INVESTIGATING FACTORS AFFECTING MAINTENANCE OF DISTRICT AND TOWN COUNCIL ROADS IN UGANDA: A CASE STUDY OF BUIKWE DISTRICT

BY

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A DISSERTATION SUBMITTED TO THE SCHOOL OF MANAGEMENT SCIENCE IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER'SDEGREE IN MANAGEMENT STUDIES (PROJECT PLANNING & MANAGEMENT) OF UGANDA MANAGEMENT INSTITUTE, KAMPALA

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DECLARATION

I, do hereby declare that this dissertation is as a result of my personal effort except in instances where scholarly literature has been used and this has never been submitted to any other University for any award.

Signature: _____ Date: _____

Henry Lugeye

APPROVAL

This is to certify that this dissertation entitled, “INVESTIGATING FACTORS AFFECTING MAINTENANCE OF DISTRICT AND TOWN COUNCIL IN UGANDA: A CASE OF BUIKWE DISTRICT” is submitted for examination under our supervision and approval as Institute Supervisors.

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DEDICATION

This dissertation is dedicated to my family and friends who greatly inspired me to reach these great education heights.

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LIST ABBREVIATIONS

CAIIP	-	Community Agriculture Improvement Initiative Program
CVI	-	Content Validity Index
D&TC	-	District & Town Council
DEC	-	District Executive Committee
DLG	-	District Local Government
DUCAR	-	District, Urban and Community Access Roads
DV	-	Dependent Variable
IV	-	Independent Variable
KMs	-	Kilometers
LC 1	-	Local Council One
LC V	-	Local Council Five
LG	-	Local Government
LGD	-	Local Government & District
MoFPED	-	Ministry of Finance Planning and Economic Development
MoW&T	-	Ministry of Works and Transport
NRA	-	National Resistance Army
PWD	-	Public Works Department
SPSS	-	Statistical Package for Social Sciences
UMI	-	Uganda Management Institute
UNRA	-	Uganda National Roads Authority

ABSTRACT

The study investigated the factors that affected the maintenance of District and Town Council Roads in Buikwe district. Specific objectives considered included identifying how technical factors, financial factors and road policy factors affected road maintenance. The study adopted both cross-sectional survey design and a case study design. A sample size of 113 respondents was drawn from an accessible population of 118 respondents using the purposive and simple random sampling techniques. A response rate of 70% was obtained. The findings indicate that, technical factors and road maintenance were found to have a significant positive relationship (.713**), financial factors and road maintenance also had significantly positive relationship of (.581**) and finally road policy were also found to have a significantly positive relationship with road maintenance of (.754**). The conclusions drawn on financial factors included; delayed release of conditional grants, lack of accountability and late submission of reports, non-adherence to procurement guidelines, regulations and insufficient funds. While technical factors conclusions included lapse in management of road equipment, laxity in supervision and fewer staff motivated. Delayed appraisal of staff, fewer road maintenance equipment and no established mechanical workshops. Additionally, policy factors were concluded as follows; District and Town Council road operational guidelines updated with some obsolete clauses. Road maintenance policy framework exists but not clearly understood. Further trainings were discriminative. Key recommendations made include: establishment of mechanical workshops, review the existing internal training policies and allocate more resources towards supervision and monitoring of road maintenance activities. Lobby road development partner and tighten staff supervision. Review road maintenance policies, hold local consultations with key beneficiaries and disseminate information pertaining road maintenance policies and guidelines.

CHAPTER ONE

INTRODUCTION

1.1. Introduction

The study investigated factors affecting road maintenance in District and Town Councils in Uganda; a case study of Buikwe District. This came as a result of continuous existence of poor roads, roads serving very little time and deteriorate despite the big sums of public funds injected in their rehabilitation. Road maintenance refer to routine maintenance, periodic maintenance, spot improvement and road rehabilitation while factors affecting road maintenance were measured in terms of technical, financial and institutional as explained in the conceptual frame work (Figure 1).

The chapter presents the background to the study, statement of the problem, general objective, specific objectives of the study, research questions, hypotheses, significance of the study, justification of the study as well as scope of the study and closes with operational definitions of terms and concepts.

1.2 Background to the Study

This section presents a historical, theoretical, conceptual and contextual background of the study as per Amin (2005) recommendation to building a good academic background.

1.2.1 Historical Background

Road maintenance has been and is still a big issue since 1800 worldwide. The American Association of State High Way and Transportation Officials (2009) Report revealed that about 50% of the roads in the United States of America were in bad condition with Urban areas worse due to neglected maintenance.

Borrowing from historical road maintenance in Nigeria, Abdulkareem (2010) notes that during the colonial days, road camps were set up and roads were maintained by road gangs

on a regular basis by the then public works department (PWD). The central and regional governments had their respective ministries of works controlling the activities of the PWDs. He further asserts that the native authorities had their own works departments which took charge of the local roads within their domain.

After independence and precisely in 1967 when states were created in Nigeria, it is recorded that federal government took over state roads totaling 15,250 kilometers. State governments in turn took over local government roads in their areas. The country was divided into maintenance zones; each zone was headed by a district highway maintenance engineer who was responsible for the effective maintenance of federal roads. The zones were later increased and field headquarters were headed by federal controllers of works (Abdulkareem, 2010)

Since pre-colonial and post-colonial era, the government of Uganda has always put much importance to the development of roads as one of the key areas of developing the economy and eradicating poverty (MoFPED, 2013). During the political turmoil of the struggle of NRA to take over the dictatorial governments, the road sector was severely affected. This was characterized by years of maintenance negligence. Though after years of negligent, insufficient capacity, inadequate maintenance funds and careless work, evidenced throughout Uganda most roads are full of bushes on the sides, corrugations, ruts, loss of shape, gullies, blocked drainage facilities both longitudinal and cross drainage and potholes as per Practical Guidelines for Road Maintenance in Uganda volume II (2003).

1.2.2 Theoretical background

Actor-network theory (ANT) evolved from the work of Michel Callon (1991) and Bruno Latour (1992) at the Ecole des Mines in Paris and this guided the study. Actor- Network theory emphasizes and considers all surrounding factors- no one acts alone. Their analysis of

a set of negotiations describes the progressive constitution of a network in which both human and non-human actors assume identities according to prevailing strategies of interaction. For example in order to have successful road maintenance works, a number of factors come into play. Some of these include technical factors, financial factors, technical factors and the relationship could be moderated by the policy framework as per the conceptual framework and none of them acts alone.

Actors' identities and qualities in this case of road maintenance are defined during negotiations between representatives of human and non-human actants which are the perceived factors for this study. According to Joseph Goguen (1998), actor-network theory can be seen as a systematic way to bring out the infrastructure that is usually left out of the "heroic" accounts of scientific and technological achievements. ANT is recorded to have been born out of ongoing efforts within the field called social studies of science and technology. The field of social studies of technology in general and ANT in particular are said to be evolving rapidly. For example when going about doing your business - driving your car or writing a document using a word-processor -there are a lot of things that influence how you do it. For instance, when driving a car, you are influenced by traffic regulations, prior driving experience and the car's maneuvering abilities, the use of a word-processor is influenced by earlier experience using it, the functionality of the word-processor and so forth. All of these factors are related or connected to how one acts. You do not go about doing your business in a total vacuum but rather under the influence of a wide range of surrounding factors. Likewise, the road maintenance exercise success/failure envisioned in this study is a multifaceted of a number of actors perceived to be factors.

An actor network theory consists of and links together both technical and non-technical elements. Not only the car's motor capacity, but also your driving training, influences your

driving. Hence, ANT talks about the heterogeneous nature of actor networks and is the best theory to anchor studies investigating how factors affect the dependent variable.

ANT incorporates the principle of generalized symmetry, that is, what is human and non-human should be incorporated in the same conceptual frame work and assigned equal amounts of agency. Therefore with reference to the study and with the use on ANT, all factors affecting road maintenance in the conceptual frame work will be considered in totality as having an influence on the Dependent Variable (Road Maintenance).

1.2.3 Conceptual Background

There are various definitions for maintenance of a road. Maintenance of a road is the art of keeping a pavement at its maximum utility with a minimum expenditure and inconvenience to traffic. It can also be defined as the process of keeping a road in its original condition without reference to changes in the composition of traffic since it was first designed (Abdulkareem, 2010). The Oxford dictionary definition of road maintenance is the function of repairing, restoring and preserving a roadway thereby keeping it in good conditions for safe, convenient and economic use which ever you choose, the bottom line is keeping the road in good condition.

Routine Maintenance as defined by District Road Works volume 1 (2002), are operations required to be carried out once or more per year on a section of the road to keep it in good condition.

It also defines Periodic maintenance as operations occasionally required on a section of the road after a period of number of years preferably 4 and Rehabilitation as operations intended to restore the pavement including all its structures to its original form.

The study examined factors including technical, financial and policies factors that affected the effective road maintenance of both the District and Town Council roads in Uganda. The

life span and sustainability of a good road entirely depend on how well maintained it is throughout its expected period of service (District Road Works Manual D volume I in Uganda, 2003).

1.2.4 Contextual Background

Uganda's road maintenance system recognizes four forms of maintenance namely routine, spot, periodic and rehabilitation (Districts Roads Manual D Volume 1, 2003). Poor road network has been a matter of concern for many years and that's why of recent new road management authorities have been introduced like Uganda Road Fund (URF), and Uganda National Roads Authority (UNRA) to make some meaning full improvement in the roads sector of the country.

In most cases road construction in both the District and Town Councils is funded by central Government in form of conditional grants whereas maintenance is mostly in hands of the Districts and Town Council by the use of their local revenue which is in most cases unavailable. Regarding the quality of road construction and cost-effectiveness of road maintenance, according to a presentation given at Makerere in 2005 by Henry Kerali of the World Bank, "For every new 1 km built, 3km of existing roads are "lost" due to lack of maintenance. Road transport costs increase exponentially on poor roads.

An analysis of Buikwe District Staff List (2005), indicated that there were staffing gaps in both the District and Town Council establishment who could effectively and efficiently man road works activities. Further from the availed District and Town Council Road Inventory (2013), it showed that maintenance for roads in terms of spot, routine and periodic is still a major challenge.

Buikwe District Annual Workplan (2012/2013) highlights that, the District has 402Kms of roads maintained by the District, 306Kms maintained by the Town Councils and 608Kms under the management of Sub-Counties and communities.

1.3 Problem statement

The Government of Uganda has always put much importance to the development of roads as one of the key areas of developing the economy and eradicating poverty as well as service delivery.

A good and well-functioning road network must be developed and maintained. A well maintained road network provides access to health centers, educational institutions and markets so that people can transport agricultural products and other goods to markets for selling to earn income and reduce poverty (URSDP, 2001/2002-2010/11). Government has continuously funded both Districts and Town Councils' road construction works in Uganda by giving conditional grants to them (Buikwe District Local Government Budget, 2013/2014). The Districts and Town Councils still experience shortage of big sums of money demanded for the maintenance of highly dilapidated and over damaged roads (Buikwe District Road Inventory, 2013). Ngogwe road totaling to 9.5km was worked on at a cost of 142 million (CAIIP, 2011). The road which was worked on is already impassable as per the Buikwe District Road Inventory of 2013/14. While the Kayuki, Church and Lule roads (2.6 Kms) in Nkokonjeru Town Council were rehabilitated in 2012/2013 at a cost of 42 million, similarly Nakagere Road (3Kms) in Lugazi Town council was rehabilitated at 55 million in 2009/2010 (Lugazi Town Council Roads Annual Report, 2013/14), the state of the nature as per quality standards of Roads is still questionable.

However, all these could be associated with some financial factors, technical issues of implementation and unclear road maintenance policies whose effects /impact are unclear.

The roads have not been routinely maintained and this has affected the quality of the road network in Buikwe District indicating a problem on road maintenance in the district. This study therefore aimed at investigating the effects of these factors posed on road maintenance in Buikwe District. Unless related factors are investigated to get the core problems and recommend solutions, the outcry is likely to continue leading to community dissatisfaction in the government programmes leading to low responsiveness to them and therefore total collapse of transport network.

1.4 General objective of the study

The general objective of the study was to investigate the factors affecting maintenance of Districts and Town Council Roads (DTCR) in Uganda taking a case study of Buikwe District.

1.5 Specific Objectives of the study

The specific objectives of the study included:

i. To identify how Technical factors affect road maintenance of District and Town Council Roads in Buikwe District.
ii. To establish how financial factors affect road maintenance of District and Town Council Roads in Buikwe District.
iii. To establish how Road policy factors affect road maintenance of District and Town Council Roads in Buikwe District.

1.6 Research questions

Subsequently, the study was undertaken to respond to the following research questions:

i. How do technical factors affect road maintenance of District and Town Council Roads in Buikwe District?
ii. How do financial factors affect road maintenance of District and Town Council Roads in Buikwe District?

iii. To what extent do policy factors affect road maintenance of District and Town council Roads in Buikwe District?

1.7 Hypotheses of the study

The following were envisaged to be ascertained by this research:

i. Technical factors significantly affect road maintenance of District and Town Council Roads in Uganda.

ii. Financial factors significantly affect road maintenance of District and Town Council Roads in Uganda.

iii. Policy factors significantly affect road maintenance of District and Town Council Roads in Uganda.

1.8 Conceptual framework

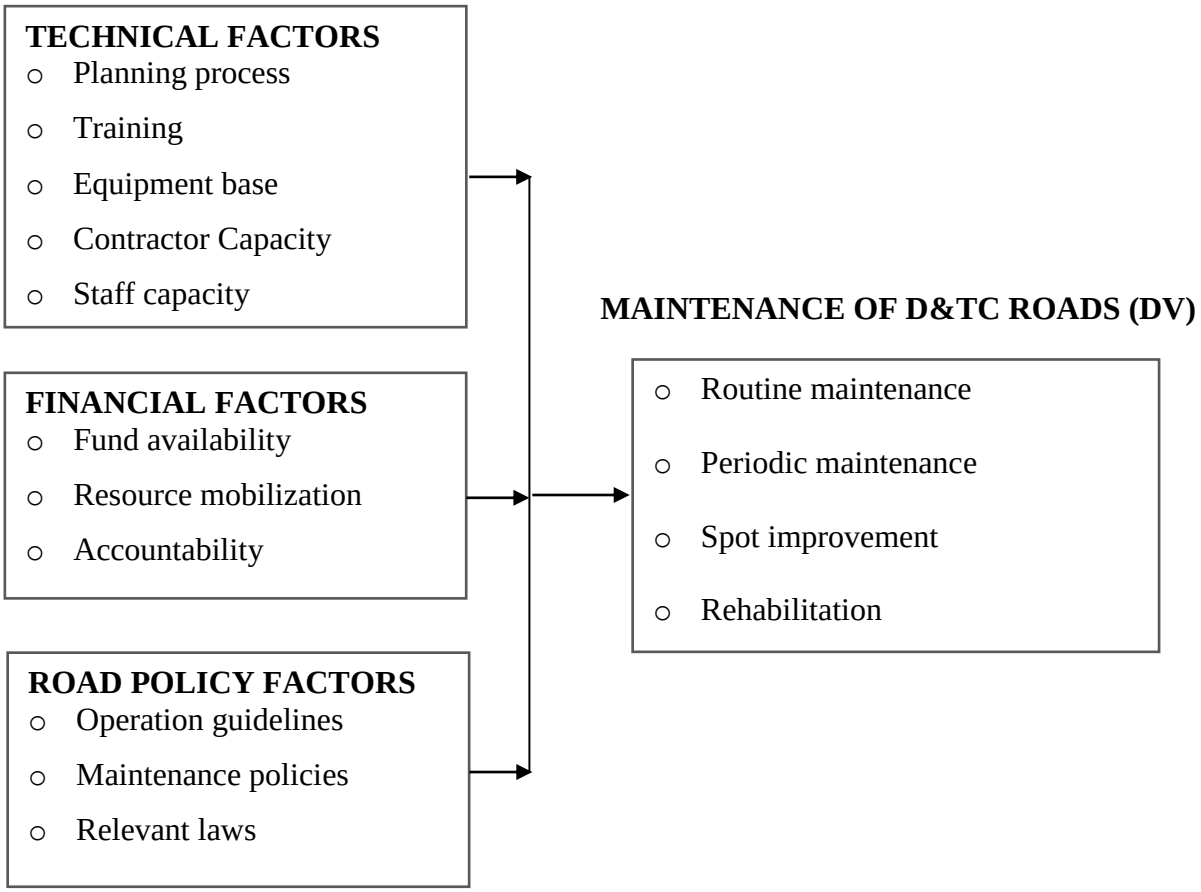

Figure 1: Conceptual frame work showing Factors affecting Road maintenance

Source: Adapted from Actor-network theory by Michel Callon (1991) and Bruno Latour (1992) and modified by researcher

The frame work as presented in Figure 1 suggests that the factors affecting as the independent variable was conceptualized by three factors including the Technical factors, Financial factors and Road policy factors. Technical factors were conceptualized by five sub indicators including planning process, training, equipment base, contractor capacity and staff capacity; these were seen to have an effect on the maintenance of D&TC roads. Financial factors another independent variable dimension is conceptualized into three sub indicators including funds availability, resource mobilization and accountability believed to have affect the

maintenance of D&TC roads and road policy factors, the final dimension was conceptualized as having operation, maintenance policies and relevant laws as key sub indicators affecting the maintenance of the roads in Buikwe district.

On the other hand, road maintenance is depicted as having routine, periodic maintenance, not forgetting spot improvement and rehabilitation as key sub indicators. Finally, the above illustration (Figure 1) hypothesizes that the Factors affecting (Independent variable) in the study had a significant effect on the road maintenance (dependent variable).

1.9 Significance of the study

Findings from the study assist Government of Uganda to develop solutions to the identified factors in road maintenance to improve road conditions and use. The study enables policy makers review maintenance policies, guidelines and bring to the attention of implementers. Finally, the study provides information to other researchers for further investigation as a contribution to the body of knowledge.

1.10 Justification of the study

The over dilapidated roads with minimum maintenance done on them leads to high costs of transport experienced by both public and private road users, increased time spent while traveling and increased fatal accidents. Well maintained road network provides access to basic public utilities and helps to advance agricultural products to the markets so as to earn income and reduce poverty among people.

1.11 Scope of the study

1.11.1 Geographical scope

The study was conducted in Buikwe district which is situated in the central part of Uganda, 34 kilometers away from Kampala city. It is bordered by Mukono Districts in the west, Jinja

in east, Buvuma in the north and Kayunga district in the south. The reason to this choice is that the district is one of the newly established district in in which some road development programme has been planned for better public services including better roads to its local community as stipulated in the Development plans (Buikwe District Local Government Budget, 2013/2014).

1.11.2 Time scope

The time scope of the study was 4 years the years between 2010 and 2014. The choice for this period is because this was the time when Buikwe District was created from Mukono District and given this autonomy, the district is entrusted with the tasks of ensuring that development including infrastructure that stalled during its attachment to Mukono are completed to better service delivery within its parameters (District and Town Council Road Inventory, 2013/2014).

1.11.3 Content scope

The study was limited to the factors affecting road maintenance in Uganda, with specific focus Technical factors, financial factors and road policy factors and how they affect road maintenance depicted as routine, periodic maintenance, not forgetting spot improvement and rehabilitation in the Town councils and the District in general which was narrowed to two town Councils and the District headquarter.

1.12 Operational Definitions

Rehabilitation: This is restoration of pavements including all its structures to its original form or even better than it was originally and basically entails the reconstruction of gravel road to acceptable standards.

Spot repairs: This is the operation carried out to improve on the worn out or damaged parts of the road in case other areas are still okay.

Routine maintenance: These are operations required to be carried out once or more per year on a section of the road. These activities are typically small scale in nature and simple, but widely dispersed and require skilled and un skilled manpower.

Periodic maintenance: These are operations occasionally required on a section of the road after a period of number of years preferably 4. They are normally large scale and require specialized skills and equipment.

Maintenance is defined as an intervention done on the road to keep it in its good condition or to put it back to the good riding condition.

Accountability is defined as measures put in place to ensure proper utilization of received funds and also ensuring that the communities are aware of what is being done to them through involvement.

Staff capacity is defined as the necessary skills to be possessed by the staff to enable them execute their duties effectively and efficiently.

Technical factors: These are factors related to competence of both staff and contractors together with the equipment efficiency.

Financial factors: Factors related to funding, reporting and accountability for the received funds.

Policy factors: Factors brought about by the set laws and regulations in relation to road maintenance.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents the review of literature related to the study. The chapter starts with review of theories (factors and road maintenance) as this is a project itself having the start date and finish dates set. It also has the tipple constraints of time, scope and cost that constitute quality of the road maintenance exercise. It then presents review of literature in line with the study objectives and closes with a summary of the literature review.

2.2 Theoretical review

Quite a number of theories exist to explain difference forms of project success and failure. Road maintenance as a project when faced with factors is likely to result into poorer road network and hence poverty as per the submission of available literature. Some of the theories poised to explain project success include but not limited to systems theory, activity theory, accountability models and actor-network-theory (ANT theory). For instance, institutional Theory: Meyer & Rowan, DiMaggio & Powell (2002) assert that the institutional environment can strongly influence the development of formal structures in an organization, often more profoundly than market pressures. They supplement that innovative structures that improve technical efficiency in early-adopting organizations are legitimized in the environment. Ultimately these innovations reach a level of legitimization where failure to adopt them is seen as "irrational and negligent" (or they become legal mandates). At this point new and existing organizations adopts the structural form even if the form doesn't improve efficiency.

Meyer and Rowan argue that often these "institutional myths" are merely accepted ceremoniously in order for the organization to gain or maintain legitimacy in the institutional

environment. Legitimacy in the institutional environment helps ensure organizational survival. However, these formal structures of legitimacy can reduce efficiency and hinder the organization's competitive position in their technical environment. To reduce this negative effect, organizations often will decouple their technical core from these legitimizing structures. Organizations minimize or ceremonialize evaluation and neglect program implementation to maintain external (and internal) confidence in formal structures while reducing their efficiency impact.

DiMaggio and Powell (1991) conclude that, the net effect of institutional pressures is to increase the homogeneity of organizational structures in an institutional environment. Firms will adopt similar structures as a result of three types of pressures. Coercive pressures come from legal mandates or influence from organizations they are dependent upon. Mimetic pressures to copy successful forms arise during high uncertainty. Meanwhile, this theory does not clearly explain how the factors in the organizations interplay with one another to affect project success.

To that weakness, Callon (1991) and Latour (1992) proposed the actor-network theory (ANT) which evolved from the work of the Ecole des Mines in Paris. For them they analyze a set of actors both human and non-human that interplay and assume identities according to prevailing strategies of interaction. For example in order to have successful road maintenance works, a number of factors come into play. Some of these include technical factors, financial factors, institutional factors and the relationship could be moderated by the policy framework as per the conceptual framework. Therefore, this seemed a very relevant theory to anchor the study given weaknesses of other theories reviewed.

2.3 Investigating Factors affecting Maintenance of District and Town Council Roads in Uganda

Factors in this study formed the independent variable while maintenance of D&TC roads formed the dependent variables. This section presents a scholarly review of these variables based on the specific objectives of the study as reflected in 2.3.1, 2.3.2 and 2.3.3 respectively.

2.3.1 Technical factors and Maintenance of Roads

This literature perceived technical factors in terms of planning process, training, equipment base, contractor capacity and staff capacity. For instance literature reveals that District, Town and Lower councils are facing undue constraints in staffing (Customized District and Town Council Staff Structures, July 2005). Critical posts have stayed unfilled. The councils are unable to attract and retain qualified staff due to poor remuneration and lack of promotion opportunities. With very few training institutions, training aids, tools, specialized equipment, severe shortage of trainers and instructors, very many of staff in local governments haven't gone back for further studies.

Schultz, Slevin and Pinto (1987) concretize that failure of the staffing function in any organization will affect the strategic and tactical dimensions of any form of project. Additionally Kerzner (2001) states that project success was related to the completion of project activities in the due term, budget, and expected quality mainly by people as the main resources. Later on the understanding of project success has been altered by including the limitation of minimum changes in the scope of activities without interruptions in the workflow, without shifts in the corporate culture, and with full acceptance of results by the project client (people).

Scholars including Faridi and El-Sayegh (2006) reported that shortage of skills, manpower, poor supervision, poor site management, unsuitable leadership, shortage and break down of

equipment lead to poor service delivery especially road maintenance as most of the Local Governments deal with mostly resource- poor contractors.

In addition, scholars including Ashton & Sung (2002) argued that training was the most significant tool of any business to develop commitment, loyalty and to create an environment of cooperation among staff while Baguma (2007) acknowledged that employers often encourage their employees to enhance their skills through undertaking training courses and it is through such trainings that staff gain technical skills required to ensure efficient and effective road maintenance.

Additionally, Murray et al, (2002) who argue that self-confidence, output, and professionalism is high in entities that employ a sound training programs for their staff. Similarly, scholars including Ranft & Lord (2000), receipted that organization commitment to the training requirements of its staff, positively impacts on their job satisfaction and results into increase in staff performance and holding.

Lastly, the IDRC (2004) further highlights that Local Governments which lack policies to keep trained people on job may affect its performance if such highly trained personnel leaves the institution as it becomes counter- productive and this is the situation in Buikwe District where most of the trained staff in road sector who would man the maintenance activities have ran away in such for better opportunities.

2.3.2 Financial factors and Maintenance of Roads

All organizations depend upon resources to execute activities aimed at achieving their organizational objectives (Kendall, 2006). However maintenance costs of roads vary with road conditions, traffic volumes, geographical location, and climate conditions, work methods, technical equipment (Sally & Stankevich, 2005). These authors noted that poorly maintained roads constrain mobility, significantly raise vehicle operating costs, increase

accident rates and their associated human and property costs, aggravated isolation, poverty, poor health and illiteracy in rural communities.

Also a Ministry of Local Government Service Delivery Report (2004) revealed that, funds given to Local Governments are not commensurate with service delivery requirements, which is reflected by the long list of unfunded priorities in Local Governments.

In addition, Kreutzer et al (1999), share the same view that because of inadequate financing, conflicts on how to share the funds into different priorities have developed in Local Governments and thus affecting service delivery in terms of road maintenance. In support, Local Government Hand Book on Development Planning (2003) reports that Local Government resource base is narrow and its revenue have been declining over the years hence limiting them to carry out meaningful planning and implementation of road maintenance activities in their respective areas.

According to Obwana et al., (2000), financial and institutional constraints have adversely affected the ability of the sub-national governments to adequately deliver services of sufficient quality. Similarly, KenGWillam & Zmarak (1999), further assert that, insufficient or uncertain budgetary allocations to road maintenance have resulted into road deterioration that has significantly increased production and transport costs in many countries.

While SANARAL (2004), asserts that if road defects are repaired promptly, the cost is usually modest. If defects are neglected, an entire road section may fail completely requiring full reconstruction at three times or more the cost on average of maintenance costs. Furthermore, most of the funding for Buikwe district roads follows under the following categories; Conditional grants from central Governments up to 80%, Locally generated revenue constitutes 15% while the donors and community contributions is at 5% (Buikwe Recurrent and Development Budget, 2012/2013) .

Additionally, from media reports, funding in local Governments for the road sector has continued to be inadequate and irregular in the way the funds are released. Much as the budget for the road sector has continuously been increased to 1.1 trillion in the 2010/2011 budget speech by minister for finance and economic planning, this hasn't yet made a significant impact because day by day the number of road networks in need of maintenances keeps on increasing. Meanwhile Baccarini, (1999); Shenhar, Levy & Dvir, (1997) assert that any project success depends on completion of the project scope within the budget approved. A critical scrutiny of Buikwe district seems a lack of this commitment.

Conclusively, literature also reveals that low resources invested in routine maintenance due to lack of political commitment for such activities always leads to faster deterioration of the roads. This in turn requires more frequent and expensive periodic maintenance. For efficient utilization of the ever increasing budget funding for the road sector, Governments have around the East African region have introduced another body called the Road fund which is mandated to see that the provided funds are efficiently and effectively used and also to reduce the burden of MoW&T to policy making, supervision and monitoring but not implementing.

2.3.3 Road Policies and Maintenance of Roads

The policies in the roads sector are intended for the achievement of the following; strengthen infrastructure to engender and support increased production and movement of goods and services, Plan, develop, monitor ad maintain an economical, efficient and effective roads infrastructure to facilitate the provision of safe and efficient road services, Plan and monitor the sustainable maintenance of District, Town and community Access roads.

Through its Policy Paper for Sustainable maintenance of District, Town and Community Access Roads (DUCAR 2002), the Ministry of Works and Transport, (MoWT) highlighted and emphasized the importance of systematic and sustainable maintenance of road networks for poverty eradication in communities. Poverty eradication is one of the fundamental goals

of the Government of Uganda (GoU) through improved service delivery especially road network improvement.

Roads play a significant function in the social-economic performance of the country especially in facilitating access to markets and special amenities. Recognizing that an efficient transport infrastructure is essential for the development of an integrated self-sustaining economy, the GoU's principal objective in investing in development of the transport sector is; "*The provisions of an efficient, safe and sustainable road network as pivotal support for accelerated and integrated national development and for consolidation of peace and unit*" (Strategy for Sustainable maintenance of District, Urban and Community Access Roads Ministry of Works and Transport, 2004).

For fulfilling these policies, the following are highlighted in the MoWT's 10 year Road Sector development Program (RSDP) with the following three key objectives; Providing safe and efficient road network that is sufficient to meet present and future traffic demand, establishment and development of efficient road administration, Enhancing the development of the local contractor industry capacity that can meet the required construction standards (Road Sector Development Program (2001/02-2010/11)

To make sure the above policies are adhered to, and to reduce on the continued loss of capital investments in the roads sector, Central Government produced and gave out Road Maintenance Policy Document and Town Roads Maintenance Document for both the District and Town Councils (UNRA Report, 2009). These policy documents are meant to provide principles, procedures and measures, which will enable achievement of the overall goals, expressed in the Government's White Paper on Sustainable Maintenance of District, Town and community Access Roads covering "Maintenance of District Road Networks permanently in good condition with a view to stimulating economic growth and generally

improving the socio economic life of the population" (Strategy for Sustainable Maintenance of District, Urban and Community Access Roads Ministry of Works and Transport, 2004).

Lastly, increased use of local contractors, appropriate technology including labour-based methods, community involvement in the execution of road maintenance works should be emphasized for sustainability of roads.

2.4 Maintenance of DTR Roads

The common types of road maintenance work carried by districts and Town councils according to District Road Works Manual D volume I include the following; Rehabilitation: This is restoration of pavements including all its structures to its original form or even better than it was originally and basically entails the reconstruction of gravel road to acceptable standards. In addition, Spot repairs: This is the operation carried out to improve on the worn out or damaged parts of the road in case other areas are still okay. While Routine maintenance: These are operations required to be carried out once or more per year on a section of the road. These activities are typically small scale in nature and simple, but widely dispersed and require skilled and un skilled manpower and Periodic maintenance: These are operations occasionally required on a section of the road after a period of number of years preferably four. They are normally large scale and require specialized skills and equipment.

2.5 Summary of the Literature Review

Schultz, Slevin & Pinto (1987) stated that failure of a staffing function in any organization will affect the strategic and tactical dimensions of any project. This is also asserted by Farid & El-Sayegh (2006). Sally & Stankevich (2005), emphasize that poorly maintained roads increases accidents, poverty and poor health especially in rural areas. However, most of studies reviewed were for developed countries and yet Buikwe District is in a developing country and secondly most of this literature was captured from studies focusing on other sectors like water, electricity and not necessarily from the roads sub-sector.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

The chapter gives a detailed account the methods that were used to collect data from the field of study. The chapter comprises of the study research design, study population, sample size and selection, data collection methods and instruments, quality control including validity and reliability, procedure for data collection, data management and analysis and finally measurement of variables.

3.2 Research Design

The study employed a triangulation of both cross sectional and case study design. Cross sectional design was used to obtain vast quantitative information from a big number of respondents within a short time. As the name suggests, cross-sectional surveys cross-analyzed factors within the data. Correlation of data was used in an effort to determine whether and to what degree a relationship exists between two or more variables (Amin, 2005). On the other hand, a case study design was used in this study because it sought to describe the subject under study in details and investigated phenomena within its real life context (Yin, 1984). The study involved triangulation of both quantitative and qualitative approaches of data collection and analysis. This enabled capitalising on strength of each approach while each approach covers weakness of the other.

3.3 Study population

The unit of analysis for quantitative data were members of staff of Buikwe District Local Government with a few key informants selected from the local leaders involving 55 Local Council 1 chairpersons in the district, District political leader including the LC V chairperson, Resident District Commissioner, 4 District Executive Committee members, 5

members of the Technical Services Committee, 15 Town Council Executive Committee members, the Chief Administrative Officer, the District Engineer, 2 Town Engineers, 3 assistant chief administrative officers, 13 members of District Technical Planning Committee, 15 road maintenance contractors, and 2 procurement and disposal unit staff. This made a population of 118 people that were targeted for the study.

3.4 Sample Size and Selection

Amin (2005) defines a sample as a collection of some (a subset) element of a population. A sample therefore is a smaller group obtained from accessible population. Each member or case in the sample is referred to as a subject. Sometimes the term "respondent" or "interviewee" are used (Mugenda & Mugenda, 1999). Quantitative sample size were determined using the formula provided by Krejcie and Morgan as cited by Amin (2005) (see appendix IV).

Based on the findings presented in Table one below, the sample size of 113 respondents were selected based on the purposive and sampling technique methods. The purposive sampling technique was used to determine key informants including (1) LCV Chairperson, (1) Resident District Commissioner, (1) District Engineer, (2) Town Engineers, (1) Chief Administrative Officer, (3) Assistant Chief Administrative Officers, (13) Technical Planning Committee members, (4) District Executives, (15) Town Council Executives, (15) Road maintenance contractors, (2) Procurement unit staff and (5) Members of the Technical Committee. The reason of targeting this population was because they have key information regarding road maintenance.

On the other hand, simple random sampling, a technique used to select a proportionate sample to represent the respondent and was used to select (48) LC 1 Chairpersons. The

choice of this technique is that it captures a large population, it supports easy administration of the questionnaire with less time involved.

Table 1: Accessible Population and Sampling Size

Category	**Population**	**Sample**	**Sampling Technique**
LCV Chairperson	1	1	Purposive Sampling
Resident District Commissioner	1	1	Purposive Sampling
District Engineer	1	1	Purposive Sampling
Town Engineers	2	2	Purposive Sampling
Chief Administrative Officer	1	1	Purposive Sampling
Asst. Chief Administrative Officers	3	3	Purposive Sampling
Technical Planning Committee Members	13	13	Purposive Sampling
District Executive Committee Members	4	4	Purposive Sampling
Town Council Executives	15	15	Purposive Sampling
Road maintenance contractors	15	15	Purposive Sampling
Procurement and Disposal Unit Staff	2	2	Purposive Sampling
Technical Services Committee Members	5	5	Purposive Sampling
LC 1 Chairpersons	55	48	Simple Random Sampling
Total	**118**	**113**	

Source: Adopted from Buikwe District Staff List (2005) - Pre-qualification List for Contractors (2013) and determined based on the Krejcie & Morgan Population Table

3.5 Methods of Data Collection

The research adopted three data collection methods to support the collection of data. These included: the questionnaire survey, interviewing and documentary review methods as detailed below.

3.5.1 Questionnaire Survey

This method involved the designing of a number of structured close- ended and open- ended questions on factors including technical, financial and road policy and road maintenance based on a five likert scale item (SA(5), A(4), UD(3), D(2) and SD(1). The provision of the likert scale enabled the respondents make appropriate choices. The method was used on respondents including LCV chairperson, Resident District Commissioner, District Executive Committee members, members of the Technical Services Committee, Town Council Executive Committee members, the Chief Administrative Officer, the District Engineer, Town Engineers, assistant chief administrative officers, members of District Technical Planning Committee, road maintenance contractors, and procurement and disposal unit staff. The selection of this method is based on the fact that it is quicker and easy to administer to respondents. Further still, the close-ended questions were easily coded and this made data analysis quick (Bryman, 2008). This was because this method is suitable for collecting quantitative data and a wide range of data is obtained from respondents when using it (Bryman, 2008).

3.5.2 Interviewing

The method involved the researcher coming up with an interview guide where face to face interviews were carried out. The method was used on Local Council 1 leaders to obtain non-quantified information about road maintenance in their areas. This method was used to collect non-numeric information on the factors (technical, financial and road policy factors) and maintenance of the roads. This method of chosen for this category of respondents because it was assumed that not all of them could read and write yet they possessed vital information to support the study.

3.5.3 Documentary Review

The method involved reviewing of a number of secondary information sources on factors (technical, financial and road policy factors) and road maintenance. The following documents were reviewed including: District Road Works Manual D volume I in Uganda (2003), District Road Works volume 1 (2002), Districts Roads Manual D Volume 1 of (2002), Buikwe District staff List (2005), District and Town Council road inventory (2013/2014), Buikwe District Annual Work plan (2012/2013), Buikwe District Local Government Budget, (2013/2014), Lugazi Town Council Roads Annual Report (2013/14) and Buikwe recurrent and Development Budget (2012/2013).

3.6 Data Collection Instruments

The instruments used to obtain data in the study included: the self-administered questionnaire, interview guide and documentary review checklist as explained below.

3.6.1 Self-Administered questionnaire

Scholars including Babbie & Mouton (2001) define a questionnaire as a set of written questions and or statements to which the research subjects are to respond in order to provide data, which are relevant to a topic under investigation. The self-administered questionnaire (SAQ) allowed to obtain primary data on factors (technical, financial and road policy factors) and road maintenance. The instrument comprised both open and close- ended. The closed ended questions were based on a five likert scale. The instrument was administered to LC V chairperson, Resident District Commissioner, District Executive Committee members, members of the Technical Services Committee, Town Council Executive Committee members, the Chief Administrative Officer, the District Engineer, Town Engineers, assistant chief administrative officers, members of District Technical Planning Committee, road maintenance contractors, and procurement and disposal unit staff (See attached, Appendix I).

3.6.2 Interview Guide

The instrument was used to obtain information from direct or face to face interviews on factors (technical, financial and road policy) and how they influence road maintenance. This involved the researcher reading open ended questions while recording the answers. In addition, numeric data was collected by the use of this instrument. The instrument was administered on Local leaders (See attached, Appendix II).

3.6.3 Documentary Review Checklist

The researcher used a documentary review checklist to obtain second information on factors (technical, financial and road policy factors) and road maintenance. Among the documents reviewed were: District Road Works Manual D volume I in Uganda (2003), District Road Works volume 1 (2002), Districts Roads Manual D Volume 1 of (2002), Buikwe District staff List (2005), District and Town Council road inventory (2013/2014), Buikwe District Annual Work plan (2012/2013), Buikwe District Local Government Budget, (2013/2014), Lugazi Town Council Roads Annual Report (2013/14) and Buikwe recurrent and Development Budget (2012/2013). This saved time and cost of looking for information since it was already available in documents (Appendix III).

3.7 Quality of Data Collection

To ensure that data collected is valid and reliable, the instrument were first tested to ensure validity and reliability.

3.7.1 Validity

According to Amin (2005), validity is the ability to produce findings that are in agreement with theoretical or conceptual values, in other words, to produce accurate research results. A content validity index (CVI) was used to ensure consistency in measuring whatever it was intended to measure (factors and road maintenance). From results of expert judgment based

on rating by 3 experts including Uganda Management Institute supervisors, Head engineering department and a senior administrator provided their rating. The rating was calculated based on a formula shown below as provided by Amin (2005).

$$CVI = \frac{(K)}{(N)}$$

Where (K) is the number of items declared valid and (N) as the total number of items (questions) declared valid or invalid

$$CVI = \frac{\text{Number of items declared valid}}{\text{Total number of items (Invalid and valid)}}$$

$$CVI = \frac{(35)}{(45)}$$

CVI= 0.77 (77%)

As can be observed, the 0.7 score obtained reveals that the instrument was valid. This is supported by Amin (2005), who states that an instrument is valid when its score is equal or above (≥ 50) or 0.5 (50%), then the instrument is regarded as valid.

3.7.2. Reliability

Reliability is a measure of a degree to which a researcher instruments yields consistent results or data after repeated trials (Mugenda & Mugenda, 1999). A pretest of 10 respondents was done and averages were captured depending on responses, the reliability score was determined.

To ensure the reliability, the researcher conducted a pilot study on a number of respondents not considered as part of the study. With the help of internal consistency technique specifically, cronbach alpha a feature embedded in SPSS was used to obtain reliability result. The formula shown below was used to calculate or come up with the reliability score.

$$\propto = \left(\frac{N}{N-1}\right)\left(\frac{S^2 - \sum S_i^2}{S^2}\right)$$

Where; N= was the number of items in the test, while S^2= was the variance of the total test of scores, i= was the individual item and Si^2 form the variance of individual items on the test.

Table 2: Reliability results (Factors and Road Maintenance)

Variable	**Cronbach score**	**Number of Questions**
Technical factors	.564	11
Financial factors	.538	8
Road policy	.623	3
Road maintenance	.794	13
(∑ alpha score)	**2.519**	

Source: primary data

The reliability score was obtained by summing up the alpha scores (∑ alpha score) and divided by the number of variables (n). Thus (2.519) / 4, the answer obtained was 0.629. Based on the score obtained, it can be suggested that the response score 0.629 suggests that the instrument was reliable as supported by Sekeran (2003) who asserts that for an instrument to be reliable, its score should be above (≥) 0.5. Furthermore, Mugenda & Mugenda (1999)

reveal that to ensure reliability of an instrument, results obtained should be at least 0.5 and above.

3.8 Data collection procedure

Upon finishing proposal defense and completing doing the required corrections, the researcher proceeded to UMI, School of Management Science and sought a field introduction letter (see Appendix V) On receiving the letter, the researcher went to Buikwe district, Office of the Town Clerk and sought permission to conduct the study, and permission was granted. With the help of two researcher assistants, the SAQs were administer on the LC 1s and interview sessions held with key interviewees

3.9 Data management and analysis

The researcher used both the qualitatively and quantitatively techniques to manage and analyze data. The techniques are fully explained in sub-section 3.11.1 and 3.11.2 respectively.

3.9.1 Quantitative data analysis

Upon receiving the SAQ, these were coded and entered in SPSS. After the entry, this data was edited, cleaned and checked for inconsistency. Later, the quantified data was analyzed and results were interpreted accordingly. Quantifiable data was presented descriptively inform of mean scores, frequencies and percentages while inferentially statistics; the bivariate pearson correlation coefficient analysis was run to establish or whether the relationship existed among the study variables. Furthermore, the regression coefficient models were used to determine the effects of factors and their relationships on maintenance of D&TC roads. The results were presented in form of tables and figures.

3.9.2 Qualitative data analysis

Qualitative data was collected using interview guide and recorded in the note book. This qualitative data was analyzed using the content analysis technique. The non-numeric data received was categorized based on patterns, repetition and commonalities into themes based on the study variables. The themes were used to reinforce information obtained from self-administered questionnaires in order to draw meaningful conclusions and recommendations.

3.10 Measurement of variables

The variables in the study were measured in relation to the indicators including technical, financial as well as road policy factors and roads maintenance identified using the likert scale approach. This method examined whether the study population strongly agree or disagree with statements on a 5- points scale (Sekaran, 2000). The 5- point likert scale has 5- Strongly Agree; 4- Agree; 3-Undecided; 2- Disagree; and 1- Strongly Disagree. The measurement of variables was based on two scales including the ordinal scale, which was used to measure quantified variables as illustrated in the conceptual frame work of the study. On the other hand, nominal scale was used to measure the bio-data variables specifically the gender and age of the respondents.

CHAPTER FOUR

PRESENTATION, ANALYSIS AND INTERPRETATION OF FINDINGS

4.1 Introduction

Chapter four presents, analyses and interprets the findings based on the specific objectives of the study. The chapter is arranged as follows including; the response rate; bio data of the respondents, the descriptive and inferential statistical findings. Furthermore, the hypothesis and research questions are answered at this point.

4.2 Response Rate

The response rate was determined based on the questionnaires returned and interviews that were held. Out of 65 distributed questionnaires, 37 questionnaires were returned fully completed constituting 57% while out of 48 planned interview sessions, only 42 interview sessions were held constituting 88% as presented in the Table 3 below.

Table 3: Response rate of respondents

Instrument/Tool used	**Administered/ arranged sessions**	**Questionnaires Returned / interviews held**	**Percentage (%)**
Interview	48	42	88%
SAQ	65	37	57%
Total	**113**	**79**	

Source: Field data

The Table 3 above shows results as were obtained from the field of study. A combined response rate of 70.0% (79/113 x 100%) was realized from the two instruments. Amin (2005) stresses that a response rate above 50% reveals generalization of a survey response

4.3 Bio-data about the respondents

The researcher investigated the bio-data of the respondents to establish whether these had a link with road maintenance. This bio-data focused on the respondents' gender and their age category as detailed in 4.3.1 and 4.3.2 below.

4.3.1 Gender of Respondents

In this study, there were both male and female respondents that participated in the provision of required information about road maintenance as reflected in the illustration below.

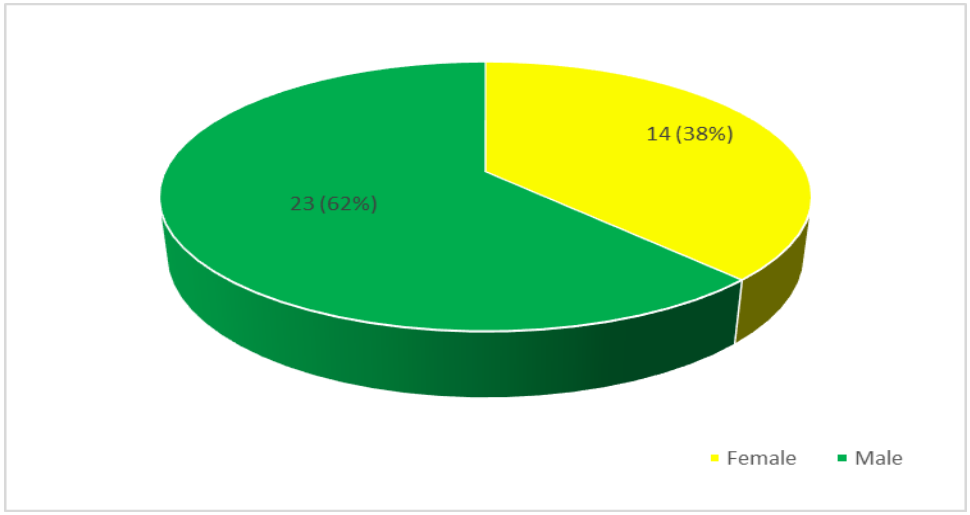

Figure 2: Gender of the respondents

Source: Field data

The illustration reveals the presence of more male respondents 62% (23) as compared to female counter parts who constituted 38%(14) of the respondents. Based on the results, it can be suggested that, gender was equally represented and it's thought the balanced views about factors (including financial, technical and road policy factors) and maintenance of DTC roads were obtained by the researcher as they were able to read and write hence indicating their opinions. Secondly, it can be said that, the road maintenance involves using physical strength to realise results, of which some of the physical activities include driving of heavy vehicles,

dusting and blowing of roads and digging of trenches among others which call for male domination. However, fewer female were engaged in these activities with many handling administrative and supervisory roles.

4.3.2 Age of respondents

In this study, respondents were of different age category and below in Table 4 are the numeric results that were obtained from the field of study.

Table 4: Age distribution of the respondents

Age of respondents	**Frequency (n)**	**Percentage (%)**
20 – 29 years	3	8
30 - 39 years	23	62
40 -49 years	6	16
50 years and above	5	14
Total	**37**	**100%**

Source: primary data

Table 4 comprises of respondents' age category, frequency and percentage scores. The findings obtained reveal that fewer respondents fell between the age category of 20 – 29 years with 3(8%), respondents between 30- 39 were 23(62%), while those between 40-49 years were 6(16%) and lastly, 5(14%) respondents were of 50 years and above. Based on the statistics, it can be suggested that the respondents who participated in Buikwe district were ethically above 18 years of age and therefore seen as mature respondents. Given their age, these respondents seemed well informed and able to provide their opinions on the factors affecting road maintenance within the district to the researcher. Its implication is that the researcher was able to obtain reliable and factual information pertaining to the problem.

4.3 Empirical Findings on Factors and Maintenance of DTC Roads

This section of presents descriptive and inferential findings based on the specific objectives of the study as indicated in 4.3.1, 4.3.2 and 4.3.3 respectively.

4.3.1 Technical factors and Road Maintenance of DTC roads

The first objective of the study was to identify how Technical factors affected road maintenance of D&TC roads in Buikwe District, with emerging opinions presented in Table below

Table 5: Quantified opinions on Technical factors

Questions about Technical factors	**Percentage responses (%)**					**Mean**	**Std dev**
	SA (5)	**A (4)**	**UD (3)**	**D (2)**	**SD (1)**		
Does maintenance of roads exist in your 3 year development plans -annual work plans?	0% (0)	81% (30)	19% (7)	0% (0)	0% (0)	**3.62**	**.794**
TC uses TC technical staff with politicians to decide on the road links for maintenance	51% (19)	27% (10)	11% (4)	11% (4)	0% (0)	**4.19**	**1.023**
Town Engineer with his or subordinate conduct annual council road inventory	19% (7)	67% (25)	3% (1)	11% (4)	0% (0)	**3.95**	**.815**
The staff position of engineering department allows effective management of equipment and supervision of road maintenance work?	70% (26)	11% (4)	11% (4)	5% (2)	13% (5)	**3.38**	**1.089**
Is there staff motivation (motor vehicles and motor cycles) to aid supervision of roads	14% (5)	75% (28)	11% (4)	0% (0)	0% (0)	**4.03**	**.499**
District staff are orientated to improve performance in job handling	30% (11)	54% (20)	16% (6)	0% (0)	0% (0)	**4.14**	**.673**
Is there capacity building work plan in place?	11% (4)	65% (24)	19% (7)	5% (2)	0% (0)	**3.81**	**.701**
Do you carry out annual staff performance appraisal for staff under your supervision	0% (0)	92% (34)	0% (0)	8% (3)	0% (0)	**3.73**	**.608**
Does the district still own enough road maintenance equipment for road works	14% (5)	8% (3)	0% (0)	8% (3)	70% (26)	**3.79**	**1.071**
Does the district receive funds for maintenance of these equipment	32% (12)	57% (21)	3% (1)	8% (3)	0% (0)	**3.70**	**1.071**
Is there a maintenance plan in place for these equipment	11% (4)	81% (30)	8% (3)	0% (0)	0% (0)	**4.14**	**.822**
Does the district have a well maintained mechanical workshop in place with competence mechanics	0% (0)	100% (37)	0% (0)	0% (0)	0% (0))	**2.65**	**1.136**
Average mean (∑Mean/n) where n= number of questions hence (45.13/12) = **3.76**							

Key: SA=Strongly Agree, A=Agree UD=Undecided D=Disagree
SD=Strongly Disagree Stddev=Standard deviation

Please note that a number of similar questions were grouped. In addition, the score were grouped according to the responses for instance both agreed and strongly agreed represent agreed scores while both disagreed and strongly disagreed represent disagreed scores and the undecided scores are not grouped. The mean scores below three reveal agreement and those above three reveal disagreement.

Planning one of the factors dimension was measured using five questions. The results obtained reveal that 30(19%) representing a majority respondents indicated that maintenance of roads existed in the 3 year development plans-annual work plans and 7(19%) of the respondents neither agreed nor disagreed. In addition, the mean score of 4.19, supported with 29(88%) reveal agreement of scores linked to the question that the D&TC used D&TC technical staff and politicians to decide on the road links that required maintenance and the ones to be included in the work plans without consultation from village councils, another proportion of respondents 4(11%) disagreed to the statement and 4(11%) of the same respondents reserved their opinion. Based on these statistical findings, it can be said that the district/town council, engineering and finance departments ensured that a number of key activities including road maintenance were drawn in their annual budgets and respective funds were allocated. In addition, it can be said that, as a result of ensuring that delivery of public services including road improvement within the district/TC, appropriate resources need to be allocated to support the completion of work. Lastly, it was found out the planning of such activities was participative in nature though fewer stakeholders (including locals and other technical staff) were involved. To support on a local leader who observed that,

"*Most of the planned district activities are handled by a team of technical staff. These activities include road maintenance are budgeted for and during each financial year resources are allocated to cater for such activities*"

Another politician interviewed on development plans-annual work plans had this to say:

> "*The challenge with such development activities is that they have turned political with numerous influences exerted by the some district staff. This has been evident in instances of the tendering process, which results into execution of shoddy work*".

Furthermore, 32(86%) respondents agreed that the town engineer with his or subordinate conducted an annual council road inventory, with 4(11%) disagreeing and 1(3%) being neutral. Similarly, 30(81%) respondents agreed that are all the established staff position of engineering department as per the staff structure filled for effective management of equipment and supervision of road maintenance work, while 4(11%) neither agreed nor disagreed and 5(13%) disagreed. The results can be linked to the fact that road and equipment inventory was a requirement needed to ensure proper public accountability. It can be suggested that there was need to show the current status of roads and equipment in terms their usability (whether these were passable or operational), identifying the roads that needed repair and listing the ones that needed repair or the equipment that was obsolete ones. Lastly, progress reports were made and forwarded to D&TC management for planning. To support the findings was another LC chairperson whose observation on annual council road inventory was that:

"*Physical counting of road equipment is done based to prove its existence or not. This is good for better planning*"

While another community leader's comment on annual council road inventory was that:

"*Road equipment inventory is routinely handled by key technical staff. This is good for the district as it reveals accountability of advanced public resources.*"

Lastly, on planning 33(89%) respondents agreed that district motivated staff in terms of provision of transport facilities including motor vehicles and motor cycles intended to support

supervision and monitoring of roads and 4(11%) of these respondents neither agreed nor disagreed. The results suggest that as a way of motivating staff to execute their duties and responsibilities as required by the district/town council, they were availed transport to go and oversee the improvement of roads by the contractors' hence better road maintenance. One responding official had a take on provision of transport facilities by observing that:

> "*To enable quality supervision of roads, our team of technical staff are dispatched to the sites using district vehicles, motor cycles among others. This is done to ensure that there is proper reporting on the progress of the road works. Yes Transport is provided*"

Three questions were posed on training and the results obtained include: 31(84%) who accepted that district staff are orientated (Job orientation training and mentoring) to improve performance in job handling and 6(16%) were neutral. In addition, 28(76%) of the respondents agreed that there was capacity building work plan in plan, 7(19%) were undecided as 2(5%) disagreed meaning that it was mandatory that all newly recruited staff are oriented and trained on job overseen by the HR offices at both the district and town council. It's believed that training and mentoring the staff was shaping them to becoming contributing members of the district/town council work team and be in position to effectively perform the assigned duties. Orientation and mentoring ensure staff retention, motivation, job satisfaction, and quickly enabling staff to settle in. One official said the following on training: "*Employee orientation training basics include showing new district staff on how to perform their jobs safely and efficiently*".

While another interviewee said, "*Effective district employee training leads to both professional and personal growth, which, in turn, leads to increased productivity and to helping the district achieve their long-term goals*"

On whether there was annual staff performance appraisal for staff, a proportion of staff 34(92%) agreed indicated positively while 3(8%) of the respondents disagreed none were decisive meaning that performance appraisal was adhered too, as a requirement for civil servants. The exercise was socially interactive and was performed between the supervisor and supervisee based on given ratings. To complement staff performance appraisal, a local leader expressed that, "*The success of an organization depends on the ability of the performance exercise to measure accurately the performance in form of output of its members and based on the results to objectively optimize them as a vital resource*"

While another interviewee added,

"*Appraisal is a worthwhile evaluation exercise that measures quality or merit of our district staff, this means that the evaluation exercise of staff performance is performed every financial year conducted between the rate and rate*".

Four questions were set about equipment base with the following answers obtained. First, question one called for opinion on whether the district had enough road maintenance equipment for road works. The opinions obtained include: 29(78%) of the respondents that disagreed, whereas 8(22%) of the respondents disagreed and 0(0%) of the respondents were neutral. Similarly, 33(89%) respondents agreed that the district received funds for maintenance of these equipment, however, 1(3%) were not sure and 3(8%) disagreed. The results meant that the district/town councils possessed fewer road equipment attributed to their minimal budget that they held. Secondly, it can be said that their revenue bases including local licenses, hotel taxes, development fees etc., were inadequate to boast the district's/town councils budget where development activities including road maintenance were drawn. Lastly, it is argued that the equipment was seen to be expensive purchase including spare parts and fuel among others.

To support the findings presented above was a respondent who added that,

"*Our district budget is much stretched and some of these spare parts are very expensive for the district to afford. Resources are allocated to other much need social service priority areas*"

Lastly, 34(92%) of the respondents agreed that there was a maintenance plan in place for these equipment, as 0(0%) were indecisive and 3(8%) disagreed. Similarly, 37(100%) of the respondents disagreed to the statement that the district had a well maintained mechanical workshop in place with competence mechanics. The results reveal that the district-town councils' maintenance plans were in place and technical staff adhered to them. The plans clearly explained how and when to perform routine preventive and operational maintenance (including minor mechanical repairs). Secondly, the findings seem to reveal understaffing in the works department and specifically the mechanical section as most newly established districts/town councils had no established mechanical workshops.

A technical official observed that, "*There are no fully established mechanical units in Buikwe district and in cases mechanical problems, the cases are referred to regional workshops at Bugembe*"

Another area of concern was on staff and contractor rating. The rating for this area included excellent, very good, good, fair and eventually poor rating. Below is Table 6 with the results that were obtained.

Table 6: Descriptive rating of the staff, contractors and departments rating

Questions about Contractor and Staff capacity rating	Percentage Rating (%)				
	Excellent	Very Good	Good	Fair	Poor
Finance department rating	0% (0)	8% (3)	58% (21)	24% (9)	10% (4)
Engineering department rating	0% (0)	8% (3)	30% (11)	52% (19)	10% (4)
How do you rate your staff in terms of professional knowledge, technical reporting skills and professional decision making	0% (0)	0% (0)	54% (20)	46% (17)	0% (0)
How do you rate the capacity of contractors involved in maintenance of road infrastructure financially and technically	0% (0)	0% (0)	5% (2)	68% (25)	27% (10)
Quality of roads maintained	0% (0)	0% (0)	16% (6)	46% (17)	38% (14)

Table 6 above reveals the rating responses as were given by respondents on staff capabilities, contract capabilities and department (finance and engineering) rating. Results reveal 21(58%) finance department rating as good, 9(24%) rated the finance department as fair while 4(10%) rated the finance department poor and 3(8%) meaning that most respondents appreciated the finance role that the department extended to them in terms of verification, processing and approval of payments.

The engineering department rating had the following: 3(8%) rating as very good, 11(30%) rated it as good while 19(52%) rated it as fair and 4(10%) rate it as poor. The fair rating suggests that the engineering department despite its challenges has embarked on providing good technical services to both the district and town council.

Ratings were provided on staff in terms of professional knowledge, technical reporting skills and professional decision making and financial management with the following results realized: 20(54%) rated the question as good while 17(46%) rated it as fair and the poor rating had no score. The results mean that, technical staff at the district/town council underwent a thorough recruitment process before being employed. These had to meet the

required job requirement and job specification in terms of knowledge, skills and abilities, and minimum qualifications of stated jobs. The following below was a phrase held by District official on the professional knowledge, technical reporting skills, professional decision making and financial management that technical staff possessed:

> "*At the district when a vacancy is open, the respective department has got to ensure that a clear job description is are provided when a job fell vacant. This has helped in determining how critical the job is and aligning staff duties with the district core vision*"

Finally, on how do the respondents rated the capacity of contractors involved in maintenance of road infrastructure financially and technically? Answers obtained include: 2(5%) rating of the department as good, 25(68%) rated it as fair and 10(27%) rated it as poor. While 17(46%) rated the quality of road maintained as fair, 6(16%) rated the roads as poor and 14(38%) rated the roads as poor. Based on the results obtained, it can be the contracted followed the technical guidelines, adhered to PPDA guideline executed their roles as contractors hence road maintenance however, the poor score reveals shoddy work still done them for any technical works.

In one of the interviews held on the capacity of contractors involved in maintenance of road infrastructure,financially and technically, an interviewee had this to say,

"*Several of our district roads have not been completed with contractors citing numerous administrative, financial and technical road blocks.*

4.3.1.1 Correction results (Technical Factors and Maintenance of DTC roads)

The correlation, a technique for determining relationship between technical factors and road maintenance of DTC roads with the results obtained, presented in Table below.

Table 7: Bivariate correlation results for technical factors and road maintenance of DTC roads

		Technical factors	Road maintenance
Technical factors	Pearson Correlation	1	.713**
	Sig. (2-tailed)		.000
	N	00	37
Road maintenance	Pearson Correlation	.713**	1
	Sig. (2-tailed)	.000	
	N	37	37

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

Table 7 above comprises of study variables including technical factors and road maintenance. The pearson result of (.713**) reveals a statistically significant positive relationship between technical factors and road maintenance of DTC roads. The results suggest that better road planning, staff training coupled with the presence of capable technical staff including engineers and experienced road contractor would result into better road maintenance.

4.3.1.2 Regression results (for Technical Factors and Maintenance of DTC roads)

A regression analysis was used to determine whether technical factors were significant in predicting road maintenance in Buikwe district.

Table 8: Linear regression results (Technical factor and Road maintenance)

Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	.713[a]	.508	.494	.52717

a. Predictors: (Constant), Technical factors

Source: field data

Table 8 comprises of the model summary with scores including R as .713, R squared as .508, Adjusted R square as .494 and standard error of the estimate as .52717 using the predictor; Technical factors. The adjusted R^2 value of .494 explains a 49.4% variance that technical

factors had on the maintenance of roads in Buikwe district with the remaining percentage of 50.6% suggesting proof of other factors contributing to road maintenance rather than these used for this study. Additionally, hypothesis statement one is upheld and the null rejected.

Table 9: ANOVA[b] results for Technical factors and Road maintenance

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	10.051	1	10.051	36.166	.000[b]
	Residual	9.727	35	.278		
	Total	19.778	36			

a. Predictors: (Constant), Technical factors
b. Dependent Variable: Road maintenance

Table 9 above reveals ANOVA results which show that a combination of variables significantly contribute to the relationship between technical factors and road maintenance, degree of freedom (df) = (1, 35), F (36.166) and sig or p-value as ($p < .000$).

Table 10: Coefficients[a] results for Technical factors and road maintenance

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	-.010	.592		-.017	.987
	Technical factors	1.088	.181	.713	6.014	.000

a. Dependent Variable: road maintenance

The coefficients table 10 above clearly comprises of unstandardized β, the *t* value and the Sig**.** The coefficients realized indicate that technical factors significantly contribute to the equation for predicting road maintenance, (y=a +bx) where y is the dependent variable, a as the constant and b as technical factors *value.* The sig or p-value at (0.000) clearly reveals a statistically significant relationship. This relationship seemed reliable and could be used to make predictions hence (Road maintenance =-.010 + 1.088 Technical factors). The beta value or R of .713 explains a 71.3% effect that technical factors had on road maintenance

4.3.2 Financial Factors and Road Maintenance of DTC roads

The research objective two was to establish how financial factors affected road maintenance of District and Town Council roads in Buikwe District. Financial factor indicators from which a number of questions were posed include: funds availability, resource mobilization and accountability. The findings obtained are presented in Table 11 below.

Table 11: Quantified opinions on Financial factors

Questions on Financial factors	**Percentage responses (%)**					**Mean**	**Std dev**
	SA (5)	**A (4)**	**UD (3)**	**D (2)**	**SD (1)**		
D&TCs rely greatly on conditional grant allocation from CGs for maintenance of Urban roads	0% (0)	70% (26)	0% (0)	30% (11)	0% (0)	**3.78**	**1.250**
The release of funds D&TC urban roads maintenance was due to lack of accountability for funds and late submission of reports	24% (9)	56% (21)	3% (1)	14% (5)	3% (1)	**3.86**	**1.032**
Delays in release of funds or budget cuts for maintenance of D&TC urban roads is failure to follow procurement guidelines and regulations among others	38% (14)	57% (21)	0% (0)	0% (0)	5% (2)	**3.81**	**1.126**
Are conditional grants the major source of funding for the district road maintenance projects	0% (0)	76% (28)	0% (0)	16% (6)	8% (3)	**3.43**	**1.042**
If properly utilized as per the guidelines, are the above sources of funding sufficient to complete activities planned within the annual work plan	5% (2)	16% (6)	0% (0)	16% (6)	61% (23)	**1.86**	**1.337**
There is always a delay in release of funds for maintenance of district roads which hinders timely intervention	16% (6)	57% (21)	3% (1)	22% (8)	3% (1)	**3.62**	**1.086**
The major cause of delays in release of funds for maintenance of district roads is late or no submission of quarterly reports and budget request reports	16% (6)	60% (22)	5% (2)	11% (4)	8% (3)	**3.65**	**1.136**
The delays in release of funds for maintenance of district roads is non-adherence to set policies and guidelines by the ministry	8% (3)	76% (28)	0% (0)	5% (2)	11% (4)	**3.70**	**.968**
Average mean (∑Mean/n) where n= number of questions hence (27.71/8) = **3.2**							

Key: SA=Strongly Agree, A=Agree UD=Undecided D=Disagree

SD=Strongly Disagree Stddev=Standard deviation

Please note that a number of similar questions were grouped. In addition, the score were grouped according to the responses for instance both agreed and strongly agreed represent

agreed scores while both disagreed and strongly disagreed represent disagreed scores and the undecided scores are not grouped. The mean scores below three reveal agreement and those above three reveal disagreement.

Interesting quantified results were obtained on whether the D&TCs relied greatly on conditional grant allocation from CGs for maintenance of urban roads with corresponding results obtained suggesting an agreement reflected by 26(70%) however, 11(30%) disagreed and none neither agreed nor disagreed to the statement. Another question was on whether the conditional grants given to Buikwe district was a major source of funding for the district road maintenance projects. Opinions or responses obtained included: 28(76%) respondents that agreed, while 9(24%) of the respondents disagreed and none were neutral. The results meant that releases are provided by the CG to aid or boast local revenues at the D&TCs. These revenues are used to aid the execution of development work including existing revenue bases are allocated to other priority areas rather than development activities including road maintenance. In an interview held, one respondent availed a statement that, "*All LGs in Uganda depend on releases from the Government to support their operations*" on conditional grant allocation

In addition, a fraction of respondents 30(80%) agreed to the statement that delays in release of funds or budget cuts for maintenance of TC urban roads was due to lack of accountability for funds and late submission of reports, although 6(17%) disagreed and 1(3%) were indecisive to the question. Based on the findings obtained, it can be argued that the release of public funds for any district activity was based on activities of each planned financial year coupled with the ability to account for resources hence reflecting how released public funds were actually used. However, failure to account and provide financial reports to district council for advanced resources meant that no sanctioning of other public funds unless accountability was done. One responding committee member put forward a qualitative

statement on delay in release of funds linked to lack of accountability for funds and late submission of reports, he said,

> "*Most of the undertaken decisions entailed number and location of feeder roads to be worked in a given financial year, amount to be spent and when the roads were to be worked upon and also decisions on action to be taken on officers who had mismanaged road funds*".

On whether the delays in release of funds or budget cuts for maintenance of TC urban roads was failure to follow procurement guidelines-regulations and non-adherence to financial regulations, control and transparency by stakeholders in the implementation had collective opinions that were obtained including: (95%) respondents that agreed and (5%) of the respondents that disagreed respectively. The statistical findings obtained reveal that the meant to be transparent procurement exercise was time and again influenced politically by some district management politicians because of self-interest. The presence of such local pressure exerted on the procurement members meant that they were not able to execute transparent pressure work hence stalling the exercise. One of the views as was presented by an interviewee on failure to follow procurement guidelines-regulations among others was that,

"*Local politicians among other district management staff have influenced the procurement exercise leading to failure by the concerned teams to ensure the highest transparency and accountability standard required to better service delivery*."

Another question posed was on whether there was always a delay in release of funds for maintenance of district roads which hindered timely intervention. Some of the respondents 27(73%) agreed while others 9(25%) disagreed and 1(3%) were undecided. Furthermore, on if resources were properly utilized as per the guidelines, were the conditional grant sources of funding sufficient to complete activities planned within the annual work plan? A majority respondents 29(77%) disagreed, followed by 8(21%) respondents that disagreed and none of

the respondents were not sure. The results suggest that much as there was a budget with key activities specified, the allocation and release of funds was still delayed as district/council officials seem not to have valued time as a key resource in realizing of better local service this has an effect on the delayed wastage of road works including road maintenance.

"*Every project has a start and end date upon which a number of activities are based thus failure to honor such a time frame means failure to realise positive results*" was a statement made by an interviewee on delay in release of funds for maintenance of district roads which hindered timely intervention.

Lastly, 28(76%) respondents agreed that the major cause of delays in release of funds for maintenance of district roads was the late or no submission of quarterly reports and budget request reports, 7(19%) disagreeing and 2(5%) that were undecided. In addition, 31(85%) of the respondents agreed that the major cause of delays in release of funds for maintenance of district roads was non-adherence to set policies and guidelines by the ministry, however, 6(16%) of the respondents disagreed and none neither agreed nor disagreed. The statistical findings presented about delay in the provision of reports suggest that, they deprived off the council ability to conduct fast decisions on what could be handled as far as road maintenance was concerned as the absence reports on time including progressive reports meant that factual and reliable information was lacking to aid district decision making. The following was a statement made by one of the interviewees on the delays in release of funds for maintenance of district roads attributed to the late or no submission of quarterly reports and budget request reports. "*Delay of report submission is delay in making of decision as council depends on such reports to undertake decisions*"

4.3.2.1 Correlation results for (Financial Factors and Maintenance of DTC roads)

The correlation, a technique for determining relationship between financial factors and maintenance of DTC roads, with the results obtained, presented in Table 12 below.

Table 12: Bivariate correlation results between financial factors and Maintenance of DTC roads

		Financial factors	Maintenance of DTC Road
Financial factors	Pearson Correlation	1	.581**
	Sig. (2-tailed)		.000
	N	37	37
Maintenance of DTC	Pearson Correlation	.581**	1
	Sig. (2-tailed)	.000	
	N	37	37

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

Source: primary data

Table 12 above comprises of study variables including financial factors and road maintenance. The pearson result of (.581**) reveals that financial factors have a positive significant relationship with road maintenance of DTC roads. The results suggest that for Buikwe council to realize better maintenance of its roads, it must ensure that road funds are budgeted for, resources (including financial and human) are mobilized and collected and allocated towards road maintenance.

4.3.2.2 Regression results between Financial factors and Maintenance of DTC Roads

A regression analysis was used to ascertain whether financial factors were significant in predicting maintenance of DTC roads in Buikwe district.

Table 13: Linear regression results (For Financial factors and Maintenance of Road)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.581[a]	.338	.319	.61157

a. Predictors: (Constant), financial factors

Source: Primary data

Table 13 comprises of the model summary with scores including R as .581, R squared as .338, Adjusted R square as .319 and standard error of the estimate as .61157 using the predictor; Financial factors. The adjusted R^2 value of .319 explains a 31.9% variation in road maintenance caused by variation in financial factor in Buikwe district with the remaining percentage of 68.1% suggesting proof of other factors contributing to road maintenance rather than these used for this study. Hypothesis two is upheld and the null rejected.

Table 14: ANOVA[b] results for Financial factors and Road maintenance

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	10.051	1	10.051	36.166	.000[b]
	Residual	9.727	35	.278		
	Total	19.778	36			

a. Predictors: (Constant), Financial factors
b. Dependent Variable: Road maintenance

Table 14 above reveals ANOVA results which show that a combination of variables significantly contribute to the relationship between financial factors and road maintenance, degree of freedom (df) = (1, 35), F (36.166) and sig or p-value as ($p < .000$).

Table 15: Coefficients[a] results for Financial factors and road maintenance

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	-.010	.592		-.017	.987
	Financial factors	1.088	.181	.713	6.014	.000

a. Dependent Variable: road maintenance

The coefficients Table 15 above clearly comprises of unstandardized β, the *t* value and the Sig**.** The coefficients realized indicate that financial factors significantly contribute to the equation for predicting road maintenance, (y=a +bx) where y is the dependent variable, a as the constant and b as financial factors *value.* The sig or p-value at (0.000) clearly reveals a statistically significant relationship. This relationship seemed reliable and could be used to make predictions hence (Road maintenance =-.010 + 1.088 Financial factors). The beta value or R of .713 explains a 71.3% effect that financial factors had on road maintenance

4.3.3 Road policy and Maintenance of DTC Roads

Objective three of the study was to establish how Road policy factors affect road maintenance of District and Town Council roads in Buikwe District. Road policy factors comprised of operational guidelines, maintenance policies and relevant laws as its key indicator with the details obtained presented below.

Table 16: Quantified opinions on Road Policy

Questions about Road Policy	**Percentage Response (%)**					**Mean**	**Std dev**
	SA	**A**	**UD**	**D**	**SD**		
Operational guidelines about road maintenance are always updated and sent to relevant LGs	46% (17)	21% (8)	0% (0)	18% (7)	5% (2)	**3.10**	**1.498**
Road maintenance policy frameworks are always sent to the relevant LGs	35% (13)	30% (11)	0% (0)	30% (11)	5% (2)	**3.59**	**1.384**
Training workshops about maintenance guidelines and policy framework for LGD are always conducted for district staff involved in road maintenance	55% (20)	35% (13)	0% (0)	10% (4)	0% (0)	**4.65**	**.484**
Average mean (∑Mean/n) where n= number of questions hence(11.34/3)= **3.78**						∑=11.34	

Key: SA=Strongly Agree, A=Agree UD=Undecided D=Disagree SD=Strongly Disagree Stddev=Standard deviation

Please note that a number of similar questions were grouped. In addition, the score were grouped according to the responses for instance both agreed and strongly agreed represent agreed scores while both disagreed and strongly disagreed represent disagreed scores and the undecided scores are not grouped. The mean scores below three reveal agreement and those above three reveal disagreement.

Item one of the road policy was determined based on a total number of three questions. Findings laid below include: A majority respondents 25(67%) agreeing that operational guidelines about road maintenance were updated and sent to relevant LGs and 12(33%) of the respondents disagreed. The result meant that reviewing of the old road maintenance guidelines was routinely done to close the maintenance gaps that some of the contractors including road exploit. The update exercise is handled by key beneficiaries speared by the civil engineering personnel in line with the National Road Authority. In addition, one of the interviewee commented the following in line with operational guidelines about road maintenance as being updated said,

"*These operation maintenance guidelines were obsolete however, update ones have been issued for the district. Some of the guidelines include information on local road needs, road conditions, budget constraints, and environmental matters among others*"

While another interviewee held that,

"*The maintenance guidelines are provision and indicate the maintenance level to be assigned at a future date considering future road management objectives, traffic needs, budget constraints, and environmental concerns*"

Item two of the study was on whether the road maintenance policy framework works were always sent to the relevant LGs. Interesting results obtained reveal that a proportion of respondents 24(65%) agreed to the statement and 13(35%) of the respondents disagreed. Based on these statistical findings, it can be suggested that that all relevant LGs were served

with the road maintenance policy framework clearly stipulating good local or national road practices detailing Government commitment, adequate and road assured funding, road institutional arrangements, road maintenance planning and prioritization; and operational capacity for road implementation plans and prescribe road technical, managerial and accounting standards designed to better roads maintenance. One technical official said, "*Road maintenance is key around the sub counties and the districts as it prolongs the life of the road by reducing the rate of deterioration, thereby safeguarding previous investments in construction and rehabilitation*" on road maintenance policy framework works.

While another said, "*There are sets of principles and long-term goals (road policies) that form the basis of making road rules and guidelines, and those that give overall direction to planning and development of the LGs*".

Another responding interviewee had this to say;

"*The Council is committed to placing its customers first and improving the quality of life throughout the district. It is committed to delivering improvements to council services including roads*"

Finally, 33(90%) of the respondents agreed that training workshops about maintenance guidelines and policy framework for LGs are always conducted for district staff involved in road maintenance and 4(10%) of the respondents disagreed. The results meant that LGs while ensuring service delivery, the district management provided sponsorship (capacity) to technical training on maintenance guidelines and policy framework training of staff intended to enhance and better technical staff skills and competence.

In one of the interviews held, an LC chairperson said, "*The technical trainers and trainees have interactively exchanged and shared technical ideas among others. This is a learning opportunity to better their technical knowledge base required for improved road maintenance*

within the district" More, another observed that, "*Building human and institutional capacity within sub counties and districts helps the Government implement more effective policies, leading to better service delivery outcomes*"

4.3.3.1 Bivariate correlation between Road policy factors and Maintenance of DTC roads

The correlation, a technique for determining relationship between road policy factors and maintenance of DTC was used with the results obtained, presented in Table 13 below.

Table 17: Bivariate correlation results between road policy factors and maintenance of DTC roads

		Road policy factors	Maintenance of DTC roads
Road policy factors	Pearson Correlation	1	.754**
	Sig. (2-tailed)		.000
	N	37	37
Maintenance of DTC	Pearson Correlation	.754**	1
	Sig. (2-tailed)	.000	
	N	37	37

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

Source: Primary data

Table 17 above comprises of study variables including financial factors and road maintenance. The pearson result of (.754**) reveals that a significant positive relationship with road policy factors and road maintenance of DTC roads. The results suggest that having operational road guidelines, well defined maintenance policies and ensuring that stakeholders adhere to the relevant laws would better maintenance of DTC roads.

4.3.3.2 Regression results between Road Policy factors and Maintenance of DTC roads

A regression analysis was used to ascertain whether road policy factors were significant in predicting maintenance of DTC roads in Buikwe district.

Table 18: Linear regression results (For Road policy factors and Maintenance of DTC roads)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.754[a]	.569	.557	.49352

a. Predictors: (Constant), Road policy factors

Source: Field data

Table 18 comprises of the linear regression with scores including R as .754, R squared as .569, Adjusted R square as .557 and standard error of the estimate as .49352 using the predictor; Road policy factors. The adjusted R^2 value of .557 explains a 55.7% variance that road policy factor had on the maintenance of roads in Buikwe district with the remaining percentage of 44.3% suggesting proof of other factors contributing to road maintenance rather than these used for this study. Hypothesis three is upheld and the null rejected.

Table 19: ANOVA[b] results for Road policy factors and Road maintenance

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	10.051	1	10.051	36.166	.000[b]
	Residual	9.727	35	.278		
	Total	19.778	36			

a. Predictors: (Constant), Road policy factors
b. Dependent Variable: Road maintenance

Table 19 above reveals ANOVA results which show that a combination of variables significantly contribute to the relationship between road policy factors and road maintenance, degree of freedom (df) = (1, 35), F (36.166) and sig or p-value as ($p < .000$).

Table 20: Coefficients[a] results for Road policy factors and road maintenance

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	-.010	.592		-.017	.987
	Road policy factors	1.088	.181	.713	6.014	.000

a. Dependent Variable: road policy factors

The coefficients Table 20 above clearly comprises of unstandardized β, the *t* value and the Sig**.** The coefficients realized indicate that road policy factors significantly contribute to the equation for predicting road maintenance, (y=a +bx) where y is the dependent variable, a as the constant and b as road policy factors *value.* The sig or p-value at (0.000) clearly reveals a statistically significant relationship. This relationship seemed reliable and could be used to make predictions hence (Road maintenance =-.010 + 1.088 road policy factors). The beta value or R of .713 explains a 71.3% effect that road policy factors had on road maintenance

CHAPTER FIVE

SUMMARY, DISCUSSION, RECOMMENDATIONS AND CONCLUSIONS

5.1 Introduction

The previous chapter focused on the presentation of findings. This chapter summaries, discusses, concludes and recommends based on the specific objectives namely. It further closes with the limitations and areas for further studies.

5.2 Summary of the findings

This summary section runs a summary of the key findings based on the specific objectives including: identifying how technical factors affect road maintenance, establishing how financial factors affect road maintenance and establishing how road policy factors affect maintenance, all of DTC roads in Buikwe District.

5.2.1 Technical factors and Maintenance of D&TC Roads

Technical factors were found to have a significant positive relationship with maintenance of roads in Buikwe town council with a positive correlation of (.713**) and with a variance of 49.4% that technical factors had on maintenance of DTC roads. The following statements on technical factors are summarized including: Buikwe district having a 3 year development plans entailing road maintenance. The Engineering department had technical staff, road inventory and supervision were performed, new district staff were oriented and subjected to the performance appraisal exercise. Finally, the district maintains equipment based on a maintenance plan.

Majority of the local leaders interviewed agreed that yes the district had technical staff in the department but they were very few in that they hardly saw them supervising road works whenever road maintenance are being carried out in their respective areas. Also observed by

majority was that the equipment base for the district was not enough to effectively handle all district roads.

5.2.2 Financial factors and Maintenance of D&TC Roads

The results obtained revealed that there was a significantly positive relationship of (.581**) between financial factors and maintenance of DTC roads. It can be said that, resources including human, financial were mobilized and collected, and were released to realize road construction of work and ensuring that funds were equally accounted.

Most local leaders interviewed were in agreement that the funds for road maintenance and equipment repairs were very little compared to the magnitude of works undertaken.

5.2.3 Road Policy factors and Maintenance of D&TC Roads

The results obtained reveal a statistical positive relationship (.754**) between road policy factors and maintenance of DTC roads in Buikwe district with a 44.3% variance realized of that road factors had on the maintenance of roads. The following can be said that Buikwe DRC road guidelines were operational, supplemented with effective maintenance policies restricted to functional laws.in the roads sector.

From the local leaders interviewed, majority agreed that for them they didn't know about the guidelines and policies

5.3 Discussion of the findings

This section in chapter five gives a detailed account of the key findings while interlinking the findings in chapter four with scholarly findings in chapter two while highlighting gaps based on the specific objectives stated earlier.

5.3.1 Technical factors and Maintenance of D&TC Roads

Technical factors categorized as having indicators including the planning process, training, equipment base, contractor capacity and staff capacity were found to have a positive

relationship with maintenance of D&TC. Further still, some of the positive results obtained to support the findings include the following:

First, the 22% agreed that the district own enough road maintenance equipment for road works and 87% agreed that the district receive funds for maintenance of these equipment. This is in line with Schultz, Slevin & Pinto (1987) who concretize that failure of the staffing function in any organization will affect the strategic and tactical dimensions of any form of project. Scholars including Faridi & El-Sayegh (2006) reported that shortage of skills, manpower, poor supervision, poor site management, unsuitable leadership, shortage and break down of equipment lead to poor service delivery especially road maintenance as most of the Local Governments deal with mostly resource- poor contractors. The researcher agrees to the fact that the district & TC possess assets including road maintenance equipment that can be used to realize better service delivery. However, the disagreed scores obtained reveal that the D&TCs have been found not to possess good financial ground to maintain such equipment as the road maintenance exercise tends to erode more of the local revenue. Furthermore, politicians' interest was zeroed down on the length of the roads maintained in kilometers rather than equipment maintenance which takes a good proportion of local revenue.

Secondly, 76% agreed that there was a capacity building work plan in place within the D&TCs and 81% respondents agreed that the staff in engineering department performed effective management of equipment and supervision of road maintenance work. These finding have a link with Schultz, Slevin & Pinto (1987) who concretize that failure of the staffing function in any organization will affect the strategic and tactical dimensions of any form of project. Similarly, Kerzner (2001) argues that project success was related to the completion of project activities in the due term, budget, and expected quality mainly by people as the main resources. Based on the findings held above, the researcher agrees to the

fact that the presence of capacity building reveals staff improvement of skills and knowledge in relation to their differing roles. However, the issue of capacity being tends to have turned political and discriminative where a number of lower cadres are deprived of the right to training as more funds tend to be allocated to the superiors discrimination in training is still evident or present within the District/Town council circles.

In addition, the effective maintenance of road equipment and supervision of road work progress translates into transparency and accountability since the funds or resources advanced to cater for public services are public resources. However, the 19% discrepancies explains supervision laxity among supervisors where fewer instances including road site checks, equipment and road inventory are rarely performed on time. As a result, this affects the quality of reports that are forwarded to management as they are not representative of the picture on the ground such a situation needs urgent resolving.

Lastly, Districts/TCs had no well-maintained mechanical workshop in place with competence mechanics. This finding can be supported by Faridi & El-Sayegh (2006) who reported that shortage of skills, manpower, shortage and break down of equipment lead to poor service delivery especially road maintenance as most of the Local Governments deal with mostly resource- poor contractors. Truthfully, having a mechanical workshop solves some of the micro technical problems that the D&TC might face during the road maintenance exercise. The absence of such a facilities tends to cause delays in the execution of works hence poor service delivery

5.2.3 Financial factors and Maintenance of D&TC Roads

Earlier findings obtained reveal a positive significant relationship between financial factors and road maintenance in Buikwe district. This is supported by a number of positive responses that were obtained in chapter four where for instance many of the respondents indicated that

the sources of funding were insufficient to complete activities planned within the annual work plan. This is in line with the Ministry of Local Government Service Delivery Report (2004) which revealed that, funds given to Local Governments are not commensurate with service delivery while Kreutzer et al (1999), share the same view that because of inadequate financing, conflicts on how to share the funds into different priorities have developed in Local Governments and thus affecting service delivery in terms of road maintenance. The presence of more revenues paves way for improved service delivery including road maintenance to the local communities. The delay of release of conditional grants from the central Government to the LGs has contributed to delayed or timely implementation of road maintenance activities hence making communities to suffer with poor dusty roads.

Respondents constituting 76% agreed that the major cause of delays in release of funds for maintenance of district roads was the late or no submission of reports and 73% agreed that there was always a delay in release of funds for maintenance of district roads which hinders timely intervention. The findings concur with Shenhar, Levy & Dvir (1997) who assert that any project success depends on completion of the project scope within the budget approved. As a researcher, I agree that the provision of factual and reliable information provided in form of reports (progress and financial) a basis upon which decisions concerning release of funds to the D&TCs are based. However, it can be noted that the staff within these entities seem not to value timely submission of reports which hinders service delivery hence a problem that needs to be addressed to ensure effective road maintenance systems.

5.2.3 Road Policy factors and Maintenance of D&TC Roads

The findings presented in chapter four reveal a positive relationship between road policy factors and maintenance of D&TC roads. This is supported by the findings presented where for instance 87% constituting a majority agreed that Buikwe DLG had updated operational road maintenance guidelines. This is in line with the DUCAR & MoWT Report (2002) which

highlights and emphasizes that the importance of systematic and sustainable maintenance of road networks as they support in elevating poverty in communities. The presence of guidelines that all stakeholders adhere to creates standardized way of road work execution as reflected by the 87% positive score however, the 13% disagreed score reveals inadequate elicitation of road user information that is required to effect the updated operational guidelines. It can be noted that the MoW&T officials tend to base more on urban that rural based road setting in coming up with newer road guidelines. Secondly, in relation to revenue, it can be argued that several D&TCs realize varying local revenue for their road maintenance programs as the differences in such revenue makes these entities realize different road maintenance results. Some of the LGs are urban while others are rural based yet they adhere to similar guidelines.

In addition to the above, the researcher tends to deviate more the findings held above based on the fact that fewer clauses stipulated in the guidelines are updated instead of the entire guidelines yet some of the guideline seem obsolete given the current innovations in technology and roads systems evolving over the years.

While 65% of the respondents indicated that road maintenance policy framework are always sent to the relevant LGs. The findings are in line with the Road Sector development Program (2001/02-2010/11) which highlights that three core objectives however, the focus here is on the second objective which is establishment and development of efficient road administration. More UNRA Report (2009) provides that road policies in place should be adhered to, and to reduce on the continued loss of capital investments in the roads sector, Central Government produced and gave out Road maintenance policy document and Town roads maintenance document for both the District and Town Councils. These policy documents are meant to provide principles, procedures and measures, which will enable achievement of the overall goals among others. The researcher still agrees to the presence of a work framework as it

tends to put every single road activity required to realize standard maintenance of roads on a given time schedule. This is key to the realization of the service delivery goal by the district. However, the 35% negative opinion reveals inadequate flow of road sector guidelines information to the key stakeholders in an adherence, guidelines and insufficient sensitization hence negatively affecting the road maintenance activities.

Finally, 90% of the respondents agreed that training workshops were held about maintenance guidelines and policy framework for Local Governments are always conducted for district staff involved in road maintenance. The findings can be supported by Murray et al, (2002) who argue that self-confidence, output, and professionalism is high in entities that employ a sound training programs for their staff and Ranft & Lord (2000), receipted that organization commitment to the training requirements of its staff, positively impacts on their job satisfaction and results into increase in staff performance and holding. Training helps district staff to better their technical skills, competence and knowledge. However, such training are rarely based on the previous experiences in other words these training are not customized based on feedback elicited from key beneficiaries including the D&TC technical staff in charge of road maintenance. In addition, some of the above trainings have been politically driven resulting into discriminative training.

5.4 Conclusion of the findings

5.4.1 Technical factors and Maintenance of D&TC Roads

It was found out that there was a significantly positive relationship between financial factors and road maintenance of D&TC roads. These factors were concluded as; lapse in management of road equipment and laxity in supervision of road maintenance work, fewer staff were motivated, delayed appraisal exercises were held, the district possesses fewer road maintenance equipment with insufficient funds available and there were no established mechanical workshops.

5.4.2 Financial factors and Maintenance of D&TC Road

It was concluded that financial factors including delayed release and dependence on conditional grants for road maintenance, lack of accountability and late submission of reports, non-adherence to procurement guidelines and regulations and insufficient funds had a significantly positive relationship to maintenance of D&TC roads.

5.4.3 Road Policy factors and Maintenance of D&TC Roads

Road policy factors also had a significantly positive relationship with road maintenance of D&TC roads. These factors were concluded as; D&TC road operational guidelines were updated, sent to relevant LGs, however, some clauses were obsolete. Much as the road maintenance policy framework works were always sent to the relevant LGs, they were not clearly understood and simply kept in shelves. Technical trainings were discriminative.

5.5 Recommendation of the findings

The following are recommendation made based on the specific objectives of the study as reflected in 5.5.1, 5.5.2 and 5.5.3 below.

5.5.1 Technical factors and Maintenance of D&TC Roads

- First, the researcher recommends that the District and Town council management in conjunction with the MoW&T should ensure the establishment of mechanical workshops at the District headquarters together with recruitment of key Technical staff in the Works department to oversee all technical operations. This is intended to address the issue of equipment maintenance among others and ensure sustainability.
- Secondly, the researcher recommends that the District and Town council management in line with the Human resource department review the existing internal training policies to address the issue of individual needs and also avoid discriminative trainings. This will enhance individual staff capacity based on their needs.

- Recommendation three, is that the District and Town council management together with the finance department should allocate more resources towards supervision and monitoring of road maintenance activities. This is likely to address and limit on the problem of laxity in supervision.

5.5.2 Financial factors and Maintenance of D&TC Roads

- On financial related matters, the researcher recommends that the District and Town Council lobby development partner including multinational agencies to ensure that road funding is availed and they (D&TC) don't entirely rely on conditional grants from the Central Government as the only source of funding for road maintenance.
- District and TC management should tighten supervision through overseeing that the superior-subordinate relationship is improved, reports are submitted on time to trigger the release of timely road maintenance funds.

5.5.3 Road Policy factors and Maintenance of D&TC Roads

- The researcher recommends that the District and TC management formally communicates to both the Ministry of Works &Transport to liaise with Ministry of Local Government to consider reviewing road maintenance policies, based on the location of the different LGs. This is intended to address the disparities between rural and urban district set ups.
- The researcher recommends that Ministry of Works &Transport and Ministry of Local Government hold local consultations with key beneficiaries aimed at eliciting key information and in line with timely sensitization to ensure that the road guidelines are adhered to and understood by the beneficiaries.
- Lastly, District and TC management staff should disseminate information pertaining road maintenance policies and guidelines to both contractors and Lower Local Governments.

5.6 Limitations of the study

The following were some of the limitations that the affected the researcher from generalising the study findings:

- The interpretation of results was based on strongly agree (SA), Agree (A), Not sure (NS), Disagreed (D) and strongly disagree (SD). The results were interpreted based on mostly agreed scores while the undecided and disagreed scores were not focused on yet they had a bearing on the study, based on this point, the researcher could not generalize findings of the study.

- Secondly, with a sample of 65 respondents on which the questionnaires were administered, only 37 questionnaires were returned and answered. The numeric data obtained though substantial, it was not representative of the actual data hence the researcher would not generalize the research findings.

5.7 Areas for further studies

The followings are some of the areas identified for further studies. These include:

1) The researcher recommends that research be conducted on the effect of improved road system on the wellbeing of the local community in Buikwe district
2) A comparative study be held on the role of alternative funding vs Conditional Grant to road sector maintenance in Buikwe district

REFERENCES

Abdukareem, Y. (2003). Road maintenance strategy, so far, how far?

Adeyeye S. A, (1998). Development of a policy on roadway maintenance. A. B. Eng. Unpublished, Thesis Dept. of civil engineer, university of Ilorin.

Amin, E. M. (2005). Social Science research: *Conception, Methodology and Analysis*

Ashton, D. N & Sung, J. (2012). Supporting Workplace Learning for High Performance Working.

Baccarini, D. (1999). The logical Frame Work method for defining project success. Project management journal

Babbie, E & Mouton, J. (2001). The practice of social research. Cape Town: Oxford University Press.

Baguma, R. (2007). Language teaching and learning in Uganda: *Situation analysis & the need for Computer Assisted Language Learning (CALL)*

Bryman,A.(2008). Social Research methods. New York Oxford University press.
Callon, Michel. (1999). Actor-Network Theory – The Market Test. In Hassard, J & Law, J. (ed.) *Actor-Network Theory and After*. Oxford: Blackwell Publishers.

Faridi, A. S. & El-Sayegh, S.M. (2006). Significant factors causing delay in the UAE construction industry. *Construction Management and Economics* Vol. 24, , pp. 1167-1176.

Frimpong, Y., Oluwoye, J., & Crawford, L. (2003). Causes of delay and cost overruns in construction of groundwater projects in a developing countries: *Ghana as a case study*. *Int. J. Project Management*, Vol. 21, pp. 321-326.

Kerzner, H. (2001). Project Management: *A Systems Approach to Planning, Scheduling and Controlling*. 7th Ed., New York: J. Wiley & Sons.

Lim, C.S., & Mohamed, M. Z. (1999). Criteria of project success. *International Journal of Project Management*, v.17 (4), pp.243-8.

Maria, K. B., Benon, C. B., & Joseph, O. (2010). How to write a Good Desertation/ Thesis, A guide to graduate students: The New Vision printing and publishing Co. Ltd.

Ministry of Works Transport Report (2002)

Mugenda, O. M, & Mugenda A. G (1999). Research Methods: *Quantitative and Qualitative Approaches*. African Centre for Technology Studies. (ACTS) Press-Nairobi

Murray, T. F., Ragg, K. E., Hagerman, F.C., & Campso, G. E. (2002). Perception grouping and Interactions

Pinto, J. K., & Slevin, D. P. (1988). Critical success factors across the project life cycle, *Project Management Journal*, v.19 (3), pp.67-75.

Prabhakar, G. P. (2008). What is project success: A literature review. *International Journal of Business and Management*, v.39, pp.3-10.

Ranft, S., & Lord, H. (2000). Government performance: *Why management matters, Baltimore, John Hopkins University Press*

Schultz, R. L., Slevin, D. P., & Pinto, J. K., (1987). "Strategy and tactics in a process model of project implementation", Interfaces, v.17, May-June, pp.34-46.

Steve, C., Hernan, L., & Terrje, W. (1991). The road maintenance initiative: Volume 1, Report on policy seminars/ Building capacity for Policy reform by Sally Burmingham and Natalya Stankevich. (2005). Why Road maintenance is important and How to get it done.

Shenhar, A., Levy, O., & Dvir, D. (1997). Mapping the dimensions of project success, *Project Management Journal*, v.28 (2), pp.5-13.

Uganda Road Sector development Program (2001/02-2010/11)

Uganda National Road Authority (UNRA) Report (2009)

Yin, R. K. (1984). Case study research: *Design and Methods*. Newbury Park, CA: Sage

APPENDICES

Appendix I: Questionnaire

QUESTIONNAIRE FOR DISTRICT TECHNICAL OFFICERS

Background:

Government of Uganda is committed to obtaining fundamental improvement in road sector since it's a key element in realizing national development through continuously increasing roads share on the National cake year by year. However increased road construction and upgrading should be coupled with increased maintenance measures so that what is done is kept in good condition. A well maintained road network provide access to health centers, educational institutions and markets so that community can advance agricultural products to markets for selling to earn income and reduce poverty. However the above goal hasn't been achieve in many rural areas due to the poor road conditions. This research is specific to districts roads network (district, and urban roads) in Buikwe district.

GENERAL INSTRUCTION:

The provided research questionnaire is purely for academic purpose. The questionnaire is divided into four sections. Section 1 is to be filled by District Staff members, Section II is for political leaders, Section III to be filled by the Town Council technical officers. Please kindly answer the questions in your group by circling **ONE** of the different options provided to you and give your view or comment in the space provided. All information given shall be treated confidential, thank you.

CONFIDENTIAL

Section 1: District Technical Officers.

Name of respondent :.....(optional)

Position.....Department/section.....

1.0: Planning and Budgeting:

1.1: Are all types of road maintenance (Rehabilitation, periodic, routine and spot improvement) included in your District development plans and Annual work plans.

Strongly Agree Agree Undecided Disagree Strongly disagree

1.2: Is computerized system for information management used to keep inventory of road infrastructure maintenance data for planning purpose?

Strongly Agree Agree Undecided Disagree Strongly disagree

1.3: How are roads for maintenance identified, selected and prioritized before being put in the district development plans and Annual work plans.

a) Technical officers with politicians together select and prioritize the road links to be included in the 3-year development plan and Annual work plan.

Strongly Agree Agree Undecided Disagree Strongly disagree

b) Technical officers at district headquarters organize planning meeting and decide on the allocation of road links to be included in the 3-year development plan and Annual work plan.

Strongly Agree Agree Undecided Disagree Strongly disagree

c) Technical officers conduct Annual District Road Inventory Conditional Survey (ADRICS) every year and use Computer software package of Rehabilitation and Maintenance planning System (RAMPS) to select and prioritize roads links.

Strongly Agree Agree Undecided Disagree Strongly disagree

d) Any other option used?:.....

1.4: What is the current total length of road links within the district

District roads.....(km)

1.5: Of the above kilometers how many can your organization maintain in a given financial year? District roads……..(km)

1.6: What average length of each of the above roads links i.e

a) District roads is ? i) Paved.....(km) ii)Graveled.....(km)

iii) Earth.....(km).

1.7: Any other comment(s) or recommendation(s) you suggest regarding planning and Budgeting of road maintenance?.....

.....

2.0: Finance and resource mobilization:

2.1: Are conditional grants the major source of funding for District road maintenance projects.

Strongly Agree Agree Undecided Disagree Strongly disagree

If you disagree, give the major source of funding that you know.....

.....

2.2: If properly utilized as per the guidelines, are the above sources of funds sufficient to complete activities planned within the annual work plan?

Strongly Agree Agree Undecided Disagree Strongly disagree

2.3: There is always a delay in release of funds for maintenance of district roads which hinders timely intervention.

Strongly Agree Agree Undecided Disagree Strongly disagree

2.4: What is the major cause of delays in release of funds for maintenance of district roads? Is it,

a) Late and no submission of quarterly progress reports and quarterly budget request reports.

Strongly Agree Agree Undecided Disagree Strongly disagree

b) Non adherence to set policies and guidelines by the ministry.

Strongly Agree Agree Undecided Disagree Strongly disagree

Any other reason(s) why funds release delay?.....

.....

Any comment(s) or recommendation(s) that you can offer regarding Finance and Resource mobilization?.....

.....

3.0: Staff capacity and Training:

3.1: Are all the established staff positions of engineering department as per the staff structure filled for effective management of equipment and supervision of road maintenance work?

Strongly Agree Agree Undecided Disagree Strongly disagree

3.2 Is there staff motivation in terms of facilities given to these staff in terms of motor vehicles and motorcycles to aid effective supervision and monitoring of roads?

Strongly Agree Agree Undecided Disagree Strongly disagree

3.3: Have the staff received job orientation trainings and mentoring to improve their performance in job handling.

Strongly Agree Agree Undecided Disagree Strongly disagree

3.4 How often do you organize the workshops/training for these?

(i) Once a year (ii) Every quarter (iii) None

3.5: How do you rate the capacity of contractors involved in maintenance of road infrastructure financially and technically?

(i) Excellent (ii) Very good (iii) Good (iv) Poor (v) Very poor

3.6: How do you rate the performance of the finance department as far as timely processing of payment for road maintenance is concerned?

(i) Excellent ☐ (ii) Very good ☐ (iii) Good ☐ (iv) Fair ☐ Poor ☐

3.7: What general recommendation(s) do you put forward to improve local contractor's performance in road maintenance?.....

.....

4.0 Use and maintenance of equipment

4.1: Does the district still own road maintenance equipment enough for road works?

Strongly Agree Agree Undecided Disagree Strongly disagree

4.2: Does the district receive funds for maintenance of these equipment?

Strongly Agree Agree Undecided Disagree Strongly disagree

4.3: Is there a maintenance plan in place for these equipment

Strongly Agree Agree Undecided Disagree Strongly disagree

4.4: Does the district have a well maintained mechanical workshop in place with competent mechanics?

Strongly Agree Agree Undecided Disagree Strongly disagree

4.5 : Any problem(s) you encounter as far as plant and equipment management in the district is concerned?

(i).....

(ii).....

4.6 What recommendation(s) do you give to improve plant and equipment maintenance management?

(i).....

(ii).....

5.0 Policies in road Maintenance

5.1. Operational guidelines about road maintenance are always updated and sent to the relevant Local governments.

Strongly Agree Agree Undecided Disagree Strongly disagree

5.2. Road maintenance policy frame works are always sent to the relevant local governments

Strongly Agree Agree Undecided Disagree Strongly disagree

5.3 Trainings workshops about maintenance guidelines and policy frame works for local governments are always conducted for district staff involved in road maintenance.

Strongly Agree Agree Undecided Disagree Strongly disagree

QUESTIONNAIRE FOR POLITICAL LEADERS

Background:

Government of Uganda is committed to obtaining fundamental improvement in road sector since it's a key element in realizing national development through continuously increasing roads share on the National cake year by year. However increased road construction and upgrading should be coupled with increased maintenance measures so that what is done is kept in good condition. A well maintained road network provide access to health centers, educational institutions and markets so that community can advance agricultural products to markets for selling to earn income and reduce poverty. However the above goal hasn't been achieve in many rural areas due to the poor road conditions. This research is specific to districts roads network (district, and urban roads) in Buikwe district.

GENERAL INSTRUCTION:

The provided research questionnaire is purely for academic purpose. The questionnaire is divided into four sections. Section 1 is to be filled by District Staff members, Section II by political leaders, and Section III to be filled by the Town Council technical officers. Please kindly answer the questions in your group by circling **ONE** of the different options provided to you and give your view or comment in the space provided. All information given shall be treated confidential, thank you.

CONFIDENTIAL

Section II: Political leaders.

Name of respondents :.....(optional)

Position.....

1. The major duty of political leaders is to mobilize, educate, and monitor service delivery such as roads construction, schools, health services etc in their jurisdiction

   Strongly Agree Agree Undecided Disagree Strongly disagree

2. Low community involvement in road maintenance is as result of non mobilization and sensitization by political leader

Strongly Agree Agree Undecided Disagree Strongly disagree

3 Do you agree that government hasn't done much as far as funding road maintenance is concerned?.

Strongly Agree Agree Undecided Disagree Strongly disagree

4. Is the selection of incompetent contractors the major cause of shoddy works or not?
Strongly Agree Agree Undecided Disagree Strongly disagree

If not what other reason do you give for the continued shoddy works done?
……..
……..
5. There is low participation of energetic youth in routine maintenance activities because youth want to be associated with clean jobs.
Strongly Agree Agree Undecided Disagree Strongly disagree

6. Local contractors are not willing to take contracts of routine road maintenance due to low prices offered by district and delayed payment.
Strongly Agree Agree Undecided Disagree Strongly disagree

7. There is low or no community awareness about road usage hence ending up blocking the drainage facilities leading their continuous deterioration.
Strongly Agree Agree Undecided Disagree Strongly disagree

8. What is your rating of quality of roads (district, urban and community access roads) in Buikwe?
(i) Excellent (ii) Very Good (iii) Good (iv) Fair (v) Poor

9. What is your rating of performance of contractors involved in maintenance of road infrastructure?
(i) Excellent (ii) Very Good (iii) Fair (iv) Poor
10. What is your rating of engineering department performance as far as ensuring quality during road infrastructure maintenance?
(i) Excellent (ii) Very Good (iii) Good (iv) Fair (v) Poor

12: There is need to change land acquisition policies to enable implementers obtain land for road widening and gravel acquisition without much struggle which makes road construction and maintenance activities very expensive.

Strongly Agree Agree Undecided Disagree Strongly disagree

13: All local authorities who fail to comply with the set policies and guidelines should be denied funding for road maintenance.

Strongly Agree Agree Undecided Disagree Strongly disagree

QUESTIONNAIRE FOR TOWN COUNCIL TECHNICAL OFFICERS

Background:

Government of Uganda is committed to obtaining fundamental improvement in road sector since it's a key element in realizing national development through continuously increasing roads share on the National cake year by year. However increased road construction and upgrading should be coupled with increased maintenance measures so that what is done is kept in good condition. A well maintained road network provide access to health centers, educational institutions and markets so that community can advance agricultural products to markets for selling to earn income and reduce poverty. However the above goal hasn't been achieve in many rural areas due to the poor road conditions. This research is specific to districts roads network (district, and urban roads) in Buikwe district.

GENERAL INSTRUCTION:

The provided research questionnaire is purely for academic purpose. The questionnaire is divided into four sections. Section 1 is to be filled by District Staff members, Section II by political leaders, and Section III to be filled by the Town Council technical officers. Please kindly answer the questions in your group by circling **ONE** of the different options provided to you and give your view or comment in the space provided. All information given shall be treated confidential, thank you.

CONFIDENTIAL

Section III: Town Council Technical Officers.

Name of respondent.....(optional)

Position .....

1.0: Planning Budgeting

1.1: Does maintenance of roads exist in your three year development plans and annual work plans.

Strongly Agree Agree Undecided Disagree Strongly disagree

1.2 How do you rate the performance of the engineering department as far as supervising road maintenance activities are concerned?

(i) Excellent (ii) Very Good (iii) Good (iv) Fair (v) Poor

1.3 Among the options below, what does the Town use to identify, select and prioritize maintainable roads for inclusion in the Town council Development plans and Annual work plans?

a) Town councils technical staff with politicians decides on the road links for maintenance to be included in the work plans without consultation with the village councils.

Strongly Agree Agree Undecided Disagree Strongly disagree

b) Town council officials organize planning meeting with village Local councils to decide on the allocation of road links to be included in the 3-year development plan and annual plan.

Strongly Agree Agree Undecided Disagree Strongly disagree

c) Town Engineer with his or subordinates conduct Annual Council Road Inventory

Strongly Agree Agree Undecided Disagree Strongly disagree

2.0: Financial and Resource mobilization:

2.1: Town councils rely greatly on conditional grant allocations from central government for maintenance of urban roads.

Strongly Agree Agree Undecided Disagree Strongly disagree

If disagree, specify the major source of funding

……..

2.3 Delays in release of funds or budget cuts for maintenance of Town Council urban roads is due to the following reasons;

a) Lack of accountability for funds and late submission of quarterly progress report by town councils.

Strongly Agree Agree Undecided Disagree Strongly disagree

b) Failure to follow procurement guidelines and regulations and non adherence to financial regulations, control and transparency by stake holders in the implementation.

Strongly Agree Agree Undecided Disagree Strongly disagree

3.0 **Staff capacity and Training:**

3.1 Do you have all the established staff recruited and posted to your town council for effective supervision and monitoring of road maintenance work?

Strongly Agree Agree Undecided Disagree Strongly disagree

3.2 Are the technical officers facilitated in terms of motorcycles, bicycles and allowance to aid effective supervision and monitoring roads?

Strongly Agree Agree Undecided Disagree Strongly disagree

3.3: Do the staff receive job orientation trainings from the ministry or organized by town council to improve their performance in job handling.

Strongly Agree Agree Undecided Disagree Strongly disagree

3.4: Is there capacity building workplan in place?

Strongly Agree Agree Undecided Disagree Strongly disagree

3.5: Do you carry out annual staff performance appraisal for staff under your supervision?

Strongly Agree Agree Undecided Disagree Strongly disagree

3.6: How do you rate your staff in terms of professional knowledge, technical reporting skills and professional decision making and financial management?

(i) Excellent (ii) Very Good (iii) Good (iv) Fair (v) Poor

What is your general comment(s) or recommendation(s) on capacity building in your Town council

.....

4.0 **Institutional development and capacity building.**

4.2: Do you have management committee for the different road projects in your Town Council for effective maintenance and monitoring of roads?

Strongly Agree Agree Undecided Disagree Strongly disagree

4.2: Have the road committees in case they exist have been trained for the effective monitoring of roads maintenance?

Strongly Agree Agree Undecided Disagree Strongly disagree

4.3: If 'yes', how often do you organize these trainings for roads committees and other stake holders to improve performance in maintenance and monitoring of roads?

(i) Once a year (ii) every quarter (iii) None

4.4: Do you provide any facilitation in terms of financial support, transport, maintenance tools to aid the performance of committees in road maintenance?

Strongly Agree Agree Undecided Disagree Strongly disagree

What comment(s) and recommendation(s) do you have to improve performance of institution development and capacity building?

……

5.0: Contractor capacity.

5.1: Is there list of private contractors drawn up for routine maintenance of urban roads in your Town Council?

Strongly Agree Agree Undecided Disagree Strongly disagree

5.2: Is there deliberate effort put in place to involve women in road maintenance activities?

Strongly Agree Agree Undecided Disagree Strongly disagree

5.3: Do you organize sensitization work shops/trainings for these local contractors?

Strongly Agree Agree Undecided Disagree Strongly disagree

5.4: If yes how often do you do it?

(i) Once a year (ii) every quarter (iii) None

5.5: Are the payments made in time after certification of their work?

Strongly Agree Agree Undecided Disagree Strongly disagree

If your answer is no, what do you think could be the cause of delay in payment processing.

.....

5.6: What is your rating of the capacity of contractors involved in maintenance of road infrastructures?

(i) Excellent (ii) Very Good (iii) Good (iv) Fair (v) Poor

5.7: What general recommendations and comments do you suggest to improve private sector development and participation in road maintenance?.....

Appendix II: Interview Guide

INTERVIEW GUIDE FOR RESPONDENTS FROM LOCAL LEADERS (LC1 CHAIRPERSONS)

Dear respondent,

You have been chosen as a respondent in the study , Investigating factors affecting maintenance of District and Town Council Roads in Uganda: A case study of Buikwe District, because you are believed to be among the suitable people to provide the data required. You are, therefore, requested to help provide your cooperation during the interview.

Please be assured that the information provided will be treated confidentially and used for only academic purposes. Analysis of the information will be used to draw conclusions and recommendations for better maintenance of both District and Town Council roads in the country.

Thank you for your cooperation,

Lugeye Henry

Student of Masters in Management Science (Researcher)

Uganda Management Institute (UMI) , Kampala.

You have been identified as one of the key informants to avail relevant information on the factors that affect the maintenance of DT&C roads in Buikwe District. Please feel free to participate in this study as it's purely academic

TECHNICAL FACTORS

i. In your opinion do you think road maintenance activities are included in the development and annual work plans?

ii. What do think are the methods used by your D/TC to select the roads that are to be maintained in your area?

iii. Comment about staff motivation, appraisal and capacity building in relation to raod maintenance in your D/TC?

iv. Comment about the D/TCs possession of equipment, funds for their maintenance and the maintenance plan

FINANCIAL FACTORS

i. What is your say about conditional grant and their appropriate releases in relation to maintenance of roads in your areas?

ii. What could be the major source of road maintenance funding and what is your comment about the road maintenance reports?

iii. What is your comment in regard to adherence to procurement guidelines and regulations in relation to road maintenance in your area?

ROAD POLICY FACTORS

i. What do you have to say about the relevance of the existing road maintenance operational guidelines and road maintenance policy frameworks?

ii. Comment about capacity building in line with maintenance guidelines and policy framework in your District or Town Council

Appendix III: Documentary checklist

1) District Road Works Manual D volume I in Uganda (2003).
2) District Road Works volume 1 (2002)
3) Districts Roads Manual D Volume 1, 2002
4) Buikwe District staff List (2005)
5) District and Town Council road inventory (2013/2014)
6) Buikwe District Annual Work plan (2012/2013)
7) Buikwe District Local Government Budget, (2013/2014)
8) Lugazi Town Council Roads Annual Report (2013/14).
9) Report by Ministry of Local Government (2004)
10) Buikwe recurrent and Development Budget (2012/2013)

Appendix IV: Krejcie & Morgan Mathematical Population Table

N	S	N	S	N	S	N	S	N	S
10	10	100	80	280	162	800	260	2800	338
15	14	110	86	290	165	850	265	3000	341
20	19	120	92	300	169	900	269	3500	246
25	24	130	97	320	175	950	274	4000	351
30	28	140	103	340	181	1000	278	4500	351
35	32	150	108	360	186	1100	285	5000	357
40	36	160	113	380	181	1200	291	6000	361
45	40	180	118	400	196	1300	297	7000	364
50	44	190	123	420	201	1400	302	8000	367
55	48	200	127	440	205	1500	306	9000	368
60	52	210	132	460	210	1600	310	10000	373
65	56	220	136	480	214	1700	313	15000	375
70	59	230	140	500	217	1800	317	20000	377
75	63	240	144	550	225	1900	320	30000	379
80	66	250	148	600	234	2000	322	40000	380
85	70	260	152	650	242	2200	327	50000	381
90	73	270	155	700	248	2400	331	75000	382
95	76	270	159	750	256	2600	335	100000	384