parasuraman et al. 1985). The issue is even more complicated due to the use of several measurement methods (subsequently identified). such as: the SERVQUAL method (Parasuraman et al. 1988, Deveraj et al. 2002, Hartikainen et al. 2004, Lai 2006, Too, Earl 2009), the SERVPEF method (Cronin, Taylor 1992), the Normed Quality (Teas 1993) and the Zone of Tolerance (Zeithaml et al. 1993). In particular, the SERVQUAL method is a multiitem scale for measuring service quality and to determine the relative importance of the different dimensions influencing customers' overall quality perceptions on a seven-point Likert scale. The main idea is to identify the gap between expectations and perceptions. It identifies the most salient quality dimensions for each target market and compares itself to the competition in terms of strengths and weakness regarding these particular dimensions (Parasuraman et al. 1988).

2.3.1 Tender Responses within the Times Provided

The Irish government acknowledged that inefficient tender responses due to time limit cannot be attributed to any one specific process or party within the industry (DETE, 2006). However, a study conducted in Irish construction industry indicated that tendering responding to tender document within the time specified create efficiency in constructions of infrastructure

such as roads. In, Philippines, Smith (1995) suggested that the construction companies wishes to obtain response of their tenders with the time given providing the acceptable quality of roads. The Aqua group (2006) concurred with Smith's logic, however, they put the client's objectives simply, as the client wanting a building to be completed to the highest quality, at the lowest cost and in the shortest amount of time. Brooks (2008) noted that in Ghana political factors have meant that many public projects must be tendered within the time given to ensure the public are securing the most cost effective tenderer' to carry out the works The preparation of tender and contract documents, including all survey and design work needed to prepare quantities and guideline of costs, should take place in good time.

2.3.2 Time of Processing Tender

In US, efficiency in time of processing tender was argued to result in timely award of contracts at competitive market prices as determined by effective and fair implementation of procurement procedures (OECD-DAC 2006). In order to attain high quality of roads, time used in processing tender should among other things, meet high professional standards of speed and accuracy (OECD 2008). Hervik and Sunde (2000) evaluated the time of tendering process in Pakistan during the experimental phase; they established that, tendering time had improved efficiency somewhat although less than promised by the operating companies ex ante, thus improving quality of roads. In their study in Algeria, Bråthen *et al.* (2004) established efficiency in tendering time and found that tendering time proved successful means for improving quality of roads. Time taken in tendering process should not affect the standard procedure dealing with the tender period. You are referred to the appropriate guidance for specific information in this regard.

2.3.3 Time in Evaluation Criteria

In US, time used in the tender evaluation process applies weighting for skills, quality, experience and previous performance in a manner to ensure value for money. To assess tenders, a system of criteria intended to encapsulate the competence of the tendering organization to undertake a particular project is used to rate the tenderer's bids within one month. All relevant information requested in the tender documents and provided with the tender is used in the tender evaluation should be provided to the tenderer within the time stipulated in the contracts (Royal Australian Institute of Architects, 2006).

The preparation of tender and contract documents, including all survey and design work needed to prepare quantities and guideline costings, should take place in good time. If funds are to be sourced from international lending agencies or donors, their guidelines will have to be followed and examples of advertisements and documents from such organizations should be obtained at the beginning of this process (

2.3.4 Time for Tender Advertisement

The tender advertisement period has to take into account the need for approval (usually at the advertisement and award stages) from the lender or donor, the need to adhere to local or national government regulations and bureaucratic procedures, whether it will be advertised internationally, regionally or nationally and the scope of works. A tender for one small dam could be advertised nationally and potential tenderers given 6 to 8 weeks to respond, including site visits and collection of documents. Thus, the tender period for this, including advertisement and evaluation could be around 12 weeks (FAO, 2006).

A series of dams being funded by one or more donors may require international advertisement with time for potential bidders to collect documents, make site visits and prepare timetables and bids (in their home countries). Such a tender may require up to 20 weeks completing with further time required for the winning bidder to mobilize (

2.4 Tender Evaluation Procedures and Quality of Rural Roads

In 2005, the RICS defined e-tendering as “the electronic issuing and receipt of any tender documentation as part of the procurement process”. A fully operational e-tendering process will allow for all stages of the traditional tendering process to take place electronically. This can take place through a web-enabled tender system. The RICS (2005) further explained that a web-enabled tender system is a unique website/extranet that enables access to all the participants of the tender process, via a login name and password, in order to upload and/or download documents. Betts (2006) refers to this website/extranet the “tender box”. Technology is already available to allow communication of this type to take place, and is frequently called collaboration software.

This was the beginning of electronic communication of tender documents. To further investigate the uptake of this technology, Westcott and Mayer (2002) surveyed contractors' experiences of internet/electronic tendering and the exchange of tender documents electronically in the UK. Through these surveys, they found that between 15% and 24% of construction companies had experienced e-Tendering, while one survey claimed that 41% of the companies had no knowledge of tendering using electronic means. This would seem to somewhat substantiate Brook (2008) claims of limited electronic communication of tender documents in construction.

The construction industry is categorized as being an information-intensive industry and described as one of the most important industries in any developed country, facing a period of rapid and unparalleled change (Industry Science Resources 1999) (Tucker et al. 1996). Project communications are becoming increasingly complex, with a growing need and fundamental drive to collaborate electronically at project level and beyond (Thorpe and Mea 2001; CITE 2003). Yet, the industry is also identified as having a considerable lack of knowledge and awareness about innovative information and communication technology (ICT) and web-based communication processes, systems and solutions which may prove beneficial in the procurement, delivery and life cycle of projects (Bangladesh Government 1998; Kajewski S. and Weippert A. 2000).

Consequently, through increased knowledge, awareness and successful implementation of innovative systems and processes - such as electronic / internet-based tendering (e- Tendering) - raises great expectations regarding their contribution towards 'stimulating' the globalisation of electronic procurement activities, and improving overall business and project performances throughout the construction industry sectors and overall marketplace (NSW Government 2002; Harty, 2003; Murray, 2003; Pietroforte, 2003).

Cost estimation is the event where the tender price is calculated. According to Akintoye and Fitzgerald (2000) the most popular methods of estimation techniques in Cameroon is the traditional cost estimating, which is often supported with computer based software. Brandt and Franssen (2007) separate the traditional cost estimating technique into six activities. The first activity includes two phases, investigation of what is going to be constructed by a careful study of the tendering documents and to visit the construction site; it also involves the choice of

construction method. The second phase consists of producing bill of quantities, which lists all quantities of the chosen construction method. The third activity is to perform schedule of execution. The fourth activity is to estimate the direct costs for material and labour. The fifth activity is to select overhead costs that include costs of machines and salaries for the production management. The last activity is to combine all documents and transform it to a tender.

Akintoye and Fitzgerald (2000) investigate which people are the most frequently participants in the estimating process. Except from the estimator, other participants are subcontractors and contract managers. Moreover they point out that site managers do not participate in the estimation process. More recently, Brooks (2008) stressed that computers are an integral part of the estimating process, outlining that many estimators and QS's are using a wide range of specialist software. This software is used in-house for a considerable number of tasks including cost planning, calculating bar schedules and rate build-ups. It is, therefore, reasonable to assume, based on the previous references that the production of the majority of documentation used in the tender process is carried out by electronic means.

Consequently IT is currently a fundamental part of the tendering process. However, with IT being such a stable ingredient in the tendering process, Brooks (2008) was disappointed by the refusal of companies to begin exchanging certain tender documents in electronic format in lieu of hard copy. CITE, also known as the Building Centre Trust (2000), recognised that many companies used different estimating software and that the different software packages were not compatible with each other. CITE had developed software which enabled construction professionals involved in the tender process to open many different formats of BOQ, no matter what software was originally installed on the computer.

2.4.1 Use of Internet to Download Materials

According to Meyer (2011) the lack of scientific e-tendering background in Bulgaria also generates a lack of knowledge that can be utilized by the business. E-tendering is rarely used in the public sector and almost no research on the market is conducted by the companies offering e-tendering solutions. Most of the companies that did not use e-tendering by downloading tender document were found to have constructed roads which were not accessible. . The key point is to prepare the companies, by providing them with guidelines for the whole process, starting from the market research and finishing with the actual acceptance and usage of the product.

Web enabled tender system such as an extranet is principally a unique website enabling access to all the project team via a login name and password in order to upload and download documents. There are currently a wide range of such services ranging from generic document management systems, to services designed specifically for the project managing of construction projects. Some contain modules specifically designed for tendering. The common feature is that documents can be lodged on a website and parties can access designated levels of information. As a result, all tenderers are looking at the same information. Generally, each tenderer has a secure area to submit their tenders. These systems can replicate the accepted tender opening process, such as controlled access and tender opening. Additionally, some systems use email to alert users of changes and unopened files, etc.

2.4.2 Online Transaction

Booty (2004), in an interview with Leigh Fyffe of Scottish Life, also found that there was up to 1.5 days saved per tender, when an online transaction of tendering system was introduced to their facilities management department. However, it was stressed that when online tendering

for large construction projects with numerous companies, this time saving could be greater reducing such tedious and repetitive tasks, which includes the re-keying of information, can be utilized more effectively by ensuring reliable roads.

Online auctions are a variation of web enabled tender systems and should be used with caution. The online auctions employed in the construction industry are normally reverse auctions, where the lowest price wins. In practical terms, online auctions are carried out live over the internet where all tenderers can view all bids (which are kept anonymous), with the opportunity to vary their own bid as a response to the offers made by the others within a predefined period.

Many systems enable flexibility in the configuration of the auction event such as the ability for participants to see all or only their own bid. Online auctions rely on a high level of technology and require participants to be well versed in the use of the particular system so that they are not disadvantaged during the limited auction time. It should be noted that online auctions are not restricted only to price based bids. It is possible to use multiple measures, but these have to be numerically based.

2.4.3 Online banking tender fees

Du et al., (2004), suggested that the online banking in tendering system was secure, as required for tenderers to feel safe that their confidentiality was protected in Norway. However, Du et al., described how the online banking of tender fees is available, when it is carefully integrated into the eTendering system, to fully secure all access, uploads and downloads to a web-enabled tender system. This they suggested not only improved efficiency but the security and reliability of the infrastructure. All the fees payments, that in the past has been supplied in

hard copy (such as bills of quantity, schedules, specifications, drawings, contracts, etc.), can now be transmitted or supplied in the electronic format in which it has been prepared. The transfer of electronic information on a disk or other physical device has the advantage of being closest to the familiar process of payments. The laws regarding post and other physical delivery will apply and the traditional tender opening procedures can be continued.

2.5 Qualification Requirement Procedure Design on Rural Roads

Internationally there are also a number of codes produced for ensuring that tendering is carried out in line with good practice for example in Uk Evonik (2009) stated that to enhance effectiveness of tendering process, Qualification Requirements should be fulfilled by the Bidder according to his own assessment and requirements of the works. In doing so, generally, aspects like adequacy of technical knowledge and experience, Engagement in regular manufacture and supply of equipment of the type specified, Continuity of ownership during the proposed period of execution of the works, which were the most obstacles in construction of quality roads.

In South Korea, qualification of tenders in terms of financial stability and status to meet the financial obligations to execute the works in terms of net worth, average annual turnover and availability of liquidity for the last 3-5 years, Capability and capacity to perform the works properly and expeditiously within the specified time schedule including installed manufacturing capacities, existing commitments, latest available technological considerations should be considered so as to ensure quality of roads (Hu,2008).

The LCPN suggests that the tender process begins, as shown in figure 2.3, with the client and his/her representatives drawing up a list of potential contractors interested in tendering for work. Following this task, the Private Practice Quantity Surveyor (PQS) will send out a

preliminary invitation to tender for the prospective works. This preliminary enquiry informs the contractor of who the client is, who their representatives were and an overview of the type, approximated cost, timescale and location of the project.

In Africa LCPN (2008) suggests that a pre-qualification questionnaire be attached to the preliminary enquiry. This should save time, for both the contractor and the PQS, as interested firms can reply promptly with the relevant information to the PQS firm. This questionnaire will require information about the company and other projects, of similar nature to the tender works, which it has successfully completed in the last two to three years.

The LCPN also makes mention of the requirement to reduce the number of contractors tendering for the same projects. It explains that, due to the high cost of tendering, any unsuccessful tenderers simply allow for that unsuccessful tender by increasing their tender prices in the long run. Therefore, having received an adequate number of responses from contractors willing to tender, a final list of six to eight contractors is drawn up. Two additional names of suitable contractors should be included on a stand-by list. In case of subsequent withdrawals, these contractors can be substituted onto the main list.

2.5.1 Employee Qualification

The document should list the requirements for achieving qualification and documentation of successful completion of the formal classroom instruction, on-the-job training, rotation and individual-study activity requirements. A board, consisting of management and inspection staff, established to assess the qualifications of an individual to independently perform the prescribed construction inspections. Technical training which increases the depth of an individual's knowledge in a specific area .

In UK employee qualification should be listed and tenderer financially and technically capable of undertaking a particular project or supplying a particular product this create a technical expertise which enhances quality of roads (Tindsley, and Stephenson, 2007). Consequently, in Japan, open tendering system, which can provide more transparent procedures and has better objectivity with little room for the ordering party's discretion, also has some disadvantages. For example, it is difficult to prevent low-quality and disqualified builders from tendering, and as a result, it can be difficult to maintain a high quality level of tendering parties. The builders with lower tender prices could do only poor quality work or additional charges for design changes might be billed to the ordered too frequently. In addition, open tendering requires an increased amount of evaluation work by the ordering party, especially when a large number of builders submit bids. because the achievements of previous works cannot be reflected in the selection procedure for a future tendering (Japan Federation of Bar Associations,2001). According to Onkobe (2001), element of competitive tendering like contractions has been largely neglected in the literature since it is assumed that the procurement process begins when the budget is approved in Nigeria. The truth of the matter is, pre-procurement cycle phases are also very important and procurement professionals have a great deal of help to the policy makers by providing relevant information based on their experience and knowledge of the procurement processes.

Selective tendering, which is said to be more effective for selecting high quality builders, also has other problems. When selections are made mechanically based solely on objective data, low quality and disqualified builders may be selected as candidates. In addition, selection standards can be set up based on an arbitrary decision of the ordering party, and the limitation on the number of tendering parties tends to attract bid rigging (Chalmers, 2012)

2.5.2 Quality Material Qualification

In a previous report, DKM economic consultants (2005) had shown that the Irish construction industry had sustained significant growth over a large number of years. Over this extended period of growth Aylward et al. (2007) had found that there improvements quality of materials used. However, even with these improvements, DKM economic consultants (2005) argued that there were concerns about the qualification procedure in the construction industry and about the processes that are rooted within the industry. These inefficient processes must now be increasingly evident due to construction of low quality road

A study conducted in Indonesia indicated that establishment of a soils and materials laboratory, training and institutional development of the regional road maintenance organization, preparation of a land acquisition plan and a detailed resettlement action plan encourages road reliability and accessibility (Holton, 2004)

Figure 2.1 Qualification Procedures

Clause	Heading	Action
F.3.4.1	Tender offer opening	Unless the two-envelope system is to be followed, open valid tender submissions in the presence of tenderers' agents who choose to attend at the time and place stated in the tender data. Tender submissions for which acceptable reasons for withdrawal have been submitted will not be opened.
F.3.4.2		Announce at the opening held immediately after the opening of tender submissions, at a venue indicated in the tender data, the name of each tenderer whose tender offer is opened, the total of his prices, preferences claimed and time for completion, if any, for the main tender offer only.
F.3.4.3		Make available the record outlined in F.3.4.2 to all interested persons upon request
F.3.5.1	Two-envelope system	Where stated in the tender data that a two-envelope system is to be followed, open only the technical proposal of valid tenders in the presence of tenderers' agents who choose to attend at the time and place stated in the tender data and announce the name of each tenderer whose technical proposal is opened.
F.3.5.2		Evaluate the quality of the technical proposals offered by tenderers, then advise tenderers who remain in contention for the award of the contract of the time and place when the financial proposals will be opened. Open only the financial proposals of tenderers, who score in the quality evaluation above the minimum number of points for quality stated in the tender data, and announce the score obtained for the technical proposals and the total price and any preferences claimed. Return unopened financial proposals to tenderers whose technical proposals failed to achieve the minimum number of points for quality.

Source; The pertinent clauses in the Standard Conditions of Tenderare (2010)

2.6 Theoretical framework

Gates (1967, p 75) referred to tendering theory as a strategy of bidding. Consequently, tendering theory is often seen as simply a prescriptive or normative theory rather than as descriptive or positive. Tendering theory, according to this argument, is no more than a model of

rational behavior, and rationality according to this argument, is a normative concept. Seen that way, tendering theory like almost all other social science theories would be normative theories, irrelevant to the explanation of actual behavior (Rosenberg, 1994).

Tendering Theory as a theory of price determination, demonstrates how tendering theory determines market prices and how it is different from game and decision theories, and that in the tendering process, with non-cooperative, simultaneous, single sealed bids with individual private valuations, extensive public information, a large number of bidders and a long sequence of tendering occasions, there develops a competitive equilibrium.

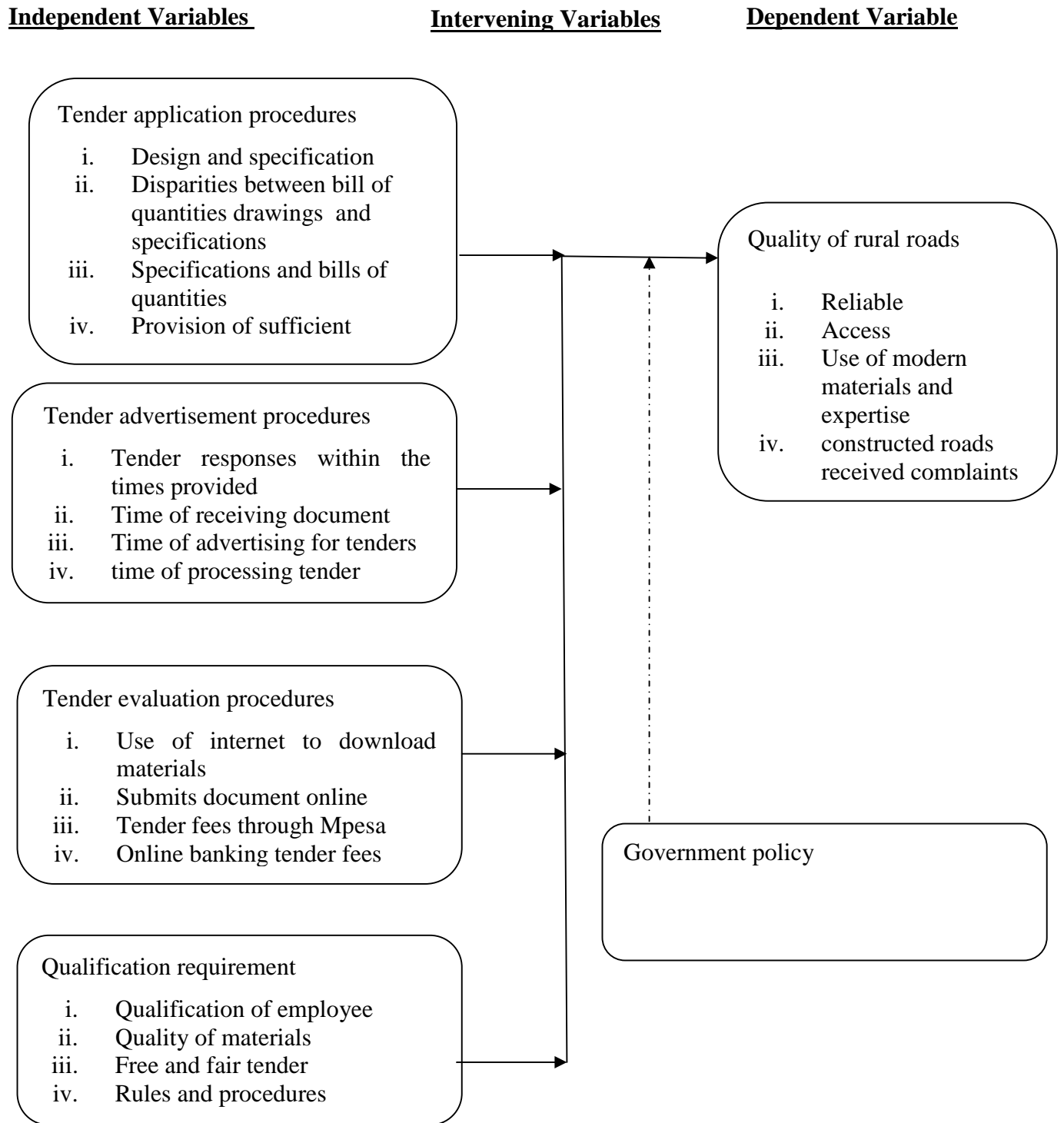
2.7 Conceptual Framework

Based on the theoretical framework on tendering procedures and their impact on contractions of roads, the study presents a conceptual “marsh”. Authors refer to a multitude of tendering procedures e.g. –tender application procedures, tender advertisement procedures, tender evaluation procedures and qualification requirement for tenders among others. From a theoretical point of view, it is – consequently – hardly possible to integrate this existing variety of conceptual orientations, choices, and boundaries into a single conceptual framework. Therefore, we prefer to reposition a number of these variables and processes into a new conceptual framework, that serves as a guide to integrate theoretical perspectives that interlink these variables and process and help to explain the tendering procedures among contractors in Kenyan Context.

Especially the fact that study will reuse a number of research instruments that builds on this big variety in concepts, requires us to be on clear how the original concepts are repositioned

within the conceptual framework for our studies. As such the study will adopt the following conceptual framework.

Figure 2.2 Conceptual Framework.



2.8 Literature Gap

This chapter has briefly discussed an overview of the theory on tendering procedures literature has described the tendering procedures, its components and the forces that operate within its surrounding environment. Tendering is a part of the core internal element, operational practices, while market/industry structure is one of the external environment forces. Based on literature review, it is clear that only limited studies have exhaustively addressed the influences of tendering processes on offering quality rural roads to the public. The study will assess how tendering process can impact on quality roads.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction:

This chapter discusses the methodological aspects of the research including the research design, population of study, sampling procedures and sample size, data collection procedures, data analysis, limitations of the study and ethical considerations.

3.1 Research Design

Explanatory research design was used in the undertaking of this research because it usually provides rich detail about cases of a predominantly qualitative in nature (Ball, 1981). According to Young (1960) this is a comprehensive study of social unit, e.g. an individual, a group, social institution, district or a community. Efforts are made to study each and every aspect of the subject in minute details and then case data generalization and inferences are drawn (Leedy, 2004). Explanatory research design depends on the researchers' perception and gives a clearer insight because it is direct and not indirect and abstract in its approach. The researcher can obtain a real record of personal experiences which can reveal the subjects motivations that drive one to action along with the forces that direct to adoption of certain patterns of behaviour.

3.2 Target Population

The population of study comprised Construction Companies in Elgeyo marakwet. As at June 2012 (Registrar of companies, 2013) there were 13 companies found in Elgeyo marakwet County. The total population was 613 employees drawn from the 13 companies in Elgeyo Marakwet and 13 employees from Kenya rural roads authority in Elgeyo Marakwet Region.

3.3 Sample Selection and Size

Purposive sampling was used to select 3 company's were investigated where random sampling technique was used to select 92 employees from 132 employees using Krejcie and Morgan, 1970 table of sample size respondents since the researcher only wanted top officials who directly involved in tendering procedures. Random sampling was used to select KERRA employees.

Table 1.0 Sample Selection and Size

	population	Employees
1. Company A	36	28
2. Company B	42	27
3. Company C	54	37
Total		92

3.4 Data Collection Instruments

The researcher used questionnaire. A questionnaire consisting of a number of questions printed or typed in a defined order or form. This is a method of data collection by which the questionnaires are mailed to respondents who are expected to read, understand the questions and write down the answers in the space meant for the purpose in the questionnaire (Kothari, 2003). The researcher will consider the questionnaire because of its low cost, it was free from bias, respondents had adequate time to give out well thought answers and larger sample can be made use of and thus the results could be more valid and reliable.

3.6 Pilot Testing of Instruments

In conducting the pilot study, the researcher was interested in establishing whether the respondent had the same understanding of the questions and thus would offer the information required. (Mugenda & Mugenda, 2003) argue "...even the most carefully constructed instrument cannot guarantee to obtain one hundred percent reliable data". For above reason the researcher will have to do a pilot study to pre-test the reliability of the research instrument. This was done using the t-test method. For the first test the researcher will administer the questionnaires to 10 respondents at three contractions companies in Nandi County. The unit will not be included in the main study. The main purpose of the pilot study was to check on suitability and the clarity of the questions on the instruments designed, relevance of the information being sought, the language used and the content validity of the instruments from the responses given

3.7 Validity of the Instruments

Validity concerns the soundness of the inferences based on the scores that is, whether the scores measure what they are supposed to measure, but also not measure what they are not supposed to measure (Thomson, 2003 in Kline, 2005). The two most important forms of validity are internal and external validity. Content validity was s used to measure extent to which measuring instrument provides adequate coverage of the topic as per the set themes in the study

3.8 Reliability of the Instruments

Koul (2005) define reliability as the ability of that test to consistently yield the same results when repeated measurements are taken of the same individual under the same conditions, basically, reliability is concerned with consistency in the production of the results and refers to the requirement that, at least in principle, another researcher, or the same researcher on another

occasion, should be able to replicate the original piece of research and achieve comparable evidence or results, with similar or same study population. The variables were tested for reliability by computing the Cronbach alpha statistical tests where reliability coefficients around 0.90, was considered excellent, values around 0.80 as very good and values of around 0.70 as adequate.

3.9 Data Collection Procedures.

The data collection procedures involved number of steps. First, the researcher will seek for a research permit in writing to conduct the study from National Council of Science and Technology. After the permission is granted, he recruited Research Assistants who were trained on how to carry out the data collection exercise. The researcher informed the study respondents about the data collection exercise and after consultation agreed on the date of commencement. The respondents visited at their respective Construction Companies after being informed in advance about the data collection exercise.

Data for the study was collected using a semi-structured questionnaire which was sent to the Construction Companies by the Research Assistants. In order to increase the response rate, research assistants will present to clarify any arising issues during the filling of questionnaires by the respondents.

3.10 Data Analysis Technique

Quantitative research method was used to analyze the data collected. Quantitative research permits specification of dependent and independent variables and allows for longitudinal measures of subsequent performance of the research subject (Meyer *et al.*, 1995). The data was cleaned and analyzed using descriptive and inferential statistics to determine and report the way things are, such as; behavior attitudes, values, and characteristics. Using Indices

that describe a given sample such as; measures of central tendency mean, mode, median and standard deviation to report on the respondents' demographic factors such as gender, age, marital status, tenure, number of years worked in the in the committee, among others. Descriptive statistics like means, frequencies and percentages was used. While inferential statistics analysis always involves the process of sampling and the selection of a small group assumed to be related to the population from which it is drawn (Best & Kahn, 2003), inferential statistics was used to draw inferences about a given phenomenon in the population based on the results from a randomly selected sample, and to test hypothesis and enable the researcher generalize results from the sample of the population. Pearson correlation was used to show the correlation between the variables. Multiple regressions were used to determine the effect of tender procedures on quality of rural roads and to test the study hypothesis.

The regression equation estimated was of the form;

Regression equation is a function of variables x and

$$y = \beta_0 + \beta_1x_1 + \beta_2x_2 + \beta_3x_3 + \beta_4x_4 + \varepsilon$$

Where β_0 is the intercept, β_1 measures change in Y with respect to X_1 , holding other factors constant, β_2 measures the change in Y with respect to X_2 holding other factors constant, β_3 measures the change in Y with respect to X_3 holding other factors constant, β_4 measures the change in Y with respect to X_4 holding other factors constant.

Where in this context X_1 represents Tender application procedures, X_2 represent Tender advertisement procedures, X_3 represents Tender evaluation procedures, X_4 represents Qualification requirement and Y represents quality rural roads.

3.11 Ethical Considerations.

The researcher shall obtain permission to conduct the research from the National Council of Science and Technology before the commencement of data collection. In addition, all respondents of the study shall be identified and recruited using the prescribed procedures after being requested to give informed consent in writing. Respondents who were unwilling to participate will receive the same treatment. Moreover, information and data collected from the respondents shall be treated confidential and be only used for the study. It can only be accessed with full authority from the respondent

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

This chapter presents the analysis of the data collected and discusses it accordingly and in relation to the research questions stated with the aim of achieving effect of tendering procedures on quality of roads. Data was collected using questionnaires and interview schedule. This chapter first describes the demographic characteristics of the respondents and presents them in summary using frequency tables and percentages which includes highest level of education and years of service. Finally, the analysis and discussion of the correlation between the independent variables and the dependent variables was developed thereon was carried out.

4.2 Demographic Information

The preliminary section of this study was done by administering a questionnaire. The questionnaire captured data on the background in terms of gender, age, level of education and working experiences

4.2.1 People Involved in the Management of Rural Roads by Gender

Study results in table showed that majority 56% (51) of the employee in construction firms are male, while 44% (41) are females. In addition, In Kenya rural roads authority Elgeyo Marakwet region 95 %(12) of its employee who were male who included the manager, procurement managers, manager and constituency road officers while 5%(1) were female.

Table 4.1 People Involved in the Management of Rural Roads by Gender

	Male	Female	Total
KERRA	12	1	13
Construction company's	51	41	92
Total	63	44	

Survey Data (2013)**4.2.2 People Involved in the Management of Rural Roads by Age**

In Table 4.2 the illustrated the age bracket for the respondents. It was revealed that majority in companies were aged between 26-35 years 44%(40), followed by 25%(23) of the respondents aging between 35- 45 years which is the same percent to those who were aged above 46 years. Only 6 %(6) were below 25 years. More findings indicate that in KERRA, 44% (6) of the Employees were aged between 26-35 years while 20% (3) were aged between 35-45 years and above 45 years, the rest 16%(1) of the employee aged below 25 years.

Table 4.2 People Involved in the Management of Rural Roads by Age

	Below 25 Years	26 - 35 Years	35 - 45 Years	Above 46 Years	Total
KERRA	6	40	23	23	92
Construction Company's	1	6	3	3	13
Total	7	45	26	27	

Survey Data (2013)

4.2.3 People Involved in the Management of Rural Roads by Level of Education

Study findings from Table 4.3 revealed that in KERRA 55%(7) of the employees had degree as their highest level of qualification, 30%(4) had diploma while 15%(2) had certificate. Majority 52.3% (48) of the employee in Construction Company had their highest level of education at degree level, while 44.2 % (40) had diploma as their highest of education. Only 3.5% (3)of respondent had certificate. This implies respondents had inadequate higher education, something which that is expected to interfere on with leadership as well as quality of roads.

Table 4.3 People Involved in the Management of Rural Roads by Level of Education

	Degree (%)	Diploma (%)	Certificate(%)	Total
KERRA	7	4	2	13
Construction Company's	48	40	4	92
Total	55	44	6	

Survey Data (2013)

4.2.4 Working Experience of People Involved in Management of Rural Roads

More demographic information in Table 4.4 showed that most 53.5%(49) employee in the construction companies had been working in the firm over 10 years, while 25.6%(23) and 18.6%(17) had been in the firms for about 3-5 years and 5-10 years respectively. This implies that respondents had adequate working experience in construction industry, which is advantage when it comes to quality of roads. However, 2.3 %(2) of employees articulated that they have been in the firm for 2-3 years and indication that they almost new in the firm.

Table 4.4 Working Experience of People Involved in Management of Rural Roads

	Over 10 Years	3 - 5 Years	5 - 10 Years	<3years	Total
KERRA	1	6	3	3	13
Construction Company's	49	23	17	2	92
Total	50	29	20	5	

Survey Data (2013)**4.3 Tender application procedures**

The study's first objective sought to establish the effect of tender application procedures on the quality of rural access roads. The findings are illustrated in the table 4.5.

Table 4.5 Tender application procedures

	Company A		Company B		Company C	
	Mean	Sd	Mean	Sd	Mean	Sd
tender documents clearly contain the design and specification of what the client wants to build	3.92	1.223	4.08	1.191	4.17	0.879
The company had once had disparities between bill of quantities and drawings and specifications	4.01	1.115	4.13	1.960	4.59	0.768
Sometimes we forget to included all specifications and bills of quantities	3.93	1.170	3.97	1.530	3.99	1.15
sometime companies provided late information	4.22	1.246	4.01	1.722	3.92	1.970
Sometime companies provide wrong information, insufficient detail	3.94	1.290	3.93	1.960	4.12	1.542

Sd – standard deviation

Survey Data (2013)

4.3.1 Design and specification

The study sought to establish if the tender documents contained design and specifications which included bush clearing, grading and drainage. The findings according to the respondents is illustrated in table 4.6

Table 4.6 design and specifications components

	Bush clearing	Grading	Drainage
Kerra	13	13	13
Construction companies	76	70	85
Total	89	83	98

The findings showed that all the kerra employees confirmed that all the design and specifications were contained in the tender document. However the companies disagreed that all the design and specifications were contained. This is confirmed with quality of tender document in Gaza which faces several defecting criteria in design and specification leading to faults in design (Hamam, 2008). In addition, in Nigeria Adenuga *et al* (2007) stated that design and specification are two important elements in the tender documents required to improve the maintenance and constructions of quality roads.

The findings as per company are illustrated in table 4.7

Table 4.7 Design and specifications

	Mean	Sd
Company A	3.92	1.223
Company B	4.08	1.191
Company C	4.17	0.879

Table 4.6 depicted Findings on Quality of Tender application procedures shows that tender documents clearly contain the design and specification of what the client wants to build; Company A (mean=3.92) which confirms that clients' needs are well met and for Company B(mean=4.08) and Company C(mean=4.17

4.3.2 Disparities between bill of quantities and drawings and specifications

The study sought to establish if the tender documents had disparities between bill of quantities drawings and specifications. The findings are illustrated in table 4.7

Table 4.8 Disparities

Disparities between BOQ and specifications	
Kerra construction companies	5
	92
Total	97

The findings showed that construction companies encountered disparities between the bill of quantities and drawing and specifications. This was also witnessed by kerra officials. These disparities have been shown to contribute to poor construction of rural roads since enough funds are budgeted. Proper planning of road projects should be done so as to ensure disparities are eliminated.

The findings were also illustrated as per company as shown in table 4.8

Table 4.9 Disparities between bill of quantities drawings and specifications

	Mean	Sd
Company A	4.01	1.115
Company B	4.13	1.96
Company C	4.59	0.768

The company had once had disparities between bill of quantities and drawings and specifications as outlined by Company A(mean=4.01),Company B(mean=4.13) and finally Company C(mean=4.59).. Study findings confirms with Brook (2004) that poor specification writing, disparities between bill of quantities and drawings and specifications, and poorly prepared tender documents are common problems associated with quality of roads in the South Africa

4.3.3 Specifications and Bills of Quantities

The study sought to establish the information provided by the companies. It sought to find if the company failed to include information, provided late information or provided wrong or insufficient information. The findings are illustrated in table 4.10

Table 4.10 Provided late or insufficient information

Providing late or insufficient information	
Kerra construction companies	3
	92
Total	97

The study results showed that Kenya rural roads authority obtained late or insufficient information from the construction companies. This has a negative impact on the construction of good roads. The formation of a new agency, the national construction agency will help in vetting the construction companies hence the reduction of wrong information.

Further analysis as per companies is showed in the table 4.11 below

Table 4.11 Specifications and bill of quantities

	Mean	Sd
Company A		
Failed to include information	3.93	1.17
Provided late information	4.22	1.246
Provided wrong information, insufficient detail	3.94	1.29
Company B		
Failed to include information	3.97	1.53
Provided late information	4.01	1.722
Provided wrong information, insufficient detail	3.93	1.96
Company C		
Failed to include information	3.99	1.15
Provided late information	3.92	1.97
Provided wrong information, insufficient detail	4.12	1.542

Study results showed that sometimes respondents forget to include all specifications and bill of quantities; Company A(mean= 3.93),Company B(mean=3.97) and Company C(mean=3.99).Sometimes companies provided late information, Company A(mean=4.22) ,Company B(mean=4.01) and Company C(mean=3.92).Finally, sometimes companies provide wrong information, insufficient detail, Company A(mean=3.94),Company B(mean=3.93) and Company C(mean=4.12.) Woods (2008) in Cape town stipulated that tender documents specifications aims to ensure that specification documentation relating to the procedure such as wrong information, insufficient detail, impracticable designs, inappropriate information, unclear information, provisional information can interfere with quality of roads if the specifications are not properly stated.

4.4 Tender advertisement procedures

The study's second objective sought to establish the effect of tender advertisement procedures on the quality of rural access roads. The findings are illustrated in the table 4.9.

Table 4.12 Tender advertisement procedures

	Company A		Company B		Company C	
	Mean	sd	Mean	Sd	mean	Sd
We received tender responses within the times provided	3.97	1.044	4.18	1.26	4.27	0.547
It took the company to lot of time received the tender document	4.01	1.223	4.23	1.412	4.69	0.556
The government always delay when advertising for tenders	3.91	1.072	3.9	1.011	3.99	1.23
Time spent in processing data is a fair	4.59	0.654	4.21	1.107	4.61	1.101

Sd – standard deviation
Survey Data (2013)

4.4.1 Tender Responses within the Times Provided

The study sought to establish if the tender responses were within the times provided. The findings are illustrated in table 4.13

Table 4.13 Tender responses

Tender responses	
Kerra construction companies	5
	80
Total	97

The study findings showed that it was agreed that during tender advertisement that there were delays in the advertising by Kerra and the responses by construction companies. This inhibited

the construction of good rural access roads. This was confirmed in research findings in Ghana where political factors were the main cause of the delays.

Study findings from table 4.14 further illustrated tender advertisement procedure as per companies.

Table 4.14 Tender responses

	Mean	Sd
Company A	3.97	1.044
Company B	4.18	1.26
Company C	4.27	0.547

. Further, Time in Tendering Procedure was inquired from the respondents. From the study results respondents in Company A received tender responses within the time provided (mean=3.97) while those in Company B (mean=4.18) and Company C (mean=4.18).. This contradicts Irish government time taken on tender responses due to time limit cannot be attributed to any one specific process or party within the industry (DETE, 2006). It also confirms with findings in Philippines that response of their tenders in the time given provided the acceptable quality of roads (Smith (1995). In Ghana political factors have delayed the time of responding to tender document (Brooks, 2008)

4.4.2 Time of Processing Tender

The study sought to establish the time of processing the tender. It included time taken by the companies to receive documents, government delays and if time spent was fair. The findings are illustrated in table 4.15

Table 4.15 Time of processing tender

Time of processing tenders	
Kerra construction companies	5
	80
Total	97

The study established that there were delays in processing the data by both the Kerra and companies. This has hampered service delivery in terms of quality roads. The study findings are supported by OECD (2008) that in order to attain high quality of roads, time used in processing tender should among other things, meet high professional standards of speed and accuracy.

The study findings were further analyzed as per company as illustrated by table 4.16

Table 4.16 Time of processing tender

	Mean	sd
Company A		
time to receive document	3.93	1.17
Government delays	4.22	1.246
Time spent is fair	3.94	1.29
Company B		
time to receive document	3.97	1.53
Government delays	4.01	1.722
Time spent is fair	3.93	1.96
Company C		
time to receive document	3.99	1.15
Government delays	3.92	1.97
Time spent is fair	4.12	1.542

Study results indicated that It is evident that it took a lot of time to receive the tender document; company A (mean=4.01), Company B (mean=4.23) and Company C (mean=4.69). Further, it was found that the government always delays when advertising for tenders which was

clearly shown in Company A (mean=3.91), Company B(mean=3.9) and Company C(mean=3.99).Also time spent in processing data is fair: For Company A(mean=4.59),Company B(mean=4.21) and for Company C(mean=4.61). .They also agreed that the government always delay when advertising for tenders and that time spent in processing data is fare 41.9%(36). Hervik and Sunde (2000) evaluated the time of tendering process in Pakistan during the experimental phase; they established that, tendering time had improved efficiency somewhat although less than promised by the operating companies ex ante, thus improving quality of roads.

4.5 Tender evaluation procedures

The study’s third objective sought to establish the effect of tender evaluation procedures on the quality of rural access roads. The findings are illustrated in the table 4.17.

Table 4.17 Tender Evaluation procedures

	Company A		Company B		Company C	
	mean	Sd	Mean	Sd	mean	Sd
We can download tender document from the internet	2.57	1.314	3.08	1.82	3.17	0.187
The firm submits it tender document online	3.01	1.72	3.13	1.013	2.59	0.106
We pay tender fees through mpesa	3.5	1.601	3.27	1.241	2.99	1.134
We pay tender through the bank and then send the receipt online	3.22	1.261	2.61	1.221	2.61	1.347

Sd – standard deviation
Survey Data (2013)

4.5.1 Online Transaction

The study sought to establish tender evaluation procedures used which includes online transactions. The findings are illustrated in table 4.18

Table 4.18 Online transactions

	Tender responses
Kerra construction companies	13
	60
Total	73

The study findings showed that Kerra has embraced technology through the use of online transactions. However companies have not embraced this technology. The findings contradict observation in Scotland companies, where most of the firms had adopted online transaction in tendering process (Booty, 2004). This may be attributed to the fact that most companies are not technologically educated.

Study findings further illustrated the analysis as per company as shown in table 4.19

Table 4.19 Online Transactions

	Mean	sd
Company A	2.57	1.314
Company B	3.08	1.82
Company C	3.17	0.187

Findings in table 4.19 showed tender evaluation procedures. For instance, respondents could download tender documents from the internet; Company A(mean=2.57),Company B(mean=3.08) and Company C(mean=3.17). Online transactions rely on a high level of technology and require participants to be well versed in the use of the particular system so that they are not disadvantaged during the limited auction time. It should be noted that online

auctions are not restricted only to price based bids. It is possible to use multiple measures, but these have to be numerically based.

4.5.2 Online banking of tender fees

The study sought to find if the companies used online banking of tender fees. The findings are illustrated in table 4.20

Table 4.20 Online banking

	Online banking
Kerra construction companies	13 60
Total	73

The study findings suggested that companies are not readily embracing technology through online banking. This could be attributed to the lack of understanding by companies on how it operates. Findings relate that Du et al (2004), suggested that the online banking in tendering system was secure, as required for tenderers to feel safe that their confidentiality was protected in Norway.

Further analysis was illustrated in the table 4.21

Table 4.14 Online banking of tender fees

	Mean	sd
Company A		
Submission of tender document online	3.01	1.72
mpesa payments	3.5	1.601
Bank and send receipt online	3.22	1.261
Company B		
Submission of tender document online	3.13	1.013
mpesa payments	3.27	1.241
Bank and send receipt online	2.61	1.221
Company C		
Submission of tender document online	2.59	0.106
mpesa payments	2.99	1.134
Bank and send receipt online	2.61	1.347

The firm submits its tender document online; Company A(mean=3.01),Company B(mean=3.13) and Company C(mean=2.59).Payment of tender fees through Mpesa;Company A(mean=3.5),Company B(mean=3.27) and Company C(2.99).Payment of tender through the bank and then send the receipt online; Company A(mean= 3.22),Company B(mean=2.61) and Company C(mean=2.61).. The transfer of electronic information on a disk or other physical device has the advantage of being closest to the familiar process of payments. The laws regarding post and other physical delivery will apply and the traditional tender opening procedures can be continued.

4.6 Qualification Requirement

The study's fourth objective sought to establish the effect of tender qualification requirement procedures on the quality of rural access roads. The findings are illustrated in the table 4.22.

Table 4.22 Qualification Requirement

	Company A		Company B		Company C	
	mean	Sd	mean	Sd	mean	Sd
Qualification of employee is highly considered in tender process	4.57	1.34	4.08	1.77	4.17	0.687
To be qualified in tender process quality of materials is observed	4.01	1.11	4.13	1.056	4.59	0.806
There free and fair tender process	4.71	1.312	4.27	1.043	4.89	1.12

Sd – standard deviation
Survey Data (2013)

4.6.1 Employee Qualification Procedure

The study sought to establish the employee qualification procedure which included education and experience. The findings are illustrated in table 4.23

Table 4.23 Employee qualification requirement

	Education	Experience
Kerra construction companies	13	13
Total	89	80
	102	93

The study findings revealed that majority of the employees go through vetting to ascertain there qualification requirement through their education requirement and work experience. It was

revealed that education and experience have a direct link to the construction of good quality access roads. The findings are similar with Tindsley and Stephenson (2007) in UK that employee qualification should be listed and the tenderers should be technically capable of undertaking a particular project or supplying a particular product. This creates a technical expertise which enhances quality of roads.

Further analysis was carried as per company as is shown in Table 4.24

Table 4.24 Employee Qualification procedure

	Mean	Sd
Company A	4.57	1.34
Company B	4.08	1.77
Company C	4.17	0.687

Findings in table 4.24 revealed that the on findings on Qualification Requirement, qualification of employee is highly considered in tender process, for instance in Company A (mean=2.57), Company B (mean=4.08) and Company C (mean=4.17) meaning that employee qualifications were followed to the later. The open tendering requires an increased amount of evaluation work by the ordering party, especially when a large number of builders submit bids. This is due to the fact that achievements of previous works can be reflected in the selection procedure for a future tendering (Japan Federation of Bar Associations, 2001).

4.6.2 Quality Material Qualification

The study sought to find the quality material qualification procedure. Findings are illustrated in table 4.25

Table 4.25 Quality Material Qualification

	Quality material
Kerra construction companies	8
	90
Total	98

The study revealed that quality materials were observed by most of the company employees. However Kerra revealed that there is need for a materials testing lab in all regions so as to enable confirmation of quality materials used. Similarly, a study conducted in Indonesia indicated that establishment of a soils and materials laboratory, training and institutional development of the regional road maintenance organization, preparation of a land acquisition plan and a detailed resettlement action plan encourages road reliability and accessibility (Holton, 2004).

Further analysis was done as per company as shown in table 4.26

Table 4.26 Quality material qualification

	Mean	Sd
Company A		
Quality of materials are observed	4.01	1.11
Free and Fair process	4.71	1.312
Company B		
Quality of materials are observed	4.13	1.056
Free and Fair process	4.27	1.043
Company C		
Quality of materials are observed	4.59	0.806
Free and Fair process	4.89	1.12

Findings showed that Also quality of material is observed to be qualified in tender process for Company A (mean=4.01), Company B (mean=4.13) and Company C (mean=4.59). Finally there was a free and fair tender process: Company A (mean=4.71), Company B (mean=4.27) and Company C (mean=4.89). Findings are similar with a report by DKM economic consultants (2005) that the Irish construction industry had sustained significant growth over a large number of years.

4.7 Quality of Roads

The study sought to establish if the companies built quality rural access roads. The findings are illustrated in the table 4.27.

Table 4.27 Quality Roads

	Company A		Company B		Company C	
	mean	sd	mean	sd	Mean	Sd
Most of the roads the company have constructed are reliable	3.89	1.203	4.08	1.21	4.17	0.871
It easy to access the roads which the company has contracted	4.11	1.16	4.13	1.043	4.59	0.612
The company has used modern materials and expertise to constructed roads	3.91	1.107	3.97	1.481	3.99	1.31
We have never received complaints on the roads the company have constructed	4.24	1.341	3.92	1.231	4.02	1.45

Sd – standard deviation

Survey Data (2013)

Findings on Quality roads shows that most of the roads the company has constructed are reliable, Company A (mean=3.89), Company B (mean=4.08) and Company C (mean=4.17) which confirms that the roads are of good quality. It is also easy to access the roads which the company has contracted, Company A(mean=4.11),Company B(mean=4.13) and Company

C(mean=4.59) ,the company has used modern materials and expertise to construct roads Company A (mean= 3.91) ,Company B(mean=3.97) and Company C(mean=3.99) and complaints on the roads the company has constructed have not been received, Company A (mean=4.24),Company B(3.92) and Company C(mean=4.02).

4.8 Correlations statistics

The study sought to establish correlation results of the study dependent and independent variables to assess to association of the variables. This was necessary to detect simple linear relationship and multicollinearity and because it also act as building block for multiple regression model (Anglim, 2007). The results are shown in table 4.10

Table 4.28 Correlations statistics

	Quality Roads	Tender application procedures	Tender advertisement procedures	Tender evaluation procedures	Qualification Requirement
Quality of roads	1				
Tender application procedures	.248* 0.021	1			
Tender advertisement procedures	.541** 0	0.075 0.49	1		
Tender evaluation procedures	.607** 0	.281** 0.009	.447** 0	1	
Qualification Requirement	.590** 0	-.392** 0	-0.141 0.196	-.468** 0	1

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

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

Findings revealed that tender application procedures was positively and significantly associated with quality of roads ($r = 0.248$, <0.05). Similarly tender advertisement procedures and qualification requirement were both positively and significantly correlated to quality of roads ($r = 0.541$, <0.05 and $r=0.590$, <0.05). However, tender evaluation procedures was not significantly related with quality of roads ($r = 0.607$, <0.05).

4.9 Regression Results

Study findings in table 4.8 revealed that 54.1 percent variation of quality of roads is explained by Tender application procedures , Tender advertisement procedures , Tender evaluation procedures , Qualification Requirements supported by $R^2 = 0.541$. Durbin Watson test showed that there was no autocorrelation among the variable as indicated by Durbin Watson value =1.987 which was less than 4 thumb rule.

Table 4.29 Model summary

R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
.735	0.541	0.534	0.35479	1.987

Predictors: (Constant), Tender application procedures , Tender advertisement procedures, Tender evaluation procedures, Qualification Requirement

Dependent Variable: quality of roads

Survey data (2013)

4.9.1 Hypothesis Testing

Hypothesis 1 (H_{01}) stated that there is no relationship between tender application procedures and quality of roads. However, the hypothesis was rejected. Study findings in table 4.9 indicated that $t_1 = 0.212$ was significant at p value $0.000 < 0.05$. Thus, tender application

procedures influenced quality of roads, providing grounds for rejection of hypothesis 1 this infers that increasing tender application procedures will improve their quality of roads.

Study hypothesis 2 (H_{02}) in chapter 1 stipulated that there is no relationship between tender advertisement procedures and quality of roads. Findings showed that $\beta_3 = 0. -113$ and p value = 0.026. In additional t test value for time in tendering process was 2.238 hence hypothesis 2 was rejected. Thus, tender advertisement procedures had negative effect on quality of roads. The study implies spending more time in tender advertisement procedures will reduce quality of roads.

Hypothesis 3 (H_{03}) postulated that there is no relationship between tender evaluation procedures and quality of roads. Findings showed that tender evaluation procedures had coefficients of estimate (β_3) = 0.300 which was not significant on basis of p value = 0.067 and t value = 5.239, thus hypothesis 3 was holds. Thus, tender evaluation procedures has no affects quality of roads.

Hypothesis 4 (H_{04}) hypothesized that there is no relationship between qualification requirement and quality of roads. Hypothesis 4 was rejected on the basis that $\beta_4 = 0.271$ was significant at p value = 0.000. In addition, t ratio = 5.037 provided more evidence that qualification requirement was the second to significantly affect quality of roads. Hence, qualification requirement positively affects quality of roads. This implies increasing qualification requirement and adhering to them would improve the quality of roads.

Finally, Study results revealed that F value 87.053, with p value = 0.000 significant at 0.05, this implies that the joint prediction of aforementioned independent variables of quality of

roads is significant. This shows that the model can be used in future to predict quality of roads among students. Moreover, findings showed non existence of multicollinearity.

Table 4.30 Coefficients of estimates

	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
(Constant)	0.931	0.18		5.158	0		
Tender application procedures	0.172	0.041	0.215	4.155	0.000	0.582	1.719
Tender advertisement procedures	-0.097	0.043	-0.113	-2.238	0.026	0.612	1.634
Tender evaluation procedures	0.286	0.054	0.300	5.279	.067	0.48	2.082
Qualification requirement	0.244	0.048	0.271	5.037	0.000	0.538	1.86
ANOVA (F ratio)	87.053						
ANOVA (prob)	0.000						

a Dependent Variable: Quality of roads

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The chapter presents the prominent findings of the study and makes reference to relevant research to support the findings of the current study. The discussion include hypothesis mentioned in chapter on of this study. The study will use multiple regression analysis between variables and dependents variable. Conclusions are drawn based on the obtained results and recommendations for future research that may be of worth are put forth.

5.2 Summary of the Findings

Study findings showed that tender application procedures positively influences quality of roads ($\beta_1 = 0.212$, $p < 0.05$). This implies that improving tender application procedures used by construction companies leads to high quality of roads. This findings are supported by Murdoch and Hughes (2008) that Clients typically provide construction companies with a set of tender documents for a bid proposal upon which a contract may be let and executed (as explained in a standard textbook on construction contracts by). Such tender documents often contain the information about a client's project plans so that a contractor can price. The study findings coincide with Brook (2004) that Poor specification writing, disparities between bill of quantities and drawings and specifications, and poorly prepared tender documents are common problems associated with tender documents in the UK according to: 46). Preparation for tendering can be related to high costs as well as time consumption (Wilson and Kusomo, 2004; Hassel and Långström, 2004). The cost for tendering varies between 5-15% of the contract sum, depending on size and complexity of a project. According to Brandt and Franssen (2007) the tendering documents can be divided into two parts; where the first part is technical specification, and the

second part is the administrative conditions. Technical specifications can include general drawings, bill of quantities and descriptions.

Study findings further revealed that tender advertisement procedures enhances quality of roads ($\beta_2 = -0.113$, $p < 0.05$). Reducing tender advertisement procedures provides construction with sufficient time to gather all materials necessary for quality roads. The findings are consistent with Booty (2004), who found that in Korea there was up to 1.5 days saved per tender. Most of these firms were found to be effective in their work, thus, providing reliable and accessible roads. These time savings can be viewed as substantial, when seen from the employer's perspective. The time saved by reducing such tedious and repetitive tasks, which includes the re-keying of information, can be utilized more effectively by a highly qualified member of staff. Woking Borough Council (2003) argues that reducing time required completing the process of sourcing tenderers, creating tenders, distributing tenders and assessing the final tenders encouraging bidders to adhere to time given when constructing roads, at the same time they should build road of high quality. According to WTR (2003), all communications regarding tenders, from the time tenders are received and opened until a decision is made on the acceptance or otherwise of the tenders must be classified as restricted (tender).

Findings shows that construction firms in the study area have not adopted any form of technology in tendering process, however, regression results provided enough evidence that tender evaluation procedures has no influences on quality of roads in rural areas ($\beta_3 = 0.300$, $p > 0.05$). Findings contradict Westcott and Mayer (2002) findings that 80% contractors' experiences of internet/electronic tendering and the exchange of tender documents electronically in the UK had build long lasting roads, they argued that they was possibility that e-tendering process enhances the kind, time and conditions of roads to be build. Project communications are

becoming increasingly complex, with a growing need and fundamental drive to collaborate electronically at project level and beyond (Thorpe and Mea 2001; CITE 2003). Consequently, Harty(2003) argued that firms with increased knowledge, awareness and successful implementation of innovative systems and processes - such as electronic / internet-based tendering (e- Tendering) – are more capable of becoming more effective in their work, thus building quality roads in rural areas. Brandt and Franssen (2007) separate the traditional cost estimating technique into six activities. The first activity includes two phases, investigation of what is going to be constructed by a careful study of the tendering documents and to visit the construction site; it also involves the choice of construction method. Akintoye and Fitzgerald (2000) investigate which people are the most frequently participants in the estimating process. Except from the estimator, other participants are subcontractors and contract managers. Moreover they point out that site managers do not participate in the estimation process. More recently, Brooks (2008) stressed that computers are an integral part of the estimating process, outlining that many estimators and QS's are using a wide range of specialist software. Brooks (2008) was disappointed by the refusal of companies to begin exchanging certain tender documents in electronic format in lieu of hard copy since the systems enable flexibility in the configuration of the auction event such as the ability for participants to see all or only their own bid. Online auctions rely on a high level of technology and require participants to be well versed in the use of the particular system so that they are not disadvantaged during the limited auction time

Qualification requirement was observed to highly influences the quality of roads constructed in rural areas ($t_4 = 0.271$, $p < 0.05$). Achieving qualification contained in the tendering process for instance employee qualification, materials for building particular rural roads leads to

successful completion of the quality roads. According to Evonik (2009) to enhance effectiveness of tendering process, Qualification Requirements should be fulfilled by the Bidder according to his own assessment and requirements of the works. In doing so, generally, aspects like adequacy of technical knowledge and experience, Engagement in regular manufacture and supply of equipment of the type specified, Continuity of ownership during the proposed period of execution of the works.

5.3 Conclusion of the Study Findings

The study assessed the effect of tender application procedures, tender advertisement procedures, tender evaluation procedures and qualification requirement in tendering process on quality of roads. The study findings inferred that the three variables with exception of tender evaluation procedures positively enhances quality of roads

Based on the study findings tender application procedures positively increase quality of rural roads Thus, providing necessary tender document of high quality help in achieving the intended purpose of the documents and providing construction with clear and understandable information thus reducing misinterpretations as well as miscalculation, this enhances the effectiveness of the construction firms

Reducing tender advertisement procedures came forth to positively influence quality of roads. Based on the study findings tender advertisement procedures had no effect on quality of rural roads, thus quality of roads will not change whether there is tender advertisement procedure or not. This can be attributed to government reluctant to adequately sensitize construction companies. To ensure companies' employees are qualified and the pre-qualification process is legally followed will increase the quality of rural roads.

5.4 Recommendation

5.4.1 Organization Structure

The study main objective was to assess the effect of tender process/procedure on quality of rural roads, the study findings in chapter four presented findings for regression and descriptive results for quality of tender application procedure, tender advertisement procedures, tender evaluation procedures and qualification requirement in tendering process on quality of roads. In the section the study makes several recommendation as well as suggestion for future research while highlighting most important contribution of the study to the existing literature.

5.4.2 Recommendation in all Objectives

Based on the study findings that tender application procedure improves the quality of rural roads. Tender application procedures clearly contain the design and specification of what the client wants to build. Construction firms should ensure no disparities between bill of quantities and drawings and specifications in tender documents and they should also not forget to include all specifications and bills of quantities. It is also necessary for firms not to provide late information. Also being accurate in providing information is paramount for the firms in accessing modern materials and expertise.

As delaying tendering process reduces quality of rural roads, all bodies involved in supplying and receiving tender documents should ensure this is done within the time frame provided and if possible adjust the time framework currently in use. The government bodies such as Kenya rural roads authority (KERRA) should not delay when advertising for tenders it should also ensure time spent in processing data is fair

It was disappointing to find out that no technology has not been adopted in the tendering process despite many empirical evidences on importance of e-tendering process, the study encourage download of tender document from the internet and submits tender document online. Firms should take advantage of M-pesa and e-banking and m-banking in tendering process.

Qualification of employee is highly considered in tender process, qualification should also put into consideration the quality of materials is observed. This will contribute to better reliable and easy access of rural roads. It will also ensure roads are build with modern and recommended materials

5.5 Suggestions for Future Research

The study was limited to firms only in constructing companies in Elgeyo Marakwet; therefore, future research on other parts of the country especially in urban centers and busy roads will go further in adding more knowledge to this research. The study was also limited to use of internal indicators in assessing quality of roads, future research need to consider using external indicators of quality of roads.

5.6 Contributions for Body Of knowledge

Table 5.1 Contributions for Body Of knowledge

Objectives	Contribution
Objective one Effect of tender application procedures and quality roads	To the researcher few studies have assessed quality of tender document, nevertheless, The authors did not show if tender document are directly relate to quality of roads. This study has illustrated that quality of tender document is one of the factor that affect quality roads. The study showed that quality of tender document has positive effect on quality of roads contributing to the existing gap in the literature.
Objective Two Effect of tender advertisement procedure and quality roads	Time spent in tendering procedure was proved to highly influence quality of roads. This adds more literature on tendering procedure and quality of roads particularly on the emerging economies.
Objective Three Effect of tender evaluation procedures and quality roads	Contrary to developed countries, the study has evidently shown that in developing countries like Kenya e-tendering has yet to be fully embraced. Nevertheless, the study findings have contributed to the body of knowledge regarding the relationship between technology used in tendering and quality of roads.
Objective Four Effect of qualification requirement in tendering procedure and quality roads	Studies have given attention on the qualification requirement but this study has extended by evaluating the effect of qualification requirement and quality of roads where it was shown that qualification requirement positively influences quality of roads

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APPENDICES

APPENDIX I: QUESTIONNAIRE

SECTION A: BACKGROUND INFORMATION				
In this section the study would like you to provide some background information about yourself. Kindly tick () appropriately				
1	Gender	Male Female	[] []	Select one
2	Age bracket	Below 25 years Between 26-35 Between 35-45 Above 46 years	[] [] []	Select one
3	What is your level of education?	Master degree diploma certificate	[] [] []	Select one the current one
4	How long have you been in the construction industry	No. of years.....		

Please mark the number that best reflects your level of agreement in the following statements.

KEY: SA- Strongly Agree, A: Agree, UD-Undecided, D: Disagree, SD: Strongly Disagree

SECTION B: Quality Roads				
In this section the study is interested in your view about Quality of the Roads you constructed . Read each of the statements carefully and tick the appropriate choice.				
1	Most of the roads the company have constructed are reliable	SA A UD D SD	[] [] [] [] []	Select the most appropriate
2	It easy to access the roads which the company has contracted	SA A UD D SD	[] [] [] [] []	Select the most appropriate
3	The company has used modern materials and expertise to constructed roads	SA A UD D SD	[] [] [] [] []	Select the most appropriate
4	We have never received complaints on the roads the company have constructed	SA A UD D SD	[] [] [] [] []	Select the most appropriate

SECTION C: QUALITY OF TENDER APPLICATION PROCEDURE

In this section the study is interested in your view about Quality of tender documents. Read each of the statements carefully and tick the appropriate choice

1	tender documents clearly contain the design and specification of what the client wants to build	SA A UD D SD	[] [] [] [] []	Select the most appropriate
2	The company had once had disparities between bill of quantities and drawings and specifications	SA A UD D SD	[] [] [] [] []	Select the most appropriate
3	Sometimes we forget to included all specifications and bills of quantities	SA A UD D SD	[] [] [] [] []	Select the most appropriate
4	sometime companies provided late information	SA A UD D SD	[] [] [] [] []	Select the most appropriate
5	Sometime companies provide wrong information, insufficient detail	SA A UD D SD	[] [] [] [] []	Select the most appropriate

SECTION D: TENDERING ADVERTISEMENT PROCEDURE

In this section the study is interested in your view about Time in tendering procedure. Read each of the statements carefully and tick the appropriate choice

1	We received tender responses within the times provided	SA A UD D SD	[] [] [] [] []	Select the most appropriate
2	It took the company to lot of time received the tender document	SA A UD D SD	[] [] [] [] []	Select the most appropriate
3	The government always delay when advertising for tenders	SA A	[] []	Select the most appropriate

		UD D SD	[] [] []	
4	Time spent in processing data is a fair	SA A UD D SD	[] [] [] [] []	Select the most appropriate

SECTION E: TENDERING EVALUATION PROCEDURE

1. In this section the study is interested in your view about Technology used in tendering. Read each of the statements carefully and tick the appropriate choice

1	We can download tender document from the internet	SA A UD D SD	[] [] [] [] []	Select the most appropriate
2	The firm submits it tender document online	SA A UD D SD	[] [] [] [] []	Select the most appropriate
3	We pay tender fees through mpesa	SA A UD D SD	[] [] [] [] []	Select the most appropriate
4	We pay tender pay through the bank and then send the receipt online	SA A UD D SD	[] [] [] [] []	Select the most appropriate

SECTION F: QUALIFICATION PROCEDURE REQUIREMENT

In this section the study is interested in your view about Qualification requirement. Read each of the statements carefully and tick the appropriate choice.

1	Qualification of employee is highly considered in tender process	SA A UD D SD	[] [] [] [] []	Select the most appropriate
2	To be qualified in tender process quality of materials is observed	SA A UD D SD	[] [] [] [] []	Select the most appropriate

3	There free and fair tender process	SA A UD D SD	[] [] [] [] []	Select the most appropriate
4	All the rules and procedures are adhered to for tender qualification	SA A UD D SD	[] [] [] [] []	Select the most appropriate

Thank you for taking your time to participate in this study. God bless.

APPENDIX II: INTERVIEW SCHEDULE

Appendix B: Interview Schedule

a) Do you think the roads in rural areas are of high quality?

.....
.....

b) Kindly explain the quality of tender application procedure you use?

.....
.....

c) How long do you take to process tenders?

.....
.....

d) How is the qualification of tenders conducted by the government institutions?

.....
.....

e) What kind of technology do you use in tendering process?

.....
.....

APPENDIX III: SAMPLE SIZE DETERMINATION TABLE

Required Sample Size[†]								
Population Size	Confidence = 95%				Confidence = 99%			
	Margin of Error				Margin of Error			
	5.0%	3.5%	2.5%	1.0%	5.0%	3.5%	2.5%	1.0%
10	10	10	10	10	10	10	10	10
20	19	20	20	20	19	20	20	20
30	28	29	29	30	29	29	30	30
75	63	69	72	74	67	71	73	75
100	80	89	94	99	87	93	96	99
150	108	126	137	148	122	135	142	149
200	132	160	177	196	154	174	186	198
250	152	190	215	244	182	211	229	246
300	169	217	251	291	207	246	270	295
400	196	265	318	384	250	309	348	391
500	217	306	377	475	285	365	421	485
600	234	340	432	565	315	416	490	579
700	248	370	481	653	341	462	554	672
800	260	396	526	739	363	503	615	763
1,000	278	440	606	906	399	575	727	943
1,200	291	474	674	1067	427	636	827	1119
1,500	306	515	759	1297	460	712	959	1376
2,000	322	563	869	1655	498	808	1141	1785
2,500	333	597	952	1984	524	879	1288	2173
3,500	346	641	1068	2565	558	977	1510	2890
5,000	357	678	1176	3288	586	1066	1734	3842
7,500	365	710	1275	4211	610	1147	1960	5165
10,000	370	727	1332	4899	622	1193	2098	6239
25,000	378	760	1448	6939	646	1285	2399	9972
50,000	381	772	1491	8056	655	1318	2520	12455
75,000	382	776	1506	8514	658	1330	2563	13583
100,000	383	778	1513	8762	659	1336	2585	14227
250,000	384	782	1527	9248	662	1347	2626	15555
500,000	384	783	1532	9423	663	1350	2640	16055
1,000,000	384	783	1534	9512	663	1352	2647	16317
2,500,000	384	784	1536	9567	663	1353	2651	16478
10,000,000	384	784	1536	9594	663	1354	2653	16560
100,000,000	384	784	1537	9603	663	1354	2654	16584
300,000,000	384	784	1537	9603	663	1354	2654	16586

Source: Krejcie and Morgan, 1970