

**FACTORS INFLUENCING MAINTENANCE OF ROADS  
BY KENYA RURAL ROADS AUTHORITY IN BUSIA  
REGION**

**BY  
BERNARD ESABA**

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## DECLARATION

This project is my original work and has not been presented for any award in any other university.

**Sign**.....

**Date**.....

**Bernard Esaba**

**L50/61370/2013**

This research project has been submitted for examination with my approval as university supervisor.

**Sign**.....

**Date**.....

**Mr. Nebart Avutswa**

**Lecturer,**

**University of Nairobi**

## **DEDICATION**

I dedicate this project to my Mum Maria, my Wife Mercelle and the two lovely Sons Ocube and Ekadoliton who have stood as my pillar throughout the project.

## **ACKNOWLEDGEMENT**

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## **ABBREVIATIONS**

<b>AERC</b>	-	African Economic Research Consortium
<b>AFCAP</b>	-	African Community Access Programme
<b>AfDB</b>	-	African Development Bank
		Communities in Kenya
<b>D.C</b>	-	District of Columbia
<b>DFID</b>	-	Department for International Development
<b>IEA</b>	-	Institute of Economic Affairs
<b>ILO</b>	-	International Labour Organization
<b>KeNHA</b>	-	Kenya National Roads Authority
<b>KeRRA</b>	-	Kenya Rural Roads Authority
<b>KIPPRA</b>	-	Kenya Institute for Public Policy Research and Analysis
<b>KURA</b>	-	Kenya Urban Roads Authority
<b>MDGs</b>	-	Millennium Development Goals
<b>MTRD</b>	-	Material Testing and Research Department
<b>PALWECO</b>	-	Programme for Agriculture and Livelihoods in Western
<b>PIARC</b>	-	Permanent International Association of Road Congress
<b>RICS</b>	-	Roads Inventory and Conditions
<b>RoK</b>	-	Republic of Kenya
<b>SACTRA</b>	-	Standing Advisory Committee on Trunk Road Appraisal
<b>SIDA</b>	-	Swedish International Development Cooperation Agency
<b>SPSS</b>	-	Statistical package for social sciences
<b>WEDC</b>	-	Water Engineering and Development Centre
<b>WTO</b>	-	World Trade Organization

## **ABSTRACT**

Roads are clearly a critical enabling condition for improving living conditions in rural areas. Rural roads have only relatively recently received attention in development research. Production costs, employment creation, access to markets, and investment depend on the quality of infrastructure, especially transport. The purpose of the study was to examine the factors influencing roads maintenance by Kenya Rural Roads Authority in Busia Region. The objectives of the study were to investigate the influence of procurement practices, funding, political interference, material used for construction and human activities on the maintenance of roads by KeRRA. The design that used in the research was descriptive survey. The target populations of the study were 40 respondents from Kenya rural roads authority. The study used the census approach where all the members of the target population were included into the study sample. The study used both primary and secondary data collection methods. The primary data was collected using questionnaires. Secondary data was derived from the organization records. The data from the completed questionnaires was studied, re-coded and entered into the computer using the Statistical Package for Social Sciences (SPSS) version 19. Descriptive statistics were employed to analyze quantitative data. The descriptive statistics included frequency counts, means and percentages. Qualitative data was analyzed qualitatively using content analysis based on analysis of meanings and implications emanating from respondents information and documented data. The results of the study showed that politicians influence the identification of projects to be funded and tendering process. It was also evident that the amount of budget given to KeRRA is inadequate. The study recommends that there is need for public education on roads in relation to economic development and more funding should be given to the roads authority to improve the infrastructure network.

# CHAPTER ONE

## INTRODUCTION

### 1.1 Background of the Study

Access is key determinant to poverty. Without physical access rural communities face greater obstacles in obtaining health, education and other social services. In addition, their ability to take advantage of surplus crop production and of employment opportunities is severely constrained. Roads are key elements in the provision of physical access. This plays a vital role in determining the chances for reaching a number of MDGs. The benefits of improved access however are short lived if the rural roads are not maintained (ILO, 2007).

Rural roads are often treated as the last link of the transport network. Despite this, they form the most important link in terms of providing access for the rural population. Road deterioration due to lack of maintenance has become a growing issue in a number of developing countries (Susan Kocher *et al.*, 2007). The basic object of road maintenance is implicit in the word itself. It is done to ensure that the road has been constructed or improved, is maintained in its original condition. It is accepted that over the life of the road it will deteriorate due to the factors with which maintenance activities can't deal. Nevertheless, maintenance is intended to slow this deterioration and should begin as soon as the road improvement is completed (ILO, 2007).

According to Asif (2012), globally, about 33.8 Million Km of roads girdle the Earth's land mass of 148.9 Million Km<sup>2</sup> averaging 0.23Km/Km<sup>2</sup> of land area, about 57% of it is paved with bitumen, concrete or stone surfacing. Nearly 85% of the paved roads are

considered to be rural roads or Low Volume Roads. In Brazil, The Road System consists of 1.63 Million Km, 87% of it is unpaved and in poor conditions. Of the Russian 1 Milion Km Road System, 65% of it is under rural management and mostly unpaved.

According to Donnges *et al.*, (2007), rural roads in most Asian countries such as Mongolia, Indonesia, Philippines, Cambodia, Bangladeshi and Vietnam represent between 70% and 80% of the total network. In most of these countries, rural road maintenance is conspicuously absent. Insufficient funds are allocated and even where the funds are available, they are generally not utilized within the planned maintenance framework. Rather, the funds are used to correct major defects which have been caused by the absence of preventive maintenance. The implications of lack of this maintenance are severe.

In the first place it means that the enormous investments in capital assets that a country has placed in its rural road network are sometimes deteriorating fast than roads are being rehabilitated. In Philippines for instance it is estimated that the annual loans in national capital assets is twice the budget that is required to maintain these assets. Thirdly, rural roads are generally funded based on an economic analysis of both the reduction in transport costs and increases in production. Moreover the analysis assumes a design life of the road based on an effective maintenance regime. If the latter is not in place then the analysis is meaningless. Rural roads maintenance is therefore a major challenge for the countries of Asia region.

The Sub-Saharan Countries also face the same problem and even much worse. South Africa has 746,978 Km of Road Network with only 20.6% paved. This is most replicated in most other countries of the Continent (Asif, 2012). The condition of Rural Roads in the Sub-Saharan can be summarized as follows: Burkina Faso 60% good 35% fair and 5% poor, Ghana 40% good 15% fair and 45% poor, Chad 35% good 10% fair and 55% poor, Namibia 25% good 20% fair and 55% poor, Ethiopia 25% good 20% fair and 55% poor, Tanzania 25% good 20% fair and 55% poor, Madagascar 10% good 5% fair and 85% poor then finally Uganda has 0% of its rural roads in good condition, 20% fair and 80% being in poor state (Vivien Foster *et al*, 2008).

According to Ahmad (2006), maintenance is always a must for any structure in order to maintain its serviceability and to prevent deterioration that may shorten the service life. In reality, maintenance works are not given the attention it should have a budget allocated for maintenance work in which seldom become a prior consideration. However, it is a fact that maintenance is the most important and the activity to be carried out to prolong or at least maintain serviceability of structure until the end of its service life.

Africa is poorly serviced with rural roads. The significant difference is partly due to diverse levels of development in general, but it also reflects the basic geographic fact that Africa is a very large continent, often with vast distances between the main population and production centers. The large size of the continent and the wide spread of population only raises the significance of transport in almost all development decisions. This lack of adequate transportation impacts the level of business activity

by lowering productivity and limiting the entry of new enterprises. Businesses in Africa either supply to fragmented regional markets, or restrict themselves to market opportunities with profits large enough to cover the high transport costs (Ramachandran, 2008).

The relatively sparse road network does not imply a lack of importance of road transport. Rather, road transport is the most important mode. Decades of undercapitalization, poor management and general neglect of the railways have propelled road transport to the most important means of transport in Africa. Road transport accounts for over 80% of all freight and passenger movements in Africa and there are no signs that this position will be threatened during the foreseeable future (AfDB, 2003). The existing road networks in sub-Saharan African countries were originally established to service the specific needs and interests of the colonial powers who utilized Africa as an import and export market to fuel domestic economic growth. Therefore, after having achieved independence, African nations inherited a transportation system that was outward looking rather than geared towards improved trade and transport with neighboring African countries (AfDB, 2003).

In 1998, the transport sector in Kenya comprised a road network with 150,000 km of roads and 350,000 vehicles, a single-track railway running from Mombasa to Uganda, a major seaport at Mombasa, small ports at Lamu and Malindi, a ferry service to Uganda, an oil pipeline from Mombasa to Kisumu via Nairobi and Eldoret, four international and many small airports, and three inland container depots IEA (1998). With a 34% share in the total transport sector in 1998, road transport has the highest contribution to national output among the transport systems. It is followed by air

transport, with 25%, and water transport, with 16% (Ikiara *et al.*, 2000). Considering that this level of performance was achieved over a period of deficient road maintenance, it is obvious that the subsector and by implication the road infrastructure policy holds the potential for rapid economic growth and poverty reduction through its influence on production costs, employment creation, access to markets, and investment (RoK, 2000).

By the year 2008, Kenya had increased its road network to 160, 886Km (RICS, 2009). Of this Road Network, 11% (17, 279Km) is good, 33% (52, 815km) is fair and 56% (90,792) is poor. Kenya Rural Roads Authority handles 70% of the total road network in the country (KeRRA, 2012). At present, roads remain the dominant transport mode in Kenya. Road transport accounts for about 93% of all freight and passenger traffic in Kenya. Roads are key enablers for economic, social and political development. Of the 160,886 Km road network, 61,946 Km (39%) is classified while 98,940 Km (61%) is unclassified. The current Road Classification System i.e. A to E and Special purpose roads was developed in the 1970s. Each class is defined by the functional criteria related to administrative level of centres the road connects. The category and classifications are dynamic and do evolve over the years. Currently KeRRA handles all class D, E and all other unclassified roads (AFCAP, 2012).

## **1.2 Statement of the Problem**

Issues regarding rural roads accessibility in Sub Saharan Africa remain a challenge towards poverty reduction and achievement of sustainable development despite their importance towards economic development. Rural roads are of vital importance in order to bring development of areas they serve and make a nation grow and develop



(Ikiara et al., 2000). Especially in the third world, good maintained roads also will enhance poverty reduction by improving access between regional and rural communities and, ultimately, enhancing socio-economic growth and development (Asif, 2012). Road networks form vital links between production centres and markets. In addition its multiple function of providing access to employment, social, health and education services makes road network crucial in fighting against poverty by opening up more areas and stimulating economic and social development. There is a problem, however, which is common throughout the world, the neglect of maintaining our roads. Building new roads cost money, but without maintaining the roads properly, they deteriorate very quickly. If nothing is done, roads with a design life of decades can need replacing or major repair work after just a few years.

Development and maintenance of physical infrastructure are key to rapid economic growth and poverty reduction. Production costs, employment creation, access to markets, and investment depend on the quality of infrastructure, especially transport. It is because of the enormous role plaid by roads that the Kenyan Government through an Act of Parliament 2007 established the three road Agencies i.e. Kenya National Roads Authority (KeNHA), Kenya Urban Roads Authority (KURA) and the Kenya Rural Roads Authority (KeRRA) to bring about efficiency in road maintenance (KRB, 2007).

Despite the work done by KeRRA since inception, the conditions of rural roads are still poor. As the road network deteriorates in Busia County and it being along the border with Kenya and Uganda, it plays a very vital role as far generation of revenue and economic development of this nation is concerned. The situation in region

concerning the road condition is not only urgent, it is critical. It is in this regard that the Finish government through a program called PALWECO has come to work close with KeRRA to undertake various road works in the region amounting to EUR 27 Million(Embassy of Finland Nairobi, 2012). It is important to know the costs involved in rural road maintenance and the costs of not maintaining rural roads. In particular, road links between nations will have to be strengthened to meet the large-scale demand for intra- and inter-national goods traffic. Therefore this study seeks to fill the research gap by examining the effectiveness of managing rural roads maintenance.

### **1.3 Purpose of the Study**

The purpose of the study is to examine the factors influencing roads maintenance as maintained by Kenya Rural Roads Authority. It is vital to have full understanding and unanimity among the communities, Government and the NGO's on issues related to rural infrastructure. The relationship will enhance acceptability as well as affordability at beneficiary level to make the programme sustainable. Within this broad framework the study aims to show that rural road infrastructure maintenance can be minimized and the potential losses can be reduced or averted if maintenance work can be implemented efficiently and effectively.

### **1.4 Objectives of the Study**

The study was guided by the following specific objectives

1. To determine the influence of procurement practices on maintenance of roads by KeRRA
2. To examine the influence of funding on the maintenance of roads by KeRRA
3. To determine the extent at which political interference influence the managing of roads maintenance by KeRRA

4. To analyze the influence of material used for construction on the maintenance of roads by KeRRA
5. To determine how human activities influence the maintenance of roads by KeRRA

### **1.5 Research Questions**

1. What is the influence of procurement practices on the maintenance of roads by KeRRA?
2. What is the influence of funding on the managing roads maintenance by KeRRA?
3. To what extent does political interference influence the managing roads maintenance by KeRRA?
4. What is the effect of material used for construction on the maintenance of roads by KeRRA?
5. What is the influence of human activities on the maintenance of roads by KeRRA?

### **1.6 Significance of the Study**

The aim of the study was to find out the factors influencing maintenance of roads by Kenya Rural Roads Authority. The information gathered in this study is aimed at assisting the Kenya Rural Roads Authority Board of Directors and the Management and to closely monitor the changes of the road network. Also, to come up with the appropriate measures to counter the challenges currently being experienced by rural roads' users in relation to the area under study.

For academicians and researchers, they would do an in-depth investigation on the effectiveness of managing rural roads maintenance by Kenya rural roads authority. Through studying the degree or the quantitative measurements of their challenges, the study will enable them to carry out further studies as they progress in advancing their education levels.

The findings of the study may help to show a solid understanding of the regulatory framework and the recommendations on the appropriate regulations that will be necessary for the road network. The outcome of this process will inform the specific measures that either will be developed or may address the specific challenges that influence either the increase or decline of the effectiveness of managing rural roads maintenance by Kenya rural roads authority.

### **1.7 Delimitation of the Study**

The study was carried out in KeRRA. The study was delimited to the KeRRA in Busia Region office. The study specifically collected data on factors influencing roads maintenance by Kenya rural roads authority. Questionnaires were the main instruments used for data collection in this study.

### **1.8 Limitations of the Study**

While conducting this study, the researcher was faced with the following limitations:-

- (i) The researcher faced a challenge of uncooperative and unfriendly respondents. But this was countered by motivating the respondents and by following up on the questionnaires.

- (ii) Another challenge was that some of the respondents filled ambiguous answers while others left blank questions (that is, fail to write their response to some questions) in the questionnaires. This was managed by revisiting the same departments whose respondents the researcher noticed that their questionnaires were having ambiguous answers and leave blank questions.

### **1.9 Definition of Key Significant Terms**

**Bitumen -** This is a sticky black & highly viscous liquid or semi-solid form of petroleum. It may be found in natural deposits or refined and used in road construction.

**Gravel -** The natural material used for road construction, sometimes referred to as murram.

**Maintenance -** Activities required or undertaken to conserve as nearly, and as long, as possible the original condition of an asset or resource while compensating for normal wear and tear.

**Pavement or road surface-** This is a durable surface material laid down on an area intended to sustain vehicular or foot traffic. They are frequently marked to guide traffic.

**Rehabilitation-** Restoring the road to previous condition, by strengthening or replenishing the existing vulnerable formation which suffer damage.

**Road Maintenance -** Suitable regular and occasional activities to keep pavement, shoulders slopes, drainage facilities and all other structures and properties margins as near as possible to their as constructed or renewed conditions. It includes minor repairs and improvements to

eliminate the cause of defects and avoid excessive repetitions of maintenance efforts.

**Road Network** - a continuous segment of a road straight or curved with a constant number of lanes throughout its whole length.

**Rural roads-** Rural roads are defined as low traffic roads located in forested and rangeland settings that serve residential, recreational and resource management uses. Rural roads may be owned and/or managed by governmental or private parties.

**Shoulder** - Paved or unpaved part of the roadway next to the outer edge of the pavement. The shoulder provides the side support for the pavement and allows vehicle to slip or pass in an emergency case.

**Unpaved or unsealed Road** - A road with seal or gravel surface.

### **1.10 Organization of the Study**

Chapter one of this study introduces the background of the study, problem statement which describes the specific problem addressed in the study ,the purpose of the study, research objectives and questions, significance of the study ,delimitation and limitations of the study, assumptions and definition of key terms.

Chapter two presents a review of literature and relevant research associated with the problem addressed in this study. Chapter three presents the research design, target population, sampling procedure, data collection instrument, validity and reliability of the study and the data analysis and presentation. Chapter four contains an analysis of the data and presentation of the results. Chapter five offer a summary and discussion of findings, implications for practice, and recommendation for future research.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter highlights literature reviewed on managing roads maintenance, the theoretical review, empirical review and the conceptualization of the study.

#### **2.2 Managing Roads Maintenance**

Maintenance can be defined as ‘all the technical and associated administrative functions intended to retain an item or system in, or restore it to, a state in which it can perform its required function’ (Dekker, 1996). It does not upgrade the asset. In practice, it is common to carry out small upgrades of roads such as widening or shoulder sealing together with rehabilitations. Without maintenance, roads can quickly fall into disrepair leading to increased costs for road users in vehicle operation, time, reliability and safety. If deterioration goes too far, users will be reluctant to use the road with attendant losses of the economic and social benefits the road confers. Routine and periodic maintenance cost for the entire life of a road is estimated to be between 2 and 3 percent of the initial capital investment (Zietlow & Bull, 1999). However, neglected maintenance could cause this amount to increase.

The roads existence is due to the mobility need of people that, after the infrastructure construction, become its users. From this point of view, the road user should play an important role in roads planning, building and maintaining processes. In particular, the roads maintenance should be planned taking into account also the satisfaction of travelers: the more important is the road they are going along, the higher is expectation of “road quality” and “maintenance quality”. The concepts of service quality and users’ satisfaction have been deeply investigated during the past decade;

however, the exact nature of users' judgments and relationship between quality and satisfaction are not well-defined yet: sometimes quality and satisfaction are considered like synonyms, other times considerable attempts have been made to integrate them in one conceptual model (de Ruyter *et al.*, 1997).

White (2005) noted that mobility in rural areas could be hampered by the lack of transportation facilities and unavailability of good roads which could have a negative effect on farmers' productivity. In spite of the fact that road infrastructure is an important factor in integrating the rural ties into the overall national development process its development in many communities has not been taken seriously. This is because it is either taken for granted or it is difficult to quantify its direct and indirect effects. The physical condition of most of the existing earth or tarred road in rural areas especially during the rainy season is quit bewildering. During the rainy season, the roads become almost impassable. The poor state of the roads apart from having undesirable effects on passengers; goods and traffic flow, also results in substantial loss of perishable agricultural produce, high cost of moving agricultural produce and other products and exorbitant cost of vehicle maintenance.

### **2.2.1 Influence of Procurement Practices on the Managing Roads Maintenance**

Shrestha (2007) notes that there is a general lack of public knowledge regarding the obligations and duties of civil servants and that, in the case of the municipal roads sector, this translates into opaque tendering processes for contracting. As a result, bribes are frequently paid to secure contracts, costs are inflated and it is relatively common for officials to charge commission to the contractor. This can undermine incentives for officials to hold contractors accountable for the quality of their work, leads to inefficient use of public money and resource diversion, with knock-on effects on the quality of the road network.



According to World Bank (2010), the creation of specialist management agencies and the adoption of performance-based contracts for maintenance in some Sub-Saharan African countries have had a very positive impact on road quality. Under these contracts, private contractors are required to maintain a set of public roads so they meet a set of quality conditions over a three- to ten-year period, in return for a steady stream of revenue. Estimates show that adoption of this method can reduce maintenance costs for paved roads by 10-20%.

### **2.2.2 Influence of Funding on the Managing Roads Maintenance**

A report by the World Bank (2010), looking at infrastructure in Sub-Saharan Africa also casts doubt on the viability of exclusion through toll financing, even for major trunk roads. It notes that toll roads currently make up only 0.1% of the region's formal road network, and that these are found almost entirely in South Africa. Going further, it estimates that a minimum traffic volume of 15,000 vehicles a day is necessary for toll concessions to be economically viable, and that these conditions exist on less than 10% of the existing Sub-Saharan road network, with these areas concentrated in South Africa and some areas of Nigeria. These forecasts demonstrate the difficulties of viable exclusion in the roads sector, but also illustrate that there is unexploited potential for doing so, at least within South Africa and Nigeria, and that this may become more viable in the future, if and when traffic volumes increase.

Rafiqui (2003) provides a different perspective from rural Laos, where questions of economic viability combined with a lack of local legal ownership over community-constructed and maintained roads have been found to undermine the ability of communities to exclude and charge tolls to non-local users. The author also notes

initiatives organized by the Swedish International Development Cooperation Agency (Sida) and others that provide models for community roads and use taxation of non-community members to provide at least partial finance for them. Exclusion may therefore be possible but requires a legal framework and an acceptance that this cannot be the main source of road financing under most circumstances.

### **2.2.3 Political Interference's Influence in Roads Maintenance**

According to van de Walle and Mu (2007), in Vietnam the preference for rural road construction over and above maintenance, and the willingness to transfer aid money for that purpose, indicates that local politicians view road construction as more politically salient and face political incentives that reward them for prioritizing construction over maintenance.

According Wilson (2004), in the context of Peru, looking at both the modern era and the immediate post-Independence period; the ability of road construction to allow greater government influence in the provinces and easier mobilization of the coercive force of the state meant that, even where roads were not demanded, or even were resisted, they were still eventually provided. In the current era, there is a clear alignment between salience emerging from this desire to expand state authority and demand from rural people for connectivity. This ensures that road construction is a highly politically salient task and that, to a large extent, maintenance loses out as a result.

Kenya provides a good example of how ethnic polarization can lead to political market imperfections that then provide incentives for road construction targeted for patronage purposes. Burgess et al. (2009) examine this case in detail, noting that Kenya has great ethnic and regional fragmentation, with five groups comprising 70%

of the population, which have a high degree of geographic concentration and social segregation. They argue that this provides the ideal conditions for ethnic favoritism and patronage politics, as resources can be targeted to politicians' ethnic power bases with considerable ease and strong identities provide a common point of political identification for poorly informed voters.

For the roads sector, this contributes to the diversion of resources (chiefly paved road construction projects) towards areas that have provided support for ruling parties and politicians. Burgess et al. (2009) demonstrate this by analyzing a comprehensive dataset of post-Independence era information on road construction patterns in Kenya, the (relatively unchanged) geographic distribution of ethnic groupings and the identities and home regions of central government ministers. They find strong evidence that road expansion in any given year is closely related to the home regions of the prime minister and the minister of public works, and to ethnic groups represented in the Cabinet, with the second largest group receiving a particular boost. This suggests that politicians have used road construction as a mechanism for distributing patronage, either to secure their own power bases, or to ensure political stability. This may contribute to under-provision of roads in some areas and a deterioration of the road network in areas that lack a high-ranking minister or political connections.

#### **2.2.4 Influence of Human Activities on Maintenance of Roads**

Road maintenance should be considered an avoidable necessity of living in rural areas. People should take time to learn about roads because when they are well designed and maintained they have fewer impacts on the environment, are more reliable and cost less to maintain. Poorly designed, maintained and located roads have

a higher risk of failing during storms than those that are well constructed and maintained. Human activities ranging from driving along road shoulders, blocking culverts and other drainage channels would hamper the life span of roads (Susan Kocher et al, 2007). When road users decide to farm closer to the roads and provide water channels directly to the roads, this would bring about erosion which would deteriorate the lifespan of the road either paved or unpaved.

### **2.2.5 Influence of Road Materials Used in Maintenance of Roads**

Just like the materials used for the manufacture of garments making them durable, the materials used for road constructions should also be well checked and tested for it to achieve its purpose. Material testing and research department (MTRD) is charged with the responsibility of research and testing materials for quality and standard compliance both in government and private sector construction and industry. Specifically, MTRD's mandate is testing and research on roads and building construction materials, road pavement design and construction specifications, construction quality control and assurance and post construction evaluation of roads and other infrastructure (AFCAP, 2012). Any materials used for roads such as murrum, concrete, bitumen etc should be tested for recommendation by the relevant officers. Therefore where such procedure isn't the roads maintained may have problems to the users.

### **2.3 Theoretical Framework**

Provision or improvement of transport services results in reduction of transport cost and/or travel time which in turn lead to increased production. Improved transport, therefore, promotes social and economic development by increasing mobility and

improving physical access to resources and markets. Rural roads connect production areas to markets and to major roads treat transport as one of the factors of production (Sactra, 2000). As transport cost decreases, the factor prices fall resulting in increased demand for input use or more output supply according to microeconomic theory. Local farmers can benefit from a rural road when the road reduces the cost of transporting agri-cultural products to markets and extends the distance to breakeven locations. This might lead to more intensive cultivation and increased production of cash crops. Rural road transport can further reduce production costs by lowering prices of delivered inputs, including equipment and information (for example, through better agricultural extension services).

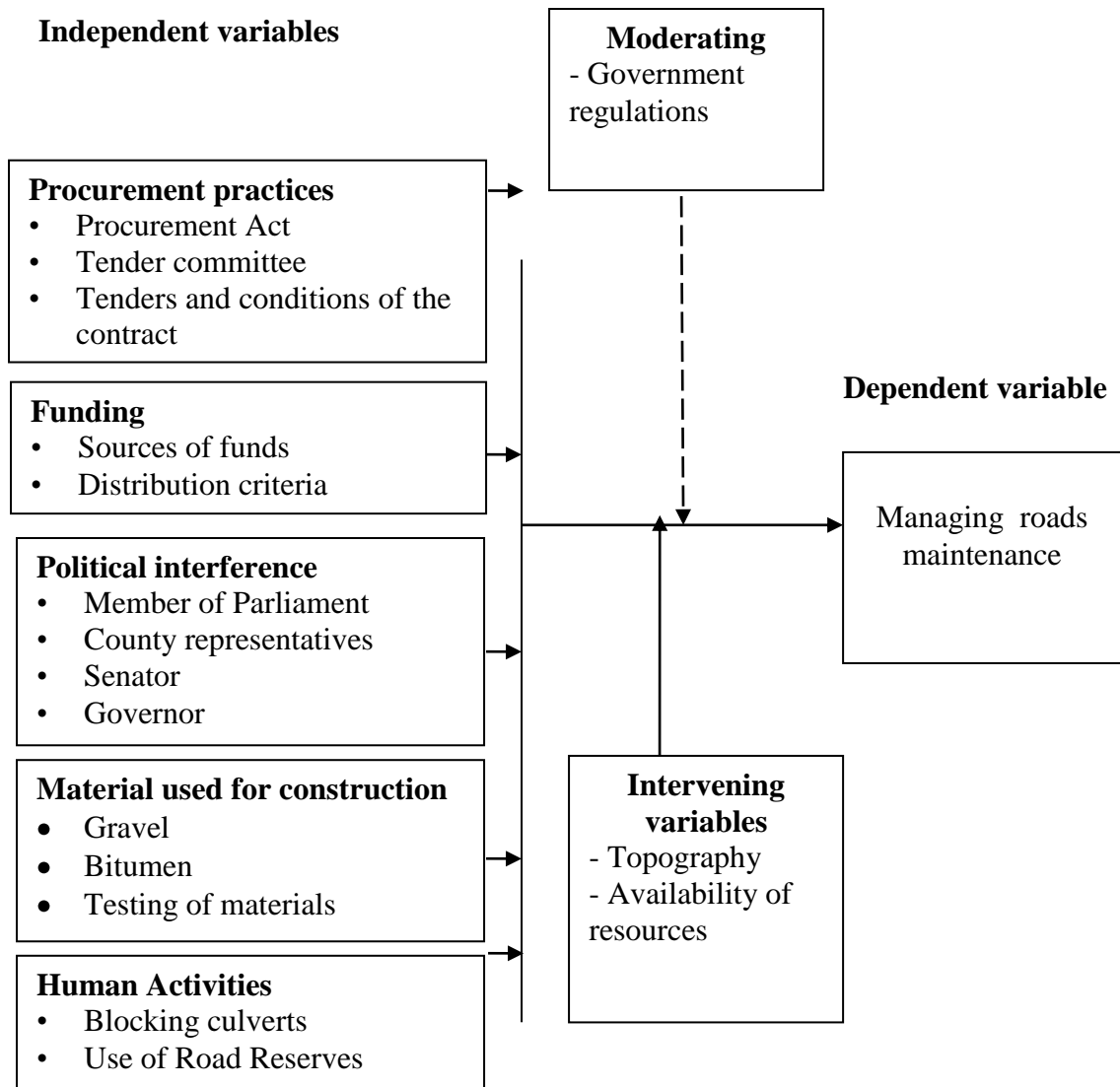
The ultimate effect is increased net farm gate prices and increased farm incomes although the extent to which this happens depends on the competitiveness of the transport service market. All weather access to road not only increases income from farming activities, but also makes prices more stable and thus enables the poor to improve risk management and reduce risk. Better access to roads will also improve labor force mobility and thereby increase households' job opportunities.

According to World Bank (1996). as the cost of transport declines, the production cost falls which may result in increased production. Similarly when travel time is saved, more labor is available for production, which is equivalent to an increase in labor supply, resulting in increased production. So the overall activities expand with the provision of transport services. Investment in the transport sector can improve access to economic opportunities by reducing transport costs and travel time. If markets are reasonably competitive, this can result in lower prices for freight and passenger ser-

vices. This in turn can lead to lower prices for product and consumer goods, a spatial extension of the market for production and consumption goods, higher personal mobility, and a general higher level of socioeconomic activities. The provision or improvement of trans-*port* services reduces the transport cost of goods, which results in increase in farmgate prices of agricultural products while decrease in the farmgate prices of agricultural inputs and other consumer goods. The width of price band reduces due the improved transportation services so the rural people can get double benefits.

## **2.6 Conceptual Framework**

The study can be conceptualized in a conceptual framework presented in a schematic interpretation explaining the relationship. The Figure 1 shows the relationship between the dependent and independent variables:



**Figure 1: Conceptual Framework**

**Procurement practices-** The main trend in the development of maintenance procurement is to expand current area maintenance contracts. The contract period of new area maintenance contracts is longer, their content is more diversified and the area is larger. Some maintenance work will continue to be done under separate contracts, but their procurement will also undergo development. Adoption of performance based contracts reduces the cost of rural road maintenance by 10% to 20%. Procurement practices for road maintenance are usually short term and low valued especially for rural road maintenance Domestic contractors should are used. A

strongly developed local contracting sector has several advantages, from works methods tailored to local conditions and improved productivity to greater accountability and lower cost.

**Funding of Roads-** Whilst the cost of rural road maintenance is small relative to the asset value, it is crucial that maintenance is carried out on a timely and regular basis. Consequently it is a recurrent activity and needs to be financed as such. The funds allocated to it should relate to a maintenance plan which defines those roads in a maintainable condition and defines a recurrent cost for the network. Funds allocated to road maintenance are channeled to interurban roads neglecting rural roads. Unfortunately, road maintenance is often viewed as a set of projects to be carried out on roads which, because of lack of maintenance, have deteriorated to a state where they need re-construction. Rural roads seen as less important fail to receive regular maintenance at the expense of interurban roads.

**Political interference-** Political market imperfections can mean political leaders exploit the status of roads as a highly visible and demanded good in order to use them as a tool for patronage, facilitated by high levels of asymmetrical information. Incentives can lead to inflated project costs that limit network expansion, a distribution of rural road funds to areas that are politically important areas at the expense of others and inefficient prioritization of highly visible and politically rewarding construction and rehabilitation projects when regular maintenance would produce better road quality for far less expenditure. It also seems that the most powerful ethnic group in the cabinet and the district of birth of the public works minister receive more paved roads. Majority of local politicians bring all road



developments to areas that took them to power. Overbuilding of rural roads in some areas costs taxpayers' money that could maintain roads in other rural areas. The promise of rural roads is best fulfilled when connectivity to opportunity (economic and social) guides the planning, financing, and construction of this vital rural infrastructure instead of rules of thumb and broad guidelines vulnerable to political manipulation. Orphan roads are usually left unattended by the cities that they serve because they lie out of municipality boundaries.

**Human activities-**When the public is synthesized on the importance of roads, the enormous roles they play in the development of the country's economic growth, then they may as road users exercise care while using them. Rural roads connect farming areas thereby poor farm practices may affect the maintenance cost of rural roads. Some human activities such as blocking culverts and farming closer to unpaved road may affect the drainage and subsequently leading to rural road deterioration.

**Road materials used-** Road materials used play a crucial role on any road. Some road base may require a lot natural material while some may take just a little based on nature of soil. Before these materials are used, it should be tested. Many rural roads are not constructed with tested materials and this factor contributes to poor performance and frequent need for maintenance.

## **2.5 Summary and Research Gap**

The literature has revealed that many studies have been done concerning effectiveness of managing rural roads maintenance. Also the literature has shown much on the issues surrounding managing rural roads maintenance and the obstacles faced. However, these studies lack detailed information on effectiveness of managing rural roads maintenance. This work will be a modest attempt to fill this knowledge gap.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter presents the procedures to be used in conducting the study, focusing on research design, target population, sample and sampling procedures, research instruments, and data collection and analysis procedures.

#### **3.2 Research Design**

The design used in the research was descriptive survey. It involved collection and analyzing of data in order to answer questions concerning the current status of the subject of study. Descriptive survey was used because it is intended to provide statistical information about aspects of discipline to educators.

#### **3.3 Target Population**

Target population is defined as all the members of a real or hypothetical set of people, events or objects to which a researcher wishes to generalize the results of the research study. The target population of the study was 40 respondents from Kenya rural roads authority (Human resource department; KeRRA).

#### **3.4 Sample Size Sampling Procedures**

The study used the census approach where all the members of the target population were included into the study sample.

#### **3.5 Data collection instrument**

The study used both primary and secondary data collection methods. The primary data was collected using questionnaires. Secondary data was derived from the organization's records. Questionnaires were prepared for respondents to fill and

availed data for the purpose of study as a qualitative approach to obtain data. All the data collected through the questionnaire were analyzed to identify any inconsistencies and institute the necessary corrective measures.

### **3.5.1 The Questionnaires**

Both unstructured and contingency questions were used in the design of questionnaire. Unstructured questions allowed greater depths of response and they stimulate the respondent to think about their feelings and motives while considering the best assessment of the situation. Contingency questions were easier to analyze thus helped in arriving at proper presentation of data.

### **3.6 Validity and reliability of Research Instrument**

Validity and reliability are essential ways by which any research instruments are evaluated before being taken to the field for data collection.

#### **3.6.1 Validity**

According to Paton (2000), validity is the quality attributed to proposition or measures to the degree to which they conform to established knowledge or truth. An attitude scale is considered valid, for example, to the degree to which its results conform to other measures of possession of the attitude. Content validity of the research instruments is established in order to make sure that they reflect the content of the concepts in question. First, the researcher went through the instruments and compared them with the set objectives and ensures that they contained all the information that answers the set questions and address the objectives. Second, experts (supervisor) were consulted to scrutinize the relevance of the questionnaire items against the set objectives of the study.

### **3.6.2 Reliability**

According to Mugenda and Mugenda (2003), the reliability of an instrument is the measure of the degree to which a research instrument yields consistent results or data after repeated trials. In order to test the reliability of the instrument to be used in the study, the test- retest method was used. The instruments were taken for piloting on a population that is similar to the target population in Bungoma County. The objective of piloting was to eliminate some ambiguous items, establish if there were any problems in administering the instruments, test data collection instructions, establish the feasibility of the study, anticipate and amend any logical and procedural difficulties regarding the study, and allow preliminary (dummy) data analysis. Piloting also assisted the researcher in testing the reliability of the instrument. The pilot study was conducted at Busia Region Kenya Urban Roads Authority (KURA) offices in Busia region by involving 5-respondents who were tested two times.

The period for pilot study was three weeks period. The questionnaires were given to the same number of respondents at an interval period of two weeks. Thereafter, Cronbach Alpha correlation coefficient was calculated with the help of Statistical Package for Social Sciences (SPSS Version 19). An average reliability value of 0.821 was obtained for all objectives therefore making the research instrument to be reliable. This is according to Kothari (2004) who indicate that a reliability value ( $r$ ) of 0.7 and above is adequate.

### **3.6 Data Collection Procedure**

After checking research instruments validity and reliability, the study proceeded to the field for the purpose of data collection. Research Permit was obtained from NACOSTI. A letter was sent to the Director of KeRRA (Busia Region) to seek formal clearance to engage in the study in the particular area. Women groups' heads were also notified prior to data collection process. Before data administration, the respondents consent was sought. After the respondents accepted to participate in the study, research instruments were provided to them. The questionnaires were collected after the respondents finished filling them.

### **3.7 Data Analysis and Presentation**

The data collected for the purpose of the study was adopted and coded for completeness and accuracy of information at the end of every field data collection day and before storage. The data from the completed questionnaires was studied, re-coded and entered into the computer using the statistical package for social sciences (SPSS) version 19. This research yielded both qualitative and quantitative data. Qualitative data was analyzed qualitatively using content analysis based on analysis of meanings and implications emanating from respondents information and documented data. Descriptive statistics were employed to analyze quantitative data. The descriptive statistics included frequency counts, means and percentages. Statistical inferences were drawn using correlation analysis, and regression analysis. Quantitative data was presented using frequency tables, bar graphs and pie charts. Qualitative data was analyzed by arranging responses according to the research questions and objectives.

### **3.8 Ethical Issues**

The information obtained from this study was used for the fulfillment of the researcher's academic requirement. The information was not divulged to any third parties at any cost. Names of the respondents were optional and they were not disclosed to protect their rights and personal details was limited to general information.

### 3.9 Operationalization of Variables

**Table 3.1: Operationalization of Variables**

<b>Objectives /questions</b>	<b>Type of information</b>	<b>Data collection instrument</b>	<b>Measurement scale</b>	<b>Analysis technique</b>
What is the influence of procurement practices on the maintenance roads by KeRRA?	Procurement Act Tender committee Tenders and conditions of the contract	Questionnaire	Ordinal, Nominal and Ratio depending on the question asked	Frequencies Comparison of means, Cross tabulation
What is the influence of funding on the managing roads maintenance in KeRRA?	Source of funding Distribution criteria	Questionnaire	Ordinal, Nominal and Ratio depending on the question asked	Frequencies Comparison of means Cross tabulation
To what extent does political interference affect the managing roads maintenance in KeRRA?	Member of Parliament County representatives Senator Governor	Questionnaire	Ordinal, Nominal and Ratio depending on the question asked	Frequencies Comparison of means Cross tabulation
What is the influence of material used for construction on the maintenance roads by KeRRA?	Quality of Murram, Bitumen, Concrete, stones,	Questionnaire	Ordinal, Nominal and Ratio depending on the question asked	Frequencies Comparison of means Cross tabulation
Do human activities influence maintenance roads by KeRRA?	Design, Farming, Shoulder destruction	Questionnaire	Ordinal, Nominal and Ratio depending on the question asked	Frequencies Comparison of means Cross tabulation

**CHAPTER FOUR**  
**DATA ANALYSIS, PRESENTATIONS, DISCUSSION AND**  
**INTERPRETATION**

**4.1 Introduction**

This chapter presented the analysis, discussions and findings on the factors influencing rural roads maintenance as maintained by Kenya Rural Roads Authority. The researcher administered questionnaires and used interviews to collect the data. The data that was collected was analyzed to be able to come up with results. The study concentrated on the following specific objectives:

- (i) To determine the influence of procurement practices on maintenance of roads by KeRRA
- (ii) To examine the influence of funding on the maintenance of roads by KeRRA
- (iii) To determine the extent at which political interference influence the managing of roads maintenance by KeRRA
- (iv) To analyze the influence of material used for construction on the maintenance of roads by KeRRA
- (v) To determine how human activities influence the maintenance of roads by KeRRA

**4.2 Background Information of the Respondents**

The information collected from respondents involved their gender profile, age bracket, working experience and academic qualifications. The responses are given in subsections below.



### 4.2.1 Gender

The respondents were asked to indicate their gender details. The results are presented in Table 4.1

**Table 4.1 Gender of respondents**

<b>Gender profile</b>	<b>Frequency</b>	<b>Percent</b>
Female	15	37.5
Male	25	62.5
<b>Total</b>	<b>40</b>	<b>100.0</b>

The research responses above showed that majority of the respondents (62.5%) were male while the minority of the respondents (37.5%) was female. These responses showed that KeRRA as employer was able to meet the constitutional 1/3 requirement for women in employment.

### 4.2.2 Age bracket

The study also sought to determine the age bracket of employees working at KeRRA; the findings are given in Table 4.2.

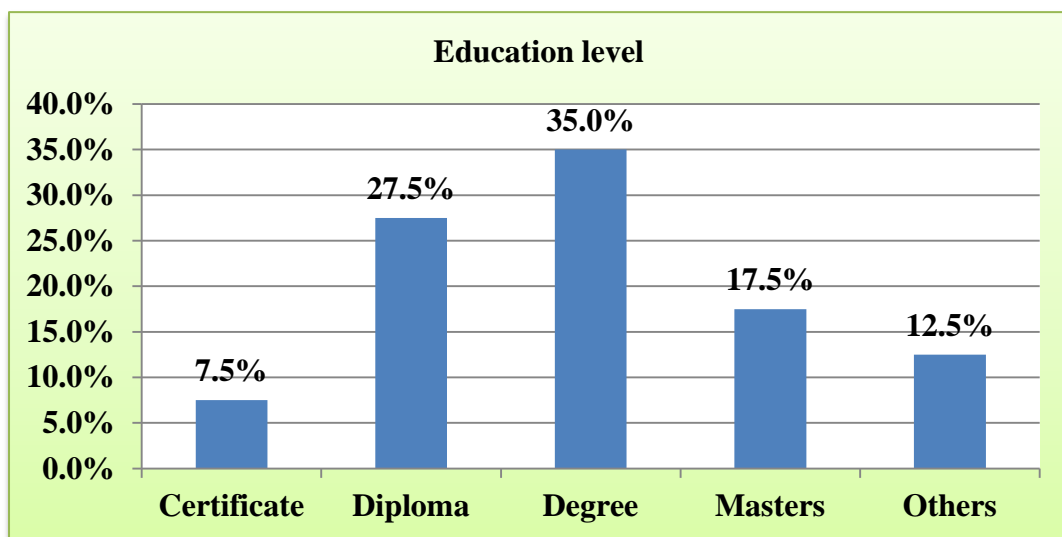
**Table 4.2: Respondents Age**

<b>Category</b>	<b>Frequency</b>	<b>Percent</b>
20-30	10	25.0
31-40	13	32.5
41-50	8	20.0
51-60	5	12.5
61 and above	4	10.0
<b>Total</b>	<b>40</b>	<b>100.0</b>

The research responses above showed that majority of the respondents (32.5%) were in the age bracket of 31-40 years while the minority of the respondents (10%) was in the age bracket of 61 and above. This showed that the organization have an energetic and versatile labour force.

#### 4.2.3 Academic Qualification of Respondents

The study also wanted to know the education level of respondents who participated in the research. The findings are given in Figure 4.1.



**Figure 4.1: Academic qualification of respondents**

The research responses showed that majority of the respondents (35%) had acquired degree level of academic qualification while the minority of the respondents (12%) has acquired other level of academic qualification such as postgraduate diplomas. This therefore was good to the Organization in terms of efficient delivery of services to the public.

#### 4.2.4 Respondents Work Experience at KeRRA

The study also wanted to know the respondents work experience. The results are illustrated in Table 4.3.

**Table 4.3: Respondents Working Experience at KeRRA**

<b>Years</b>	<b>Frequency</b>	<b>Percent</b>
Less than one year	4	10.0
1 to 2 years	9	22.5
2 to 3 years	15	37.5
Over 4 years	12	30.0
<b>Total</b>	<b>40</b>	<b>100.0</b>

The research responses showed that majority of the respondents (37.5%) have worked in the organization for a period of 2 to 3 years while the minority of the respondents (10%) has worked in the organization for less than one year.

### **4.3 Factors Influencing Roads Maintenance by KeRRA**

The aim of the study was to investigate the factors influencing rural roads maintenance. The same was sought from the respondents and the findings presented in the following sub-sections.

#### **4.3.1 Procurement Practices**

The study wanted to investigate the effect of procurement practices on rural roads maintenance.

##### **4.3.1.1 Adherence to the Procurement Act**

The study first asked the respondents to indicate how the Procurement Act was adhered to. Their responses were presented on the Table 4.4.

**Table 4.4 Extent of KeRRA Adherence to Procurement Act**

<b>Extent</b>	<b>Frequency</b>	<b>Percent</b>
Sometimes	18	45.0
Always	22	55.0
<b>Total</b>	<b>40</b>	<b>100.0</b>

The research response showed that majority of the respondents (55%) agree that KeRRA adhere to the Procurement Act while the minority of the respondents (45%) disagree that KeRRA adhere to the Procurement Act. This results thus showed that as a public Parastatal, KeRRA adheres to the Public Procurement and disposal Act that safeguards the public and also minimizes KeRRA’s expenditure on legal costs that may arises from court matters from aggrieved parties

#### **4.3.1.2 Effectiveness of the Tender Committee**

The study further investigated the effectiveness of the tender committee. This was sought from the respondents and the findings presented the on the Table 4.5.

**Table 4.5 Effectiveness of tender committee**

<b>Level</b>	<b>Frequency</b>	<b>Percent</b>
Below average	5	12.5
Average	22	55.0
Above average	13	32.5
<b>Total</b>	<b>40</b>	<b>100.0</b>

The research responses showed that majority of the respondents (55%) cited that the Tender Committee serving the Organization currently is average while the minority of the respondent (12%) cited that the Tender Committee serving the Organization currently is below average

#### **4.3.1.3 Constitution of the Tender Committee**

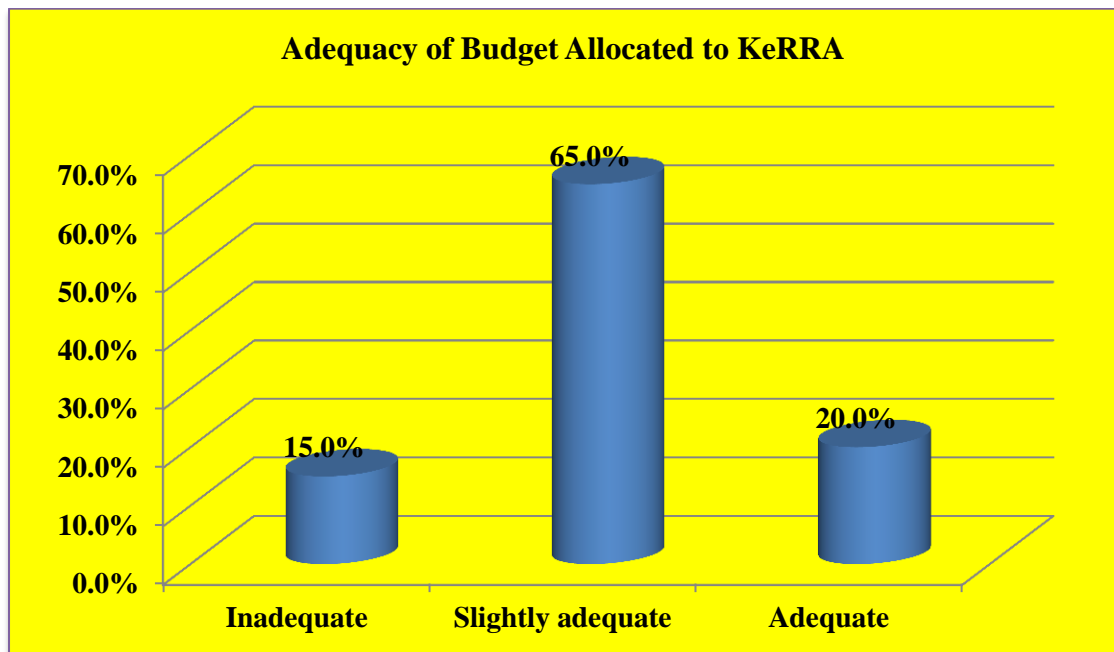
The research results showed that majority of the respondents (75%) agree that the tender committee is averagely constituted while the minority of the respondents (12.5%) agrees that the tender committee is below average constituted.

### 4.3.2 Funding of Roads

In line with the second objective the study investigated the effect of funding of Roads on maintenance of roads in Busia region.

#### 4.3.2.1 Budgetary Amounts Allocated to KeRRA

The respondents were asked to investigate the amount of funding allocated to KeRRA. The study findings were presented in Figure 4.2.



**Figure 4.2 Adequacy of budget amounts Allocated to KeRRA**

The research responses showed that majority of the respondents (65%) cited that the funds allocated to KeRRA is slightly adequate while the minority of the respondents (15%) cited that the funds allocated to KeRRA is inadequate.

#### 4.3.2.2 Number of Tranches

The respondents were further asked to indicate how many tranches were disbursed for every project. The findings were presented on the Table 4.6.

**Table 4.6 Number of tranches**

<b>Number</b>	<b>Frequency</b>	<b>Percent</b>
One	10	25.0
Two	22	55.0
Three	8	20.0
<b>Total</b>	<b>40</b>	<b>100.0</b>

The research responses showed that majority of the respondents (55%) cited that funds disbursed from Head Office for any project are in two tranches while the minority of the respondents 8 (20%) cited that funds disbursed from Head Office for any project are in one tranche.

#### **4.3.2.3 When funds are received from head office**

The study wanted to find out when the project funds were received. The respondents were sought for this and the findings were presented on the Table 4.7.

**Table 4.7 When Funds are Received**

<b>Period</b>	<b>Frequency</b>	<b>Percent</b>
At the beginning of year	10	25.0
Middle of the financial year	20	50.0
End of year	10	25.0
<b>Total</b>	<b>40</b>	<b>100.0</b>

The research responses showed that majority of the respondents 20 (50%) cited that funds are received at the beginning of the financial year while the minority of the respondents 25%) cited that the funds are received at the beginning of the year and the end of the year.

### 4.3.3 Political Interference

In line with the third objective the study sought to find out the effect of political interference on maintenance of rural roads.

#### 4.3.3.1 Political influence on identification of road projects

The respondents were asked to indicate the amount of political influence on identification of road project. The study findings were presented on the Table 4.8.

**Table 4.8 Political influence on identification of road projects**

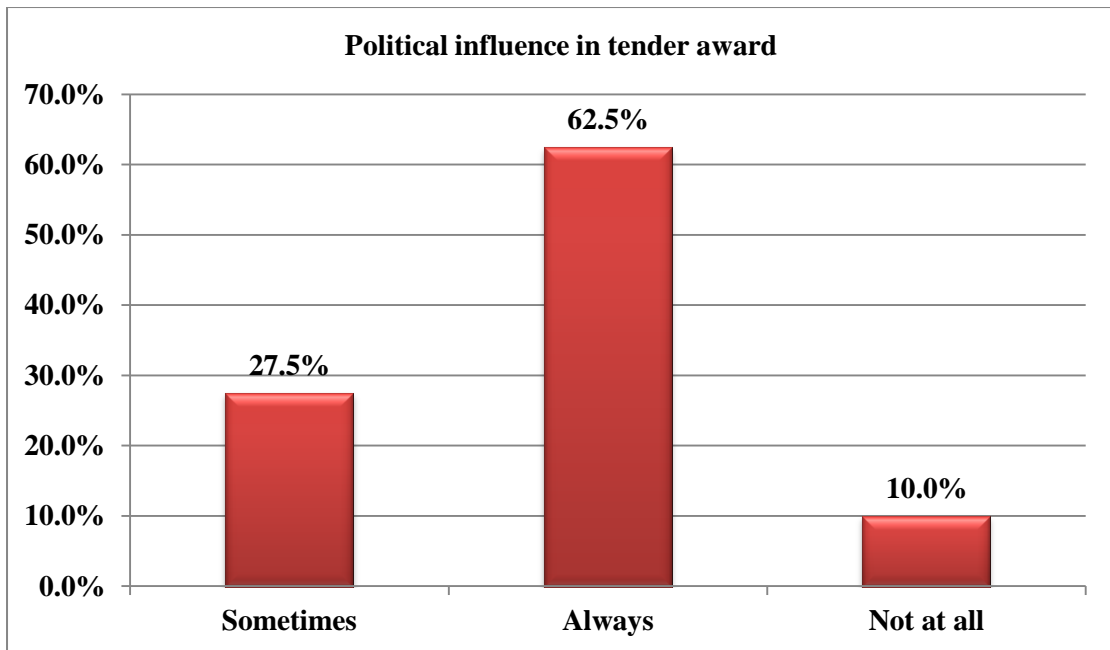
<b>Influence</b>	<b>Frequency</b>	<b>Percent</b>
None	2	5.0
Very minimal	8	20.0
Very much felt	30	75.0
<b>Total</b>	<b>40</b>	<b>100.0</b>

The research responses showed that majority of respondents (75%) cited that the influence of politicians in regards to identification of road projects is very much felt while the minority of the respondents (5%) cited that there is no influence of politicians in regards to identification of road projects.

#### 4.3.2.2 Political influence in the award of tenders

The study further investigated the level of political influence in the award of tenders.

The study findings were presented in Figure 4.3.



**Figure 4.3: Political Influence in the Award of tenders**

The results in Figure 4.3 showed that majority of the respondents 25 (62.5%) cited that local politicians always influence on the award of tenders while the minority of the respondents 4 (10%) cited that local politicians do not influence on the award of tenders.

#### **4.3.4 Human activities**

Following the fourth objective this study sought to find out the effect of human activities on rural road maintenance. The study findings were presented on tables.

##### **4.3.4.1 Seminars or road shows to synthesize the public on road usage and preservation**

The respondents were asked to indicate if KeRRA held seminars and road shows to synthesize the public on road usage and preservation. The findings were presented on the Table 4.9.



**Table 4.9: Holding of seminars and road shows**

<b>Response</b>	<b>Frequency</b>	<b>Percent</b>
No	18	45.0
Yes	22	55.0
<b>Total</b>	<b>40</b>	<b>100.0</b>

The findings indicate that most 22 (55.0%) of the respondents agree that KeRRA hold seminars or road shows to synthesize the public on road usage and preservation while 18 (45%) of the respondents disagree that KeRRA hold seminars or road shows to synthesize the public on road usage and preservation.

#### **4.3.4.2 Experiencing problems as far as human activities from the locals are concerned**

The respondents were also asked to indicate how often they experienced problems from the locals. The findings were presented on the Table 4.10.

**Table 4.10: Frequency of experiencing problems from locals**

<b>Response</b>	<b>Frequency</b>	<b>Percent</b>
Never	3	7.5
Occasionally	23	57.5
Always	14	35.0
<b>Total</b>	<b>40</b>	<b>100.0</b>

The data in Table 4.10 reveals that 23 (57.5%) cited that the organization occasionally experience problems as far as human activities from the locals are concerned while the respondents 3 (7.5%) cited that the organization does not experience problems as far as human activities from the locals are concerned.

#### 4.3.4.3 Issues Regarding Environmental Impact

The study further sought to investigate how issues regarding environmental impact were handled by KeRRA. The study findings were presented on the Table 4.11

**Table 4.11: KeRRA's handle of issues regarding environmental impact**

<b>Way of handling environmental issues</b>	<b>Frequency</b>	<b>Percent</b>
By use of consultant	8	20.0
By use of government agency	14	35.0
Through its own environmental impact assessment department	18	45.0
<b>Total</b>	<b>40</b>	<b>100.0</b>

The research responses showed that most 18 (45%) of the respondents cited that KeRRA handle issues regarding environmental impact through its own environmental impact assessment department while the minority of the respondents (8%) cited that that KeRRA handle issues regarding environmental impact by use of a consultant.

#### 4.3.4.4 Cases of members of the public damaging the road and the road reserves

The respondents were also sought on how KeRRA handled cases of members of public damaging the road and road reserves. The findings are illustrated on Table 4.12.

**Table 4.12: KeRRA Handling of Cases of Members of Public Damaging the Road and Road Reserves**

<b>Handling of public members cases</b>	<b>Frequency</b>	<b>Percent</b>
Educate them on road issues	14	35.0
Prosecute them to pay for damages	6	15.0
Do repairs and take no action	20	50.0
<b>Total</b>	<b>40</b>	<b>100.0</b>

The research responses showed that majority of the respondents (50%) cited that KeRRA handles cases of members of the public damaging the road and the road reserves through Do repairs and take no action while the minority of the respondents (15%) cited that KeRRA handle cases of members of the public damaging the road and the road reserves by prosecuting them to pay for damages.

#### **4.3.5 Road materials**

The effect of road materials on the maintenance of rural roads was investigated in accordance with the fifth objective of the study. Table 13 presents the findings.

##### **4.3.5.1 Materials Testing Department**

The study wanted to investigate if KeRRA had materials testing department. The respondents were sought for this and the findings were presented on the table 4.13.

**Table 4.13: Whether KeRRA Have Materials Testing Department**

<b>Response</b>	<b>Frequency</b>	<b>Percent</b>
No	24	60.0
Yes	16	40.0
<b>Total</b>	<b>40</b>	<b>100.0</b>

The research results showed majority of the respondents (60%) agree that KeRRA doesn't have Materials Testing Department while the minorities of the respondents (40%) agree that KeRRA has Materials Testing Department.

##### **4.3.5.2 Material identification**

The study further asked the respondents to indicate who identified the materials for the road use. Table 4.14 was used to present the study findings.

**Table 4.14: Persons who identifies materials for the road use**

<b>Response</b>	<b>Frequency</b>	<b>Percent</b>
The road overseas of KeRRA	4	10.0
The contractor	23	57.5
Any party	13	32.5
<b>Total</b>	<b>40</b>	<b>100.0</b>

The research responses showed that majority of the respondents (57%) cited that the contractor identifies the materials for the road use while the minority of the respondents (10%) cited that the road overseers of KeRRA.

#### **4.3.5.3 Handling of the material testing issues**

The study asked the respondents to indicate who handled the material testing issues.

The findings were presented on the Table 4.15.

**Table 4.15: Handling of the material testing issues**

<b>Way of handling</b>	<b>Frequency</b>	<b>Percent</b>
KeRRA staff	8	20.0
The contractor	19	47.5
Both KeRRA and the contractor	13	32.5
<b>Total</b>	<b>40</b>	<b>100.0</b>

The research responses showed that majority of the respondents (47%) cited that the contractor is the person who normally handles the material testing issues while the minority of the respondents (8%) cited that the KeRRA staff is the person who normally handles the material testing issues.

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSION AND RECOMMENDATIONS**

#### **5.1 Introduction**

This chapter included the summary of findings, conclusions, and recommendations of the study. Maintenance can be defined as ‘all the technical and associated administrative functions intended to retain an item or system in, or restore it to, a state in which it can perform its required function’. It does not upgrade the asset. In practice, it is common to carry out small upgrades of roads such as widening or shoulder sealing together with rehabilitations. Without maintenance, roads can quickly fall into disrepair leading to increased costs for road users in vehicle operation, time, reliability and safety. If deterioration goes too far, users will be reluctant to use the road with attendant losses of the economic and social benefits the road confers.

#### **5.2 Summary of Findings**

This section presents the summary of the major findings of the study according to the objectives.

##### **5.2.1 Procurement Practices**

The first objective was to determine the influence of procurement practices on maintenance of roads by KeRRA in Busia County. The study result showed that majority of the respondents (55%) agree that KeRRA adhere to the Procurement Act while the minority of the respondents (45%) disagree that KeRRA adhere to the Procurement Act. The research results showed that majority of the respondents (75%) agree that the tender committee is averagely constituted while the minority of the respondents (12.5%) agrees that the tender committee is below average constituted.

### **5.2.2 Funding of Roads**

The research responses showed that majority of the respondents (65%) cited that the funds allocated to KeRRA is slightly adequate while the minority of the respondents (15%) cited that the funds allocated to KeRRA is inadequate. The research responses showed that majority of the respondents (55%) cited that funds disbursed from Head Office for any project are in two tranches while the minority of the respondents (20%) cited that funds disbursed from Head Office for any project are in one tranche. The research responses showed that majority of the respondents (50%) cited that funds are received at the beginning of the financial year while the minority of the respondents (25%) cited that the funds are received at the beginning of the year and the end of the year.

### **5.2.3 Political Interference**

The research responses showed that majority of respondents (75%) cited that the influence of politicians in regards to identification of road projects is very much felt while the minority of the respondents (5%) cited that there is no influence of politicians in regards to identification of road projects. The research responses showed that majority of the respondents (62.5%) cited that local politicians always influence on the award of tenders while the minority of the respondents (10%) cited that local politicians do not influence on the award of tenders.

### **5.2.4 Human Activities**

The research responses showed that majority of the respondents (55%) agree that KeRRA holds seminars or road shows to synthesize the public on road usage and preservation while the minority of the respondents (45%) disagree that KeRRA hold

seminars or road shows to synthesize the public on road usage and preservation. The research responses showed that majority of the respondents (57.5%) cited that the organization occasionally experience problems as far as human activities from the locals are concerned while the minority of the respondents (7.5%) cited that the organization does not experience problems as far as human activities from the locals are concerned. The research responses showed that majority of the respondents (45%) cited that KeRRA handle issues regarding environmental impact through its own environmental impact assessment department while the minority of the respondents (8%) cited that that KeRRA handle issues regarding environmental impact by use of a consultant.

### **5.2.5 Road Materials**

The research responses showed majority of the respondents (60%) disagree that KeRRA has Materials Testing Department while the minority of the respondents (40%) agree that KeRRA has Materials Testing Department. The research responses showed that majority of the respondents (57%) cited that the contractor identifies the materials for the road use while the minority of the respondents (10%) cited that the road overseers of KeRRA. The research responses showed that majority of the respondents (47%) cited that the contractor is the person who normally handles the material testing issues while the minority of the respondents (8%) cited that the KeRRA staff is the person who normally handles the material testing issues.

### **5.3 Conclusion**

The study aimed at finding out the influence of political interference, procurement issues, funding, materials used on road construction and human activities in the maintenance of rural roads by KeRRA. The findings showed that there is much

political influence in identification of road projects as well as award of tenders. This could have a long term effect in terms of equitable provision of services to the public. The findings also showed that the funding that Kenya Rural Roads Authority currently receives for the maintenance of roads is inadequate.

There is need therefore for the Government to increase to enable this Road Agency meet its goals. In the key area of Materials used in road construction, the findings showed that the contractor is the one who identifies the material. For gravel works, this should be done by KeRRA officers to reduce chances of contractor using poor gravel and it should be tested just as any other road materials. The study findings also showed that there is influence of human activities in the maintenance of rural roads. This has the effect of damaging the roads hence increasing the maintenance costs and in some cases even leading to change of design from the original one.

#### **5.4 Recommendations**

The study therefore recommended the following:

1. The public should be synthesized on usage of roads and their importance in economic development so that they can contribute positively towards efficient maintenance of these roads. Human activities such as farming along road reserves that leads to erosion of road shoulders could be minimized.
2. There is need to set up a special unit within the Road Agency that would manage and address all issues related to political interference so that public will get services within any discrimination.
3. The road funding for the agency should be increased so that more roads will be constructed and those existing can be put in a good condition to speed up development in all rural areas.



4. The materials for road construction should be identified by the Agency Officers who are able to examine if it is good for use so that any poor quality material should be avoided.

### **5.5 Suggestions for Future Study**

Owing to the fact that the road authorities in Kenya were formed seven years ago through Act of Parliament, its successful existence cannot be fully concluded. There is need for further research on strategy implementation in the authority.

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## APPENDICES

### APPENDIX ONE: LETTER OF TRANSMITTAL

Bernard Esaba,  
School of Continuing and  
Distance Education,  
University of Nairobi  
Machakos Extra Mural Centre.  
20<sup>th</sup> May, 2014

Dear Participant,

#### **RE: INTRODUCTION LETTER TO COLLECT RESEARCH DATA**

My name is Bernard Esaba, a student at University of Nairobi doing Masters in Project Planning and Management. I am conducting a research project on factors influencing maintenance of roads by Kenya Rural Roads Authority in Busia Region.

The purpose of this letter is to kindly request you to fill the questionnaire to enable me gather the data required for the research.

The response obtained is purely for research work and all the information provided here would be confidential.

Thank you very much for your precious time.

Yours faithfully,

**Bernard Esaba**

## APPENDIX TWO: QUESTIONNAIRE KeRRA EMPLOYEES

### INSTRUCTIONS:

1. The information given on this questionnaire will be held in strict confidence and will be used only for the purpose of the study.
2. If any of the questions may not be appropriate to your circumstance, you are under no obligation to answer.

### PART A: GENERAL INFORMATION

1. Please indicate your gender
  - A. Male
  - B. Female
2. Please indicate your age from the categories below
  - A. 20-30 years
  - B. 31-40 years
  - C. 41-50 years
  - D. 51-60 years
  - E. Above 61 years
3. Kindly indicate your highest academic qualification.
  - Certificate
  - Diploma
  - Degree
  - Masters
  - Others (Specify)
4. How long have you worked in KeRRA?
  - Less than 1 year
  - 1 year to 2 years
  - 2 years to 3 years
  - 3 years 4 years
  - Over 4 years

**PART B: FACTORS INFLUENCING RURAL ROADS MAINTENANCE**

**A) Procurement practices**

1).To what extent dose KeRRA adhere to the Procurement Act?

- (i) Never
- (ii) Sometimes
- (iii) Always

2).How effective is the Tender Committee serving the Organization currently?

- (i) Below average
- (ii) Average
- (iii) Above average

3).In your opinion, do you think the Tender Committee is well constituted?

Please support your answer.....  
.....  
.....

4).In a scale of 1 to 4, please indicate which number best describes the disclosure of all relevant information necessary for the for the tenders advertised by KeRRA (1 represents very little disclosure, 2 represents little disclosure, 3 represents disclosure, 4 represents relevant disclosure and 4 represents most relevant disclosure)

- (i) Very Little 1
- (ii) Little 2
- (iii) Relevant 3
- (iv) Very relevant 4

Briefly explain your choice from the above

.....  
.....

5). Kindly give any suggestions that you think would be used to improve further the procurement department of KeRRA.....

.....  
.....

**B) Funding**

1) Compared with funds allocated to other Road agencies, how would you describe the amounts allocated to KeRRA?

- (i) In adequate
- (ii) Slightly adequate
- (iii) Adequate

2) How many tranches are funds disbursed from Head Office for any project?

- (i) One
- (ii) Two
- (iii) Three
- (iv) Four

3). How reliable are the Funds received?

- (i) Reliable
- (ii) Unreliable
- (iv) Sometimes reliable
- (v) Very unreliable

4).When are the funds received?

- (i) At beginning of financial year
- (ii) Middle of financial Year
- (iii) End of financial year

5) Kindly name any funding bodies including donors that you think are the sources of finances that KeRRA uses .....

.....

.....

**C) Political interference**

1) KeRRA being a State Corporation to what has been the influence of politicians in regards to identification of road projects?

- (i) None
- (ii) Very minimal
- (iii) Very much felt



2) To what extent do local politicians influence on the award of Tenders?

(i) Sometimes

(ii) Always

(iii) Not at all

If your answer for above suggest there is some influence from politicians, kindly list below from the least to the most influential and give reasons as to why you think so

.....  
.....  
.....  
.....

3).What obstacles do you encounter when maintaining roads when the country is in political instability?

.....  
.....  
.....

**(D) Human activities**

1) Does KeRRA hold seminars or road shows to synthesize the public on road usage and preservation?

(i) No

(ii) Yes

2) How often do experience problems as far as human activities from the locals are concerned?

(i) Never

(ii) Occasionally

(iii) Always

3) How does KeRRA handle issues regarding environmental impact?

(i) By use of a consultant

(ii) By use of Government agency

(ii) Through its own environmental impact assessment department

4) How does KeRRA handle cases of members of the public damaging the road and the road reserves?

- (i) Educate them on road issues
- (ii) Prosecute them to pay for damages
- (iii) Do repairs and take no action

**E) Road Materials**

1) Does KeRRA have Materials Testing Department?

- (i) Yes
- (ii) No

2) Who always identifies the materials for the road use?

- (i) The Roads over sears of KeRRA
- (ii) The Contractor
- (iii) Any party

3) Who normally handles the material testing issues?

- (i) KeRRA staff
- (ii) The Contractor
- (ii) Both KeRRA and Contractor

4) Briefly give ways that you think would ensure that all materials used on the roads will always achieve their intended goals

.....

.....

.....

## **APPENDIX THREE: RESEARCH PERMIT**