

**CONTRACT MANAGEMENT AND QUALITY OF ROADS  
UNDER UGANDA NATIONAL ROADS AUTHORITY :  
A CASE STUDY OF MASAKA DISTRICT**

BY

ROSE NAKAFU

*09/MMSPPM/18/027*

**A DISSERTATION SUBMITTED TO THE HIGHER DEGREES DEPARTMENT IN  
PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE  
MASTER'S DEGREE IN MANAGEMENT STUDIES (PROJECT PLANNING  
AND MANAGEMENT OF UGANDA MANAGEMENT INSTITUTE**

**FEBRUARY 2012**

## **DECLARATION**

I, **ROSE NAKAFU** hereby declare that this dissertation is my original work and to the best of my knowledge, it has never been presented for a degree or any other academic award in any Academic institution.

**SIGNATURE:**

.....

**DATE:**

.....

## **APPROVAL**

This dissertation was submitted with approval from the undersigned study based supervisors.

Signed

Signed

.....  
Dr. Benon Basheka

UMI Based Supervisor

.....  
Eng .Bruno Musoke

Work Based Supervisor

## **DEDICATION**

This dissertation is dedicated to my late Mum Sara, Children Precious and Arshley and Husband Henry for all the encouragement and moral support that they accorded me.

## **ACKNOWLEDGMENT**

I would like to deeply thank the Lord Almighty for according me the life, courage and strength to reach this far. All Glory goes back to him

Special thanks go to my UMI Based Supervisor, Dr Benon Basheka for all the support in terms of time, material and guidance that he provided. This dissertation would not have been possible without his tireless support and timely feedback. May God Bless him abundantly.

I also wish to thank my work based supervisor, Engineer Bruno Musoke for his support and time that he accorded me. Accessing organizational assets and resources would not have been possible without him.

Finally, many thanks go to the UNRA staff Masaka Station, Station Engineers, Procurement staff and all road inspectors for all his contribution to this study.

## TABLE OF CONTENTS

<b>DECLARATION.....</b>	<b>i</b>
<b>APPROVAL .....</b>	<b>ii</b>
<b>DEDICATION.....</b>	<b>iii</b>
<b>ACKNOWLEDGMENT .....</b>	<b>iv</b>
<b>LIST OF TABLES .....</b>	<b>x</b>
<b>LIST OF FIGURES .....</b>	<b>xi</b>
<b>ACRONYMS .....</b>	<b>xii</b>
<b>CHAPTER ONE: INTRODUCTION .....</b>	<b>2</b>
1.0    Introduction.....	2
1.1    Background to the Study .....	2
1.1.1    Historical Background.....	2
1.1.2    Theoretical Background.....	4
1.1.3    Conceptual Background.....	5
1.1.4    Contextual Background.....	8
1.2    Statement of the Problem.....	9
1.3    General Objective .....	10
1.4    Specific objectives.....	10
1.5    Research Questions.....	10

1.6 Hypotheses of the study .....	10
1.7 Conceptual Framework.....	11
1.8 Significance of the Study .....	12
1.9 Justification of the study .....	13
1.10 Scope of the study.....	13
1.11 Operational definitions of terms and Concepts.....	14
<b>CHAPTER TWO: LITERATURE REVIEW .....</b>	<b>15</b>
2.0 Introduction.....	15
2.1 Effect of Contract Planning on the Quality of Roads Constructed.....	15
2.1.1 Managing Quality through Contract Planning .....	16
2.2 The relationship between Contract Controlling and the quality of roads constructed ..	19
2.2.1 Managing Quality through Contract Controls .....	19
2.3 The Relationship between Contract Communication & the quality of roads .....	21
2.7 Summary of Literature Review .....	23
<b>CHAPTER THREE : METHODOLOGY.....</b>	<b>26</b>
3.0 Introduction.....	26
3.1 Research Design.....	26
3.2 Study Population.....	26
3.2.1 Sample size and selection .....	27
3.2.2 Sampling methods.....	28

3.3 Data Collection Methods .....	28
3.3.1 Survey Method.....	28
3.3.2 In depth interviews.....	29
3.3.3 Document Review.....	29
3.4. Data collection instruments.....	30
3.5. Validity and Reliability.....	31
3.5.1 Validity .....	31
3.5.2 Reliability.....	32
3.6 Procedure of Data Collection .....	33
3.7 Measurement of variables .....	34
3.8 Data Analysis .....	34
3.8.1 Quantitative Analysis.....	34
3.8.2 Qualitative Analysis.....	35
<b>CHAPTER FOUR: PRESENTATION, ANALYSIS AND INTERPRETATION OF RESULTS.....</b>	<b>36</b>
4.0 Introduction.....	36
4.1 Response Rate.....	37
4.2 Demographic Characteristics.....	38
4.2.2 Age Distribution of Respondents.....	39
4.3 Objective One: To find out how Contract Planning affects the quality of Roads .....	41

The questionnaire had questions onthe dependant variable (quality) and the opinions of the respondents were captured as presented in the table below.....	51
<b>4.6 Hypothesis testing.....</b>	<b>53</b>
<b>4.7 Qualitative findings.....</b>	<b>53</b>
<b>4.7.1 Contract Planning and quality.....</b>	<b>53</b>
<b>4.7.3 Contract Communication and Quality .....</b>	<b>55</b>
<b>CHAPTER FIVE: SUMMARY, DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS.....</b>	<b>57</b>
<b>5.0 Introduction .....</b>	<b>57</b>
<b>5.1 Summary of main findings.....</b>	<b>57</b>
<b>5.2 Discussions.....</b>	<b>58</b>
<b>5.2.1 The effect of Contract Planning on Quality.....</b>	<b>58</b>
<b>5.2.2 The Relationship between Contract Control and Quality of Roads.....</b>	<b>60</b>
<b>5.2.3 The relationship between Contract Communication and Quality.....</b>	<b>61</b>
<b>5.3 Conclusions .....</b>	<b>62</b>
<b>5.3.1 How contract planning affects quality of roads .....</b>	<b>62</b>
<b>5.3.2 The relationship between contract Control and Quality of roads .....</b>	<b>62</b>
<b>5.3.3 The relationship between contract communication and Quality of Roads .....</b>	<b>63</b>
<b>5.4 Recommendations .....</b>	<b>63</b>
<b>5.4.1 Contract Planning and Quality .....</b>	<b>63</b>
<b>5.5 Study limitations .....</b>	<b>65</b>

<b>5.6 Contributions of the study.....</b>	<b>65</b>
<b>5.7 Proposed areas for further research .....</b>	<b>65</b>
<b>REFERENCES.....</b>	<b>66</b>
<b>APPENDICES .....</b>	<b>I</b>
<b>APPENDIX 1:QUESTIONNAIRE FOR ROAD USERS.....</b>	<b>II</b>
<b>APPENDIX 2: INTERVIEW GUIDE FOR KEY RESPONDENTS .....</b>	<b>XI</b>

## LIST OF TABLES

Table 3 1: Respondents by category and sample.....	29
Table 3.2: Content validity Index.....	33
Table 3.3: Reliability coefficients.....	35
Table 4.1: Summary of Response Rate.....	39
Table4.2: Age Distribution.....	41
Table 4.3: Category of Occupation.....	42
Table4.4: Descriptive statistics planning.....	43
Table4.5: Simple linear regression planning.....	45
Table4.6: Descriptive statistics controlling.....	46
Table4.7: Pearson's Correlation for controlling.....	48
Table4.8:Descriptive Communication.....	50
Table4.9: Correlation Communication.....	52
Table4.10:Simple linear regression communication.....	53
Table4.11: Descriptive for Quality .....	54

## **LIST OF FIGURES**

Figure 1.1 Dimensions of Quality By David A.Garvin.....	8
Figure1. 2: Conceptual Framework .....	12
Figure4.1: Gender of Respondents.....	43

## **ACRONYMS**

FY	Financial Year
LGDP	Local Government Development Plan
LGDF	Local Government Development Fund
LG	Local Government
MOWT	Ministry Of Works and Transport
NGO	Non-Governmental Organization
RSDP	Road Sector Development Plan
SPSS	Statistical Packages For Social Sciences
UNRA	Uganda National Roads Authority
TLB	Transport License Board
CHOGM	Commonwealth Heads of Government
IT	Information Technology
PPDA	Public Procurement and Disposal of Assets
WB	World Bank

## **ABSTRACT**

The overall objective of this study was to examine the relationship between Contract Management and the quality of roads constructed and supervised by Uganda National Roads Authority using Masaka District as the case study. The specific objectives were to find out how contract planning affects the quality of roads, to establish the relationship between contract controlling and quality of roads, to establish the relationship between Contract Communication and the quality of roads. The intervening variables were political influence and media publicity. The study employed a triangulation of designs, A case study supported by a correlation design were used to collect both qualitative and quantitative data which was analyzed to give statistical frequencies, correlation statistics and regression models that were used to measure the direction, strength, significance and effect of independent variables on the dependant variable. Study findings revealed that contract communication had the highest correlation of 42% and t-value 5.031, contract control explained for 22.6% while planning explained for 15.9%. This study concluded that contract management has a significant positive relationship with quality of work. The study recommended that planning for quality should be highly considered for road contracts as well as incentives for achieving quality be more emphasized to support the regulations on quality. Mechanisms for consistently tracking progress of all infrastructural projects should be put in place to ensure that deviations from expected quality are solved on time, Government to introduce management systems to be used as a quicker means of accessing information related to infrastructural development. Government should also look into low bid award environment as in many cases low bids compromise quality.

# **CHAPTER ONE**

## **INTRODUCTION**

### **1.0 Introduction**

The study was an investigation into the relationship between contract management and quality of roads supervised by Uganda National Roads Authority, case study of Masaka District. Contract Management was considered to be the independent variable while quality was taken to be the dependant variable. This chapter therefore presents the background to the study which was grouped under historical, theoretical, conceptual and contextual background (Amin, 2005), The statement of the problem, the general objective, specific objective, research questions, hypothesis, scope of the study , significance, justification and operational definitions of terms and concepts

### **1.1 Background to the Study**

#### **1.1.1 Historical Background**

During the twenty second century, many Western (European) countries started experiencing significant highway challenges due to high population densities and heavier load trafficking. According to the USDOT (2002) , average annual investment were increased in order to improve the US highway system in accordance with its optimum economic effectiveness objectives ('Status' 1995).The highway trust fund investment therefore significantly increased in the interest of improving the *quality and sustainability of highways*. In Latin American countries, the issue of quality on highways is the main reason why the road authority started looking for new ways of contracting out road maintenance. Like Brazil, Colombia, Peru, and Uruguay, performance specified road maintenance contracts were initiated to be able to improve on the quality evaluation and performance.

The road sector reforms in Africa, championed by the road management authority in the early 1980's were set up to address the pertinent problems of poor quality of road networks but also improve on the efficiency of road fund management (Brushnet , 2005). Save for some countries like Tanzania, where the road funds directly translates into significant quality road networks (Tanzania Road Board 2006), the rest of African countries require a comprehensive strategy in improving the quality of road networks therein.

In May 2006, Parliament of Uganda passed the Uganda National Roads Act and then created by statutory instrument in late 2006. Uganda National Roads Authority became the legal entity which was approved by cabinet to fully combine the road agency formation unit development resources with that of the Ministry Of Works and Transport. UNRA was to implement a significant number of donor supported major road projects and the overall maintenance and condition of the entire road network in Uganda. In the financial year 2009/2010, the government embarked on an ambitious programme to scale up intervention in the road sector, an additional US dollars 600million was earmarked to improve on the quality of the national road network. This intended to remove the constraints to transportation, thereby lowering the costs of doing business and generating higher economic growth (Uganda budget speech financial year 2009/2010). UNRA reinforced all stations country wide to achieve its mandate of improving the national road network. Through these stations funds are allocated annually to establish and maintain all road networks within respective districts.

Masaka district receives a total of 140 Million Uganda shilling annually (Local Government Development fund) specifically allocated for road construction. An additional 400-680 Million Uganda Shillings is received from the road fund. The road network in Masaka comprises of both gravel and tarmac roads which are constructed in 1980,s and were initially constructed by the

Masaka town council under Ministry of works. The intervention of UNRA station in Masaka was expected to create impact after the establishment of organized structures and timely disbursement of funds. However it was reported on the Masaka district website that 507.9 Km out of the total district roads 907.48 Km i.e 70% are still under the category of class (iii) roads. Class (iii) roads are gravel in nature and only motor able at less than 30Km/hr. The status of these roads was reported at 582.6 Km out of 907.5 Km i.e 64.2% of the district roads were in poor condition [www.masaka.go.ug/works](http://www.masaka.go.ug/works). The urban roads in Masaka district total up to 83 Km ([www.masaka.go.ug](http://www.masaka.go.ug) /works) of the tarmac roads comprised of eroded shoulders, potholes, depressions, ruts, blocked. It therefore upon this background that this study examined the relationship between Contract Management and Quality of roads.

### **1.1.2 Theoretical Background**

This study was guided by the Agency theory which mainly focuses on using tools such as monitoring, trust, reputation, incentives and sanctions in contract relationships in order to achieve goal alignment between the parties to the contract. Agency theory also frequently referred to as the Principal Agent Model is used in the management literature as a theoretical framework for structuring and managing contract relationships and to explain the behaviors of principal and agent. The principal agent model was applied extensively to a range of contractual relations between organizations, Board of Directors in profit and non profit organizations (Bogart, 1995; Brody1996; Dharwadkar, George and Brandes, 2000; Lee and O'Neill ,2003

The agency theory also known as principal-Agent theory shows the need to engage into contractual relationships for reasons like expertise, convenience, time, cost and quality requirements.

The main tenants of the agency theory focused on the information asymmetry, which means when one party knows more in a certain area of expertise and can hence be contracted to deliver a service within time, cost and quality

The theory brought out the weakness or gaps in the area of contracting by mentioning the lack of competition within the geographical market and service type. This narrows the spectrum of contracting and possibility of achieving the desired goals (DeHoog, 1984, 1990;Johnston and Romzek 1999). The agency theory further explained that the ideological motive behind a contract normally contributes to a lack of administrative capacity. Contract managers tend to be limited in capacity to promote competition, terminate contracts, re -bid or reprimand in case of failure in execution of these contracts. Regarding policy issues, the agency theory mentioned that the ambiguity of policy goals, corresponding programmes coupled with lack of monitoring and control make it difficult to evaluate the quality of service delivered by the contractors.

Despite the theory bringing out the above critical issues that affect the quality as a result of several inadequacies in contract management, the critics of the agency theory such as Perrow (1986) and Donaldson (1990) argue that the theory is one sided because it negatively characterizes individual agent's moral and collective behavior as self seeking and focused on obtaining power and wealth. It ignored worker loyalty, pride and identification with the organization's mission and goals, (Waterman and Meier, 1998)

### **1.1.3 Conceptual Background**

The concepts that constituted this study were Contract Management and Quality. The concept of contract management is best understood by first defining the term 'contract' which according to the law society of new south Wales (2009) is defined as a legally binding agreement between two or more persons .Wong (2009) also defines a contract as an exchange of promises between two or more parties to do or refrain from doing an act, which contract is enforceable in courts of law.

The legal resource directory <http://www.freeadvice.com> defines a contract as an agreement between two or more people, businesses, organizations or government, to do or to refrain from doing a particular thing in exchange for something of value. The conditions of the contract defining who, what, where, when, and how of the agreement define the binding promises of each party to the contract.

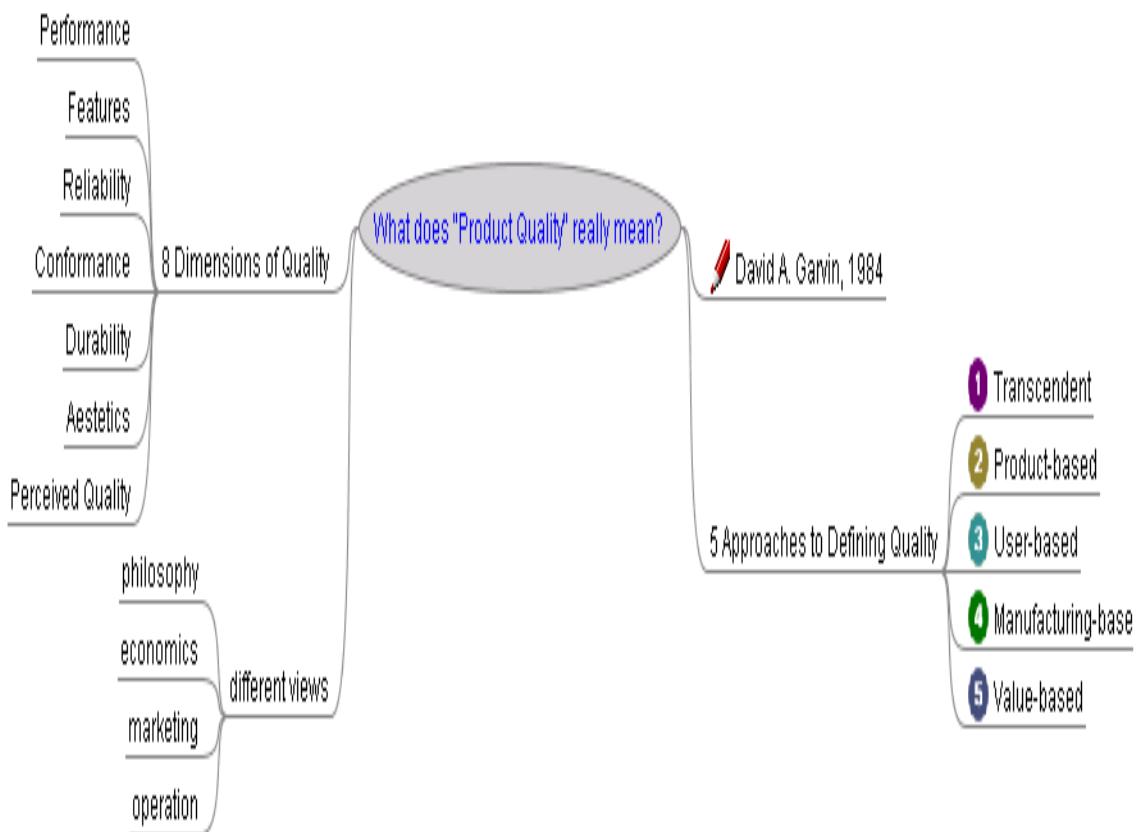
Management on the other hand is a set of activities directed at the efficient and effective utilization of resources in order to achieve a set of defined goals Chandan (1997). Management is purposely meant to derive results to the detriment of any organization (Drucker, 1974) Management encompasses planning, controlling, leading, and communication. Effective contract management requires a commitment to achieve the objective of the State procurement Act 2004 (The act), proactively manage the contract, monitor the performance of the contractor, undertake responsibility as a customer ,ensure honesty and transparency, develop and maintain good relationships and communicate effectively and provide feedback and manage risks.

Managing the contract and monitoring the performance of contractor is crucial to achieve the intended objectives of the procurement. All the efforts undertaken through the acquisition planning and supplier evaluation process is of little value unless the intended benefits are actually realized during the period of the contract. The key to effective contract management is having a clear set of contract output or outcomes and actively working with the contractor to ensure the delivery and achievement of these requirements

Contract management is therefore important in ensuring timely delivery of project objectives, achievement of full benefits of the procurement and the overall contracts, minimize on risks that may arise due to poor contract management, promote innovation and continuous improvement in project delivery.” (National Audit Office Report 2000)”

Contract management with reference to the management theories was conceptualized to include contract planning (Gilbreath, 1992), controlling and communication, while quality with reference to the agency theory was conceptualized to mean reliability, conformance, aesthetics and performance. Further still, quality being a Fascinating concept, which has a positive image, but has often been difficult to define in practice even though it is so widely used (Cheng ,2000 ; Hamalainen,2003 ; Van Damme ,2003), was reduced to Clear components that are understandable. David Garvin in his book Managing Quality Proposes eight critical dimensions of quality to be performance, durability, conformance, serviceability, aesthetics, and reliability The dimensions of quality in this study were adopted from David Garvin's (1984) book "Managing Quality".

**Figure 1: Shows the Dimensions of Quality Adopted from David.A.Garvin, 1984**



#### **1.1.4 Contextual Background**

In terms of context, the study covered the roads constructed and supervised by UNRA in Masaka district which is 120Km from Kampala. Its Geographical area comprises a road network that is categorized into: (i) Urban Roads totaling to 83 Km (ii) Central Government roads covering; Bukalasa –Bukomansimbi,Kagologolo-Sembabule,Nyendo Bukalasa-Kalungu –Katon Masaka District has a total road network of 907.48 Km which is classified into community roads and district roads. The conditions of these roads were reported (UNRA financial year 2007/2008 Report) to have structural failure. The district statics revealed that in the calendar year June 2006, 524.5 Km out of 907.5 Km were in a bad state (57.8%),

In may 2007 it was reported that the total length of road in bad condition was 582.6 Km out of the 907.5 Km (64.2%). The roads in the districts were characterized by low motorable speed and unstable inflexible impassable condition during the rainy season. The urban roads in Masaka district total up to 83 Km of the tarmac roads these were found to have eroded shoulders, potholes, depressions, ruts, blocked drainages and culverts .The description above called for urgent attention to which the researcher picked interest and investigated whether contract management in view of contract planning, contract control and contract communication had a relationship with the quality of roads in the district.

## **1.2 Statement of the Problem**

Road transport accounts for over 82% of the volume of freight and human movement in Uganda.

The road sector is specifically charged with planning, designing, construction supervision and maintenance of the road infrastructure and is by far the most sensitive public sector. In the financial year 2006/2007, UNRA was passed by parliament and was mandated to manage the entire road network in Uganda. Uganda national roads authority has a large network comprising of district stations that have a mandate of overseeing district roads.

The Districts annually receive funds from the LGDP (140Million) and the road fund (400-680 Million) these funds are disbursed to the various districts to meet their annual planned activities for road construction and maintenance

Masaka district has a total road network of 907.5 Km (District roads), 83 Km (Urban roads) and 144.7 Km community roads. Most of the roads (55%) in Masaka district are class (iii) which is characterized by low motor able rate of 30Km/hr. The urban roads are characterized by potholes, ruts ,depressions, eroded shoulders and blocked side drains. Although the district continues to receive funds for road construction annually, the district statistics indicate that in the calendar year June 2006, 524.5 Km out of 907.5 Km were in a bad state (57.8%), In may 2007 it was reported that the total length of road in bad condition was 582.6 Km out of the 907.5 Km (64.2%) ([www.masaka.go.ug/works](http://www.masaka.go.ug/works)).This trend of poor condition of the roads in Masaka district continues to worry the tax payer. Some research has been carried out for Kampala city roads but no significant studies have been done for national roads, if this situation remains unattended to may hamper the overall objective of the existence of Uganda National Roads Authority. This Study therefore examined the extent to which contract management contributes to the quality of roads using Masaka district as the case study.

### **1.3 General Objective**

The general objective of the study was to examine the relationship between Contract Management and the quality of roads constructed and supervised by Uganda National Roads Authority in Masaka District.

### **1.4 Specific objectives**

The following objectives guided the study:

- i. To find out how contract planning affects the quality of roads constructed in Masaka District.
- ii. To establish the relationship between contract controlling and the quality of roads constructed in Masaka District.
- iii. To establish a relationship between Contract Communication and the quality of roads constructed in Masaka District.

### **1.5 Research Questions**

The study addressed the following research questions:

- i. How does Contract planning affect the quality of roads constructed in Masaka District?
- ii. What is the relationship between Contract Controlling and quality of roads in Masaka District ?
- iii. What is the relationship between Contract Communication and the quality of roads constructed in Masaka District ?

### **1.6 Hypotheses of the study**

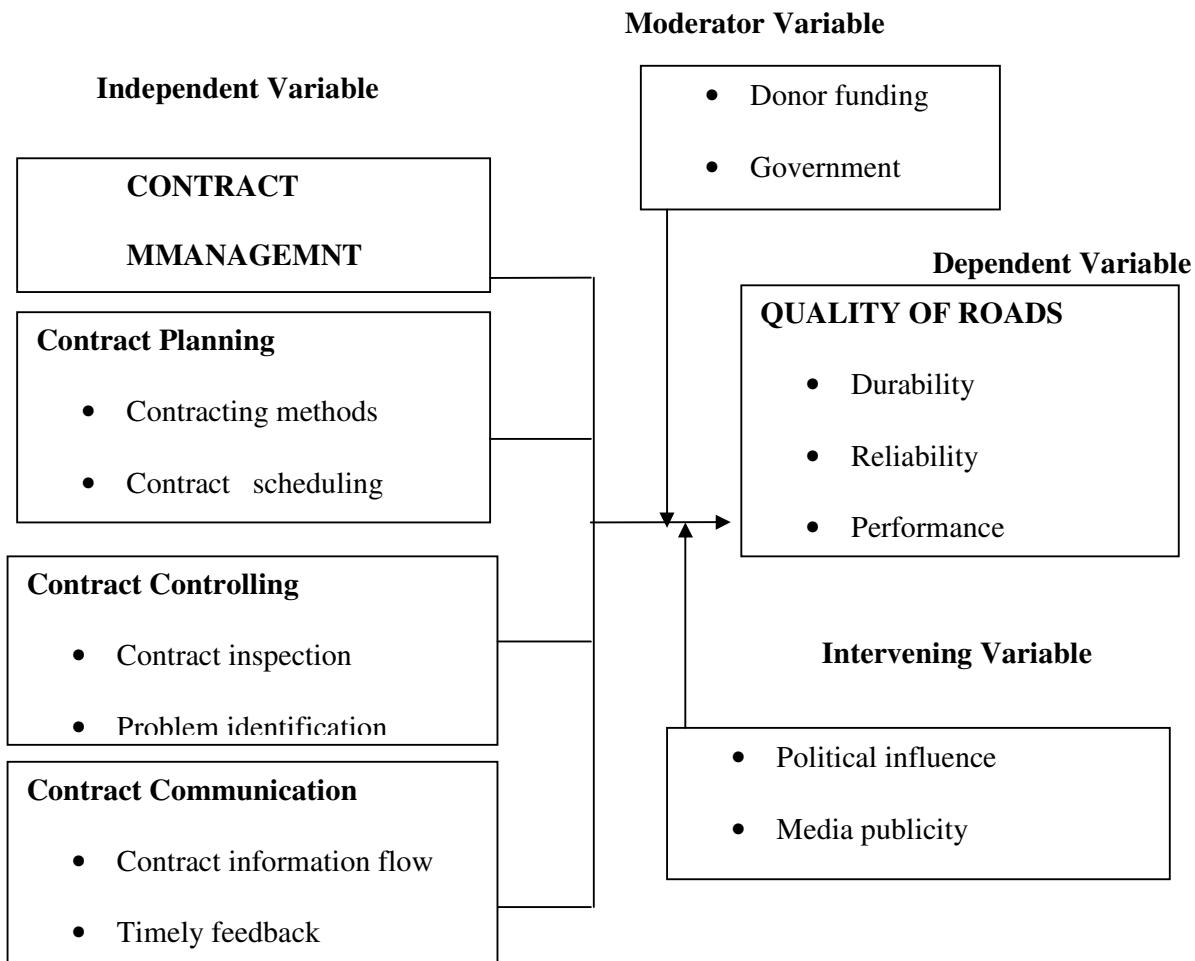
To answer the questions, the study tested the following hypotheses:

- i. Contract planning significantly affects the quality of roads constructed in Masaka district.
- ii. There is a relationship between Contract Controlling and quality of roads constructed in Masaka district.
- iii. Contract Communication is positively related to quality of roads constructed in Masaka District.

## 1.7 Conceptual Framework

The conceptual framework is a representation of the variables guiding a graphical view of the conceptual framework.

**Figure 2: Shows the Conceptual Framework Relating Contract Management and Quality of Road.**



**Soucre :** *Theory of Management, The Agency theory, & Book “Managing Quality” by David Garvin (1984).*

From the conceptual framework, it can be seen that Contract planning through activity identification and scheduling were a measure of quality of roads constructed.

Contract controlling had dimensions such as process control, material testing, and manpower and machinery supervision. Contract communication which is achieved through team work, collaboration and information flow was also used to measure its influence on quality of roads constructed by UNRA, Masaka District. However, the conceptual framework also shows that the relationship between Contract Planning, Contract Controlling and Contract Communication and Quality of roads were moderated by stability of donor funds and level of government involvement. In the dependent variable (quality of road construction), the following variables were considered: Durability, Reliability, Performance, Conformance, Features and serviceability.

## **1.8 Significance of the Study**

The results of this study may be made available to significant stakeholders. These include Ministry of Finance, Ministry of Works and Transport, the National Road Authority, the Masaka Town Council, Masaka station Office UNRA, relevant contractors and consultants etc .The study findings are expected to improve on the way contracts are managed as a way of impacting on the quality of work. Further still this study may create awareness of the nature of environment within which Contracts should be managed. This is likely to create room for improvement as a way of improving on road implementation projects. The study findings may be significant in informing procuring entities that contracts awarded should not be neglected, but should be supervised so as to achieve value for money. Further still this study is expected to sensitize on the effect of the low bid environment which in many cases breeds tendencies that compromise the achievement of quality.

## **1.9 Justification of the study**

Robson (1993): says that “case studies are developments of detailed, intensive knowledge about a single case or small number of related cases”. This study therefore engaged a case study of Masaka district specifically considering the roads constructed and supervised by Uganda National Roads Authority (UNRA). Earlier research discussed critical factors used to achieve quality in construction (Beale & Greeman, 1991). The prevailing literature provided a number of variables like the nature of the project, project characteristics which were associated with quality (Naoum,1991). suggesting that refurbishment works tend to have higher unit costs than new works. Other variables researched included the nature of client (Gameson, 1995), the project environment (Walker, 1994), project procedures adopted during construction (Serpell & Alarcon, 1998). Although earlier research revealed that the above variables do contribute to the quality of work especially in construction industry, not much was discussed on Contract Management in relation to quality. This study achieved in contributing to this area since the existing knowledge in this area was scanty. Additionally, some studies done in this field were in first world countries and used a philosophical approach and pilot studies to examine management and quality, this study instead used a case study to contribute to this area in a third world country.

## **1.10 Scope of the study**

Geographically this study covered the recently created Uganda National Roads Authority that is located at Lourdel Road plot 5 and the road construction projects that are supervised by the Authority. Masaka District was used as a the case study, it is located in the central part of Uganda, 120 Km from Kampala. The content scope covered Contract Management and the quality of Roads constructed and supervised by Uganda National Roads Authority. Contract Management meant contract planning, controlling and communication while quality was taken

to mean durability, Reliability, Performance, Conformance and serviceability. The study covered the period 2006-2010. This period covered the period from the existence of UNRA.

## **1.11 Operational definitions of terms and Concepts**

### **Contracts**

These are agreements made with outside suppliers to provide either Products or services for the purchase. These are legally binding. Contracts define the obligation of both the buyer and the seller.

### **Management**

This is what achieves the success in an organization or the lack of it is the life giving element in every business or project.

### **Contract Management**

Contract management is a process that enables both parties to a contract to meet their obligations in order to deliver the objectives required in the contract. With reference to the management theories is conceptualized to include contract planning, organizing, controlling and communication .It is a process of procurement management that deals with the overall administration of the project from the time it is awarded until the project closes out.

**Quality** in construction, refers to conformance with specifications Atkins (1994) and has been conceptualized to mean performance, durability, conformance, serviceability, aesthetics and reliability.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.0 Introduction**

This chapter contains literature reviewed from earlier writers on the key variables of this study.

The literature focused on the conceptualization of contract management and quality.

It was presented in the following themes; Effect of Contract planning on the quality of roads constructed, the relationship between Contract Controlling and quality of roads, the relationship between Communication on Quality of roads constructed and supervised by UNRA

#### **2.1 Effect of Contract Planning on the Quality of Roads Constructed**

Planning is an ongoing creative process aimed at ensuring that the actions are well defined and the tasks are distributed in the best way possible to achieve the organization targets. Bartrol & Martin (1998) define planning as the management function that involves setting goals and deciding how best to achieve them. Strategic planning involves defining the resources, policies and the time required to accomplish objectives and achieve profits in light of the resources availability and the policy guidelines. Planning for the management of the contract commences in the procurement planning phase and continues right through evaluation and contract negotiation (Cole, 2004). Throughout this period consideration was given to the requirements of how the contracts are managed based on consideration of the value, complexity, strategic importance, risk and the market conditions. Cole (2004) explained that the purpose of contract planning is to assist in developing an appropriate level of planning commensurate with the level of complexity and involvement by project managers, it allowed for identification of various roles of key project stakeholders, identifying risks, and setting up mitigation measures.

Further still, Contract planning was said to be influenced by the nature of work, the type of contract and the personnel involved. Planning therefore specifies the performance requirements of the statement of work, the method of conducting quality inspection, assessment, evaluations etc. The roles and responsibilities of every person involved on the project. The need for planning strategy in any Contract becomes more serious and significant with the availability of strong competitors in marketplace (Cole, 2004). Planning mainly aims to correctly carry out the tasks from the first time by set of procedures and analysis using WBS, charts and software tool to ensure quality, cost and schedule management. In management literature, planning is considered to be an indispensable concept that helps in forming a foundation for the rest of management functions. When it is conceived appropriately it can help in distribution and allocation of resources (James, 2004). Freeman & Gilbert, (1995) noted that planning enables managers to think through their goals and actions and all their actions are based on some method, plan or logic rather than on a hunch. Planning for quality develops into a quality plan which when followed yields a quality final product.

### **2.1.1 Managing Quality through Contract Planning**

The schedule is used to drive a project and has a direct impact on cost and delivered scope. Therefore, unrealistic scheduling has the potential of causing more problems than any other activity (Marciniak & Reifer, 1990). Thus, effective Contract planning must occur regardless of the use of an outside contractor. However, the introduction of a contract requires the management of two organizations that will each need plans that can be coordinated and used together towards one common goal.

Contract planning is a fundamental and challenging activity in the management and execution of projects (Sherlok Holms, 2002). It involves the choice of technology, the definition of work tasks, the estimation of the required resources and durations for individual tasks, and the identification of any interactions among the different work tasks. A good construction plan is the basis for developing the budget and the schedule for work. Developing the construction plan is a critical task in the management of construction, even if the plan is not written or otherwise formally recorded

According to Brown et al (2002), it is important to develop a contract management plan early in the process. Although planning requirements can be built into the contract, Brown et al (2002) recommends that they be built into an initial planning deliverable that will be created through a joint effort between the contractor and the hiring agency. This ensures coordination of plans, starts the relationship on a positive collaborative note, and allows for changes to the plan without formal contract adjustments. Although this study does not uncover specific metrics for measuring the success of contract planning, it is clearly recommended by multiple sources to regularly audit the plan compared to the actual schedule. The results of these audits should be used to update the master plan held by the hiring agency, and ensure that the contractor's plan is being properly maintained. According to Svennberg (2001), the schedule should be updated whenever the variance becomes more than 10 percent.

Contract planners must describe the problem that needs to be solved and understand the current level of performance. Together, they must decide what will constitute success. Shaver (2006) who discusses the Illinois experience with designing the contract planning recommends that performance expectations should reflect and reinforce the agency's larger objectives. Government, private organizations, funders and communities must understand

the contract system shortcomings. When planning for road construction efforts, in addition to basing program goals and desired outcomes on baseline data and performance targets.

One of the most widely reported obstacles in planning for projects is the lack of accurate data on costs, Good data systems are important for successful management of any organization and critical for managed care and performance-based contracts. Substantial software, hardware and training is needed to ensure that information technology is available and used for system implementation and improvement (Westat , 2002).

The planning phase enables the establishment roles and responsibilities of public and private agency workers which is key to program success and has been one of the more complex activities faced by states and jurisdictions in implementing reforms (ORC Macro, 2003). Egger (1997) suggests that contractors should be invited to provide recommendations about the performance indicators. This he emphasizes helps reduce the number of misunderstandings about the measures. Planning discussions should include a focus on data sources and reporting methods and defining data indicators to ensure that they are seen as reliable and valid by both agencies and providers. Given the poor quality of much administrative and statistical data, it is reasonable to “expect to invest significant resources (of both time and money) into developing good data to guide negotiations on assessing current performance and planning for improvements” (O’Brien, 2005; p1).In other countries like Newzealand, planning for road works took a new approaches. The Planning approach seeks to pull together all the contributing elements to increase the effectiveness of the expected road quality. Integrated planning is a coordinated approach being used in delivering a safe transport system that responds to New Zealanders’ needs, today and tomorrow.

## **2.2 The relationship between Contract Controlling and the quality of roads constructed**

Controlling is a basic function of managers and it requires planning and leadership skills to reach a satisfactory level. Time, cost and quality are usually the main areas of concern during controlling. Controlling is a process where activities are well monitored and adjusted to facilitate the achievement of organization goals (Hannagan, 2005). Adjusting activities can be fulfilled by receiving feedback from employees and marketplace on the actions outcomes at different stages and imposing corrective actions to match the original plans. For example, In the early 1980s, Apple computer, Inc. implemented tighter control on organization because of the introduction of a new competitor, IBM personal computer in market. Apple managers employed cost cutting measures to improve its profitability in response to competition effects (Weijrich; Koontz, 1993). Nevertheless, in order for managers to implement controlling measures, they should practice powerful communication skills in giving specific instructions and receiving appropriate feedbacks.

### **2.2.1 Managing Quality through Contract Controls**

Although the development of a quality contract cannot cause a successful outsourcing relationship by itself, it is the only legal and binding means of control. It is important that the contract be complete and specific about deliverables, schedules, milestones and quality requirements (Binstock, 1999). The techniques presented here are only intended to supplement the control mechanisms provided by standard contracting methods.

The most popular means of controlling progress through the contract are to apply contractual incentives and penalties. Both are considered to be effective means of motivating the contractor.

However, according to Marciniak and Reifer (1990), and AASHTO (2000) incentives can be much more effective than penalties because they promote a positive working relationship and can motivate the contractor for continuous improvement and innovation more effectively than penalties. A common incentive used is to place a portion of the profit into an incentive program. The contractor then earns this incentive through saved cost through schedule reduction or innovative ideas. It can be a good practice to pair this with a penalty for late delivery to keep the contractor from stretching the schedule to compensate for lost revenue if the bonus is not achieved (Marciniak & Reifer, 1990).

Martin & Miller ,( 2006) argued that contracts needed to be checked through formal measures such as regular inspections and observations. They further added that to achieve quality of work, reasonable and explicit standards were required .During the interviews carried out, respondents strongly mentioned that the standards set were weak and were often not adhered to, the standards are compromised and as a result quality is also compromised.

Progress reporting as another aspect of contract control, Martin and Miller contend that report provide a full account of challenges encountered on contracts and progress. By reporting progress, the client is able to determine whether activities are on track or not. This control measure was also identified during the interviews carried out that progress reports were actually made but there was no proper follow up on issues highlighted in the reports.

Controls needed to be flexible, easy to understand and environment sensitive so as to adjust to changes in the environment within which the contract is operating. Mullin, (2008).The study established that on many road projects monthly reports were submitted coupled with monthly site meeting minutes, these were used as control measures on road projects and as such used as checks on quality assurance, implementation progress among others.

Sidwell (1982) advocated that the degree of contract management actions can be reflected in the type of control mechanisms set up for the particular project. A high control system is seen to deliver the expected quality on any project. Rowlinson (1988) added that high level of administrative ability in the project or contract leads to reduced time overruns, which in turn leads to increased satisfaction

The study findings revealed that there was poor administration of contracts, lacking professional qualified personnel. These unskilled personnel were often corrupted and conspired with to bend the controls and as such poor quality results were achieved on road activities.

### **2.3 The Relationship between Contract Communication on the quality of roads Constructed**

Communication as a social and vital process applies to all phases of management. Researchers suggested that about 90% of managers' time is spent in communication. Chester I. Barnard defined communication as the means by which people are linked together in an organization to achieve a common purpose (Weijrich; Koontz, 1998). Organizations that seek for continuous improvement train employees to have better communication skills. This ensures that all possible channels to effectively exchange information and views are always open. Urgency, importance and complexity of information to be communicated influence the selection of the most appropriate tool to be adopted. However, wrong selection of communication tools might have a negative impact

According to McKenzie, (1994), contract communication guides on the rights, obligations, administration and roles under the contract to the different parties involved. Ewing (in Puth, 1994) also explains that communication is the life blood of most projects and therefore, contract

managers must have adequate knowledge of communication and its influence on management of contracts. Contract communication is further explained by Emshoff and Denlinger (in Puth1994:146), that does not only provide information on the contract but also attitudes and assumptions that guide the project. Contract communication is inherently a strong problem solving tool on contracts in that it provided timely solutions in addition to skills and expertise by the contract manager. Whetten and Cameroon (1974) suggest that contract managers must embrace communication on projects so as to proactively manage the contract and achieve the expected results, Autry and Mitchell (1998).

Bower, 2005:2 concludes it one word by saying that contract communication facilitates partnerships on projects and aims at achieving the contract on time and within the specified standard.

Martin, (2003) suggested that performance-based contracting means a change in the historic relationship between contractors and agencies that requires more trust and open communication to ensure success. Private providers can be given increased discretion over inputs and process, while being held accountable for outputs, quality and outcome performance. Friedman (1997) reminds us that performance-based contracting and ongoing quality assurance systems can be thought of as “accountability systems” which are not ends in themselves but rather a means to improving child well-being.

According to Choudhury and Sabherwal (2003), if the contractor and the hiring agency can be positioned to have similar goals where the success of one becomes the success of the other, then a clan type relationship can occur. In this type of relationship the two can be counted on to strive for a common objective. These same authors also suggested that such a clan relationship is difficult to build in a contracted relationship. However, many other authors reviewed in this

study suggest that a tight integration of contractor staff and the personnel of the hiring agency can be very beneficial. To this end, AASHTO (2000) recommended that outsourced road construction projects needed to be treated as partnerships between the two agencies. In such a relationship, both parties commit to partnering which includes (among other things): building a project team including members of both agencies, identifying a mutually accepted process for resolving disagreements, and performing joint reviews of project progress and completion.

As with any relationship, the nature of a contractor/buyer relationship will change over time, thus the controls used to manage the relationship should be flexible enough to adjust as the relationship does (Choudhury and Sabherwal, 2003).

Once the requirements for quality have been defined and handed over, the contractor is given a large amount of the responsibility to maintain quality control. Thus the methods that will be used to manage this quality become critical (Ito et al., 1994). Therefore, it is important for the hiring organization to have outcome controls in place that will help to evaluate the quality of products delivered (Choudhury and Sabherwal, 2003). These controls should include at the least, formal reviews at milestones, acceptance testing and a trace back to requirements. Additionally, the hiring organization should have a clear understanding of the processes used internally by the contractor to ensure quality. If these processes are reviewed and approved, and even re-designed at the beginning of the project, the contractor can be given a certain amount of self-control to manage the quality of deliverables (Choudhury and Sabherwal, 2003)

## **2.7 Summary of Literature Review**

Various attempts were made by different researchers to determine critical success factors in road construction (Beale and Freeman, 1991; Ashley et al, 1987; Pinto and Slevin, 1987).The available literature contained a list of variables supposedly influencing the quality of a road construction project. However for purposes of this study, a summary of findings from literature is given below;

Literature revealed that Contract Management is primarily concerned with decision making for planning and controlling organizational endeavor. The management aspect spans the entire contract by relating the resources, objectives and the expected outputs (Kast and Rosenzweig, 1985).

### **Contract Planning**

Research findings revealed that Contract planning as a measure of contract management should be built in the Contract (Brown et al(2002).The content of the plan should be jointly established to ensure goal alignment, coordination, collaboration so that any deviation from what was planned can be rectified immediately. This will ensure that quality standards are achieved as planned.

Literature also revealed that contract planning enables the level of performance for say quality to be established at the beginning of any contract, Shaver (2000). Project expectations including quality expectations need to be reflected and reinforced in larger objectives.

Also findings revealed that Contract planning helps in allocation of roles and responsibilities at an earlier stage of the contract which enable project players to meet their responsibilities

### **Contract Communication**

The findings from previous studies revealed that Communication which is also a measure of Contract Management was inherently a strong problem solving tool. Whetten and Cameroon (1974:109) suggest that contract managers must embrace communication on projects so as to proactively manage the contract and achieve the expected quality, cost and schedule. This study revealed that communication is key in facilitating partnerships on projects and aims at completing projects/contracts within the required time and quality. Autry and Mitchell (1998:214). Bower, 2005:2. Empirical findings from this study revealed that contract communication explained 42% of the changes that occur in quality of road works.

### **Contract Control**

Sidwell (1982) advocated that the degree of contract management actions can be reflected in the type of control mechanisms set up for the particular project. A high control system is seen to deliver the expected quality on any project. Rowlinson (1988) added that high level of administrative ability in the project or contract leads to reduced time overruns, which in turn leads to increased satisfaction

Although the quality of Road performance was found to be a direct function of materials selection and mix designs, it is influenced by Contract management Gendell and Masuda 1988; Jackson 1990; Al-Hassan 1993). Literature revealed that the most important elements in contract management are the people, skills, their attitudes skills and knowledge. The experience and qualification of the inspection team were essential for quality.

Literature revealed that experimental designs and pilot studies were used before and were very tedious in generating findings, as such this study used a case study supported by correlation study to avoid cumbersome and unproductive techniques of gathering information. This method of analysis revealed that contract control explained 22.6% of any variations in the expected quality.

# **CHAPTER THREE**

## **METHODOLOGY**

### **3.0 Introduction**

This chapter presents the research design, the study population, sample size and selection, data collection methods, data collection instruments, validity, reliability, measurement of variables and data analysis.

### **3.1 Research Design**

The study employed a case study supported by a correlation design. According to Amin, (2005), case studies are very useful in obtaining in-depth knowledge on an area of study and therefore qualitative data was collected using this approach while quantitative data which is numeric in nature was collected using a correlation design. (Amin, 2005). This therefore means that the study used a triangulation of both qualitative and quantitative approaches.

### **3.2 Study Population**

The researcher identified key stakeholders in the roads construction projects carried out in Masaka. These included staff of UNRA Masaka Station, Contractors, and Consultants, Municipal council Engineers, Community or Road users. The population was divided into mutually exclusive groups that were relevant, appropriate, and meaningful in the context of the study (Sekaran, 2003,; Sarantakos, 2005,).

### **3.2.1 Sample size and selection**

The study adopted the generalized scientific guideline from a table by Krejcie and Morgan (1970) which is cited by Amin (2005: 45). According to the table in (Amin 2005 ) population of 200 (N) is estimated at 132(s) respondents. 132 Road users were issued a questionnaire by the researcher and 40 key informants. Due to limited time and inadequate resources, a representative sample of 172 respondents from the study population of 240 was used.

**Table3.1: Showing Research Respondents by Category and Sample**

<b>Category</b>	<b>Population(N)</b>	<b>Sample size (S)</b>	<b>Sample Technique</b>
Road users	200	132	Simple Random Sampling
Contractors	15	15	Purposive
UNRA Station Engineers	2	2	Purposive
UNRA Procurement staff	2	2	Purposive
Regional Project Managers	6	6	Purposive
Consulting companies	15	15	Purposive
<b>TOTAL</b>	<b>240</b>	<b>172</b>	

### **3.2.2 Sampling methods**

Since the study used both qualitative and quantitative approaches of data collection, two methods were used to sample for the selected categories of respondents namely simple random and purposive sampling. Simple random sampling was used to select a sample that represents the views of the Road users. Purposive sampling involved the conscious selection of certain subjects or elements for the study based on their age and experience in the road sector (Mugenda & Mugenda,. As noted by Sekaran (2003), a sample is selected based on experience and knowledge of the group. These included Station Engineer UNRA and procurement staff at the station, contractors and consultants working on ongoing projects within the district.

## **3.3 Data Collection Methods**

Data collection methods were an integral part of the research design. There are several data collection methods, each with its own advantages and disadvantages. Sekaran,( 2003) , argues that the source of the information and the manner in which data is collected could well make a big difference to the rigor and effectiveness of the study. Using qualitative and quantitative methods, data was collected from both primary and secondary sources. Below are the data collection methods that were used:

### **3.3.1 Survey Method**

This method involved the use of a form with a set of interrelated questions about the problem being studied based on the objectives of the study (Amin, 2005).This method of data collection was used because its free from bias, it's easier to use when collecting data from large numbers of people ,information obtained from questionnaires is easily coded (Sekaran,2003). The study used a five likert scale questionnaire which was designed to address each objective of the study by

collecting responses from the sampled respondents. The questionnaires were issued out to the road users with the help of 3 research assistants. These research assistants were briefed by the researcher on the objectives of the study, each assistant was given 40 questionnaires and the rest were issued by the researcher herself. This exercise was carried out within three weeks.

### **3.3.2 In depth interviews**

The researcher carried out personal interviews and direct verbal discussion and interaction with the respondents in order to collect data. The objective of the interview was to establish preliminary issues that would further be used in conducting in-depth investigation. The questions were planned in advance and the researcher used an interview guide to carrying out some probing.

According to Judd, (1991:218), conducting in depth interviews has many advantages. The researcher was able to guide the respondents to understand the questions being asked, to eliminate vagueness in any answers given. Interviews also helped to create rapport, controlled the flow of questions and verbal expressions.

The interviews were face to face with key informants of the study and these included; the UNRA Station Engineers Masaka Station, Contractors of Dott services Ltd and RCC Contractors, Consultants of Egis Bceom International, UNRA Procurement officer and the Regional Manager UNRA.

### **3.3.3 Document Review**

Several documents containing information related to contract management and quality were reviewed to obtain as much information as possible. Some of the documents reviewed included textbooks, journals, newspapers, national and international policy documents, reports and research papers.

### **3.4. Data collection instruments**

This research adopted both primary and secondary methods of gathering information and data. In using the primary method, the researcher engaged in collection of raw data from the findings using self-administered questionnaires and interviews while in secondary method, literature on texts available, journals, Government Publications, was reviewed. When using primary method, the following instruments were used

#### **(a) Questionnaires**

The questionnaire consisted of three major sections and ten subsections, the first major section required the social demographic characteristics of the respondents like sex, level of education, category of occupation and years of experience. The other sections were on contract planning, contract control, contract communication, quality, political influence and media publicity.

#### **(b) Interview Guide**

This instrument was used to collect data from interviews. The interview guide consisted of open ended questions which were presented in the same manner to all key informants based on their experience in the road sector. This information was helpful in supplementing that collected using questionnaires. Notes were taken throughout the interview and analyzed after all interviews had been done.

#### **(c) Document Review Guide**

This consisted of analysis of documentary material, such as textbooks, journals, speeches, national documents, newspapers etc (Kothari, 2004; Amin, 2005). Document review was helpful enabling a deeper understanding of the study problem.

### **3.5. Validity and Reliability**

In order to ensure quality control, validity and reliability of the instrument were done. Reliability is influenced by random errors while validity is influenced by systematic errors in data. Errors usually arise from drafting the instrument like inaccurate coding, interviewer's bias, fatigue, etc these were detected and removed through pre testing of the instruments.

#### **3.5.1 Validity**

For purposes of pre testing the instrument for content validity, the researcher made consultations with various people who were knowledgeable in the this area of study to assist check and determine whether the contents of the instrument were in line with the objectives of the study. Four experts were used to test the content of 50 questions, on average 47 out of 50 questions were said to be valid. The Content validity index was calculated by dividing the mean number of questions valid by the total number of questions to give 0.96.

**Table 3.2: Content Validity Scores**

<b>Expert Respondents</b>	<b>No of questions</b>	<b>Score of Valid Questions</b>
1	50	40
2	50	43
3	50	40
4	50	35
<b>Total</b>	<b>50</b>	<b>188</b>

CVI= (Average No.of Questions valid)

Total No. of Questions

Average ( Valid) = 188/4

= 47

CVI = 47/50

= **0.96**

According to Amin, (2005) for the instrument to be valid, the average index should be 0.7 and above. This result of validity therefore indicated that the instrument was valid to collect the data required.

### **3.5.2 Reliability**

According to Mugenda & Mugenda (1999), it is suggested that a pretest sample of 1% -10% of the sample size may be used. A percentage of 10% was used in this study, which yielded a pre-test sample of 15 people (based on the sample size of 132 people). 13 Road users were randomly selected to test the instrument for consistency, these respondents were not used in the final sampling for the study. The degree of reliability was established using the Cronbach's coefficient Alpha which is a version of Kuder-Richardson formula 20 or KR<sub>20</sub> (Amin,2005,p.300-302) Using SPSS, the reliability coefficients were obtained as presented below

**Table 3.3: Reliability statistics**

Variable	Number of Items	Reliability
Contract planning	15	.521
Contract Control	12	.671
Contract Communication	12	.734
Quality	5	.826
Media publicity	3	.839
Political influence	3	.766

Mugenda and Mugenda, (1999) state that the higher the coefficients the more reliable the instrument is likely to measure the items formulated. The coefficients above therefore were high enough and the instrument was regarded to be consistent in collecting the data used for analysis.

### **3.6 Procedure of Data Collection**

A covering letter from the Uganda Management Institute was obtained from the Institute of postgraduate studies to officially allow the researcher to collect data. Data was collected using the appropriate data collection tools. These included questionnaires and interview guides. Interviews were carried out personally to ensure effective collection of desired data while questionnaires were distributed and collected at a later date.

### **3.7 Measurement of variables**

Two scales were used that is nominal and ordinal scales of measurements. The nominal scale was used to measure background information of the sampled population which comprised of items with some set of characteristics like sex, level of experience. The rest of the variables were measured using an ordinal scale using a five point Likert scale with ranges from: 1-Strongly agree, 2-Agree, 3-Neutral, 4-Disagree, 5-Strongly agree.

### **3.8 Data Analysis**

The raw data collected through quantitative and qualitative methods was processed and analyzed after collection. Analysis involved a number of closely related operations, which were performed with the purpose of summarizing the collected data and organizing them in such a manner that they answer the research questions (Amin,2005).

#### **3.8.1 Quantitative Analysis**

The quantitative data obtained from questionnaires was sorted and checked for completeness. This data was then coded using SPSS under variable view. The scores were then made under data view for all variables. The dimensions of the intervening variables namely contract planning, contract control and contract communication were first transformed to obtain the mean of means and represent all indicators of the dimensions as a variable, analysis was only done for variables not indicators

Quantitative data generated was analyzed using SPSS to obtain descriptive statistics, Correlation and test for significance.).

Presentation of frequency statistics was done using univariate tables namely pie charts and bar graphs. The strength and direction of the relationship between the independent and dependent variables were determined using the Pearson product moment correlation index ( $r$ ). The correlation index was significant at 0.05 level (2-tailed). In order to establish the effect of the independent variable on the variation in the dependant variable , simple linear regression ( $r$ ) analysis was done to predict the relationship between the predictors and the criterion variable.

### **3.8.2 Qualitative Analysis**

Qualitative analysis is a process of bringing order, structure, and meaning to the mass of narrative and descriptive information collected. According to Sarantakos (2005, p.334), and Mugenda & Mugenda (1999, p.203), concurrent analysis of data as it is being collected is the most common practice in qualitative research. This practice was used by the researcher to ensure that as data is being collected, analysis is done as well. Data was conceptually organized, interrelated, analyzed and evaluated.

Qualitative data was used by the researcher to express the opinions of key respondents on contract management and its influence on quality of roads. Interpersonal and structural analysis was the two major methods employed to analyze qualitative data. Themes or patterns were identified throughout the analysis, different phenomena were broken down into different structures and relationships among categories of data were presented.

## **CHAPTER FOUR**

### **PRESENTATION, ANALYSIS AND INTERPRETATION OF RESULTS**

#### **4.0 Introduction**

This study was set out to establish whether contract management had a relationship with quality of work. It sought to explain that, despite increments in budgetary allocation for road works there is an observed continued taxpayer's outcry as expressed in the print media about the quality of roads. This was a case study design supported by a correlation design. Respondents were drawn through purposive and random selection methods to collect relevant data to answer the following questions

- i) Does Contract planning affect the quality of roads constructed in Masaka District?
- ii) What is the relationship between Contract Controlling and quality of road Masaka District?
- iii) What is the relationship between Contract Communication and the quality of roads constructed in Masaka District?

This chapter therefore contains the findings of the study which were presented, analysed and interpreted in accordance with the research questions and objectives. The findings presented here were based on the responses to questionnaires administered, interviews conducted and the documentary review of secondary sources.

#### **4.1 Response Rate**

The study targeted a sample of 132 Road users, and 40 key in formats. However 120 road users responded in the study by answering the questionnaires issued to them. 30 key informants participated in the interviews. These included the Regional managers, the Contractors Engineers, Consultants Engineers, Masaka UNRA Station Engineers, procurement staff at the station, Municipal council Engineers and Road inspectors. Table 4.1 therefore indicates the number of respondents that effectively responded in the study.

Amin, (2005), recommends that for survey method at least 100 subjects in the research study in a major sub group are required. He further stated that as a rule of thumb, in-depth interviews required minimum 30 respondents. Table 4.1 indicates more than 100 respondents under subgroup for road users and 30 respondents for the key informants. These responses were therefore regarded as reliable and the information obtained was used for generalizations.

**Table 4.1: Summary of Response Rate**

<b>Respondents</b>	<b>Sample size</b>	<b>Actual Responses</b>	<b>% Response Rate</b>
<b>Road users</b>	<b>132</b>	<b>120</b>	<b>91</b>
<b>Contractors</b>	<b>15</b>	<b>10</b>	<b>67</b>
<b>Station Engineers</b>	<b>2</b>	<b>2</b>	<b>100</b>
<b>Procurement staff</b>	<b>2</b>	<b>2</b>	<b>100</b>
<b>Regional Managers</b>	<b>6</b>	<b>6</b>	<b>100</b>
<b>Consultants</b>	<b>15</b>	<b>10</b>	<b>67</b>
<b>Overall Response</b>	<b>172</b>	<b>150</b>	<b>87.2</b>

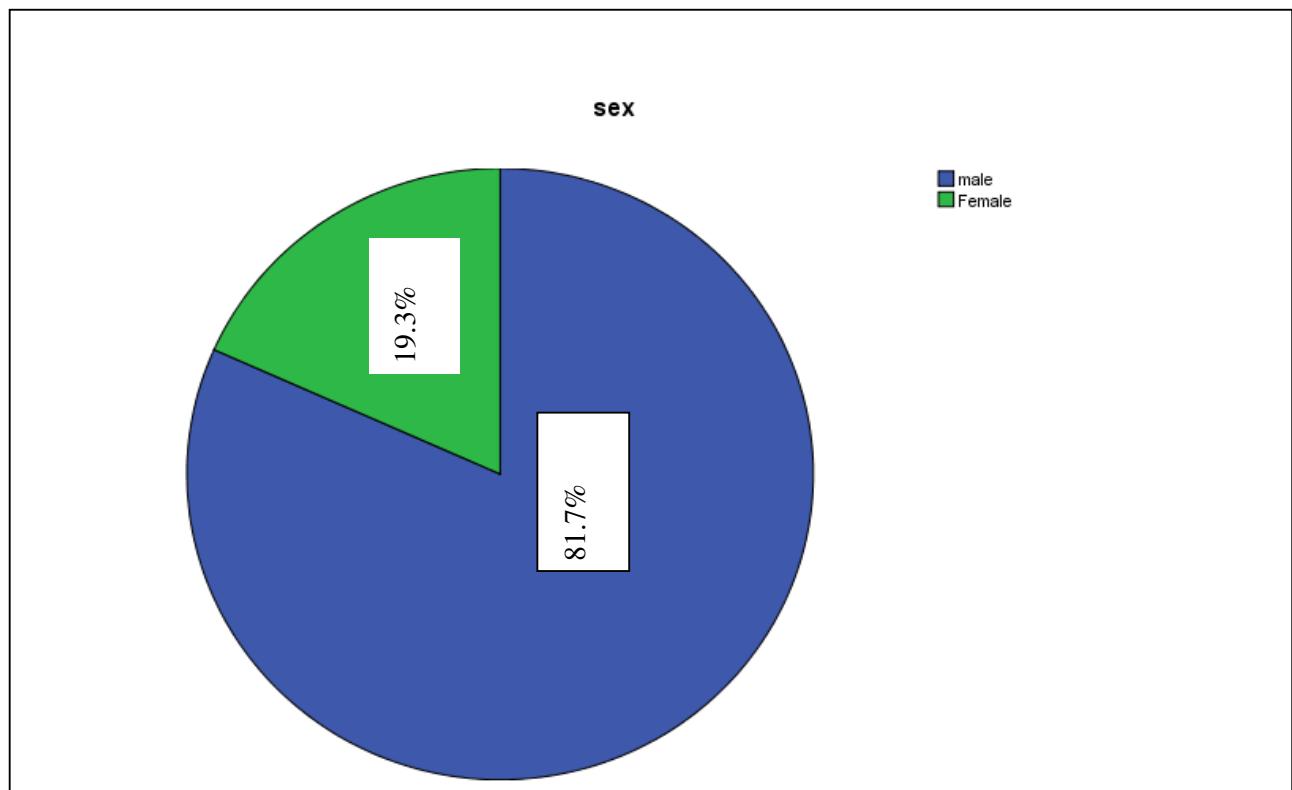
## **4.2 Demographic Characteristics**

The first section of the questionnaire had demographic characteristics. These were the characteristics of the target population and they included sex, age, level of education, category of occupation and experience.

### **4.2.1 Gender of Respondents**

The statistics in the chart below show that both male and female respondents participated in the study. 81.7% of the 120 respondents were male with only 19.3% female. This only meant that the aspect of gender was taken into consideration and the views and findings of the study represent both male and female road users and hence were used to generalize.

**Figure 4.1: Gender of Respondents**



#### **4.2.2 Age Distribution of Respondents**

The respondents were categorized according to various age distributions. The age was distributed as indicated in the table below and their frequencies as shown. The age bracket considered for the study ranged from 16-65 years. The scores of the age distribution are as indicated below

**Table 4.2: Age Distribution of Respondents**

<b>Age Group</b>	<b>Frequency</b>	<b>Percentage</b>
Below 13 years	5	4.2
13-25 years	43	35.8
26-45 years	67	55.8
46-65 years	5	4.2
Above 65 years	0	0
Total	120	100

The statistics in the table show that 55.8 % of the respondents were between 26-45 years of age, 35.8% were between 13-25 years, 4.2 % were between 46-65 years and below 13 years. The information received from the respondents was largely from adults whose contribution to the study was highly regarded and as such was used for generalization of findings

#### **4.2.3 Category of occupation**

The respondents were also categorized by occupation to get a diversity of views from the Government employed, privately employed, NGO and students. There was a provision for any other category that was not listed to be specified. Below are the statistics showing the category of occupation of the respondents of this study.

**Table 4.3.Category of Occupation**

<b>Category of Occupation</b>	<b>Frequency</b>	<b>Percentage</b>
Government employed	31	25.8
Students	9	7.5
Privately employed	46	38.3
NGO	34	28.3
Total	120	100

From the statistics shown above, it can be seen that majority of the respondents were from the private sector i.e 38.3%, and then the NGO which had 28.3%, Government with 25.8% and students who represented 7.5%. The category of occupation was used to collect views from the different sector players to synchronize views from the government, private, NGO and general public. The private sector being the largest implementer of road projects was very useful in providing key information that revealed how contract management has a bearing on the quality of roads constructed. On the other hand, the government sector being the only employer in the road sector was also very detrimental in providing pertinent information from the side of the “client”. The fact that various categories participated in the study showed that the views analyzed were divergent and representative, this made the results of the findings more generalisable.

#### **4.3 Objective One: To find out how Contract Planning affects the quality of Roads**

The second objective aimed at establishing the relationship between contract control and quality of roads. Below is a summary of the opinions of the respondents.

**Table 4.5 : Descriptive Statistics for Contract Planning and Quality**

ITEM	SA	A	N	D	SD
Contracting Out Roads is appropriate	93 (77.5)	20 (16.7)	0 (0%)	7 (5.7%)	0 (0%)
Contracting out Road works to Non Ugandans is appropriate	0 (0%)	0 (0%)	0 (0%)	79 (65.8)	41(34.2%)
contracted out based on performance	0 (0%)	0 (0%)	0 (0%)	25 (20.8%)	95 (79.2%)
contracting is competitive	0 (0%)	0 (0%)	0 (0%)	36 (30%)	83 (69.2)
methods are conservative	100 (83.3%)	20 (16.7%)	0(0%)	0 (0%)	0 (0%)
Construction schedules are realistic	0 (0%)	0 (0%)	0 (0%)	18 (15%)	102 (85%)
Contractors participation	0 (0%)	0 (0%)	0 (0%)	37 (30.8%)	83 (69.2%)
Road construction schedules are met	0 (0%)	0 (0%)	0 (0%)	22 (18.3%)	97 (80.8%)
construction schedule management plan	0 (0%)	0 (0%)	0 (0%)	103 (85.8%)	17 (14.2%)
Contractors reprimanded	0 (0%)	0 (0%)	0 (0%)	0 (0%)	120 (100%)
Contract Price match the works	0 (0%)	0 (0%)	2 (1.7%)	35 (29.2%)	83 (69.2%)
Is the contract price paid as planned	0 (0%)	0 (0%)	12 (10%)	59 (49.2%)	49 (40.8%)

The study set out to find how Contract planning affects the quality of roads. To achieve this objective, data from primary sources as well as from key informants was obtained. The table above shows the opinions of the respondents on planning and quality.

In the above table, strongly agree and agree responses were added together and disagree and strongly disagree were also summed for easy interpretations. As also explained from the table, the number of respondents and their percentage of the total respondents were indicated.

The larger part of the sampled population (94.2%) agreed that contracting out road construction was a good methodology, in addition to this it was agreed that the methods were very conservative meaning that they don't respond to changes in economic drives and environmental concerns.

It was also agreed that planning for road management schedules was done at a top management level. It was therefore not participatory to capture the interests of other stakeholders.

On the other hand, (95%) of the respondents said that it was not appropriate to contract out road works to non nationals as they don't have the nation at heart. These often find it challenging to acquire, train and maintain local workers and yet their services are almost indispensable especially during road works.

The competitiveness of road works was still lacking as shown by the percentage of those who disagreed that road works contracts were competitive. Further still the schedules drawn to implement the works were unrealistic prompting rushed activities and in the end compromise the quality of work. The unrealistic schedules are often coupled with low contract prices which are fixed and not sensitive to price fluctuation. Inflationary tendencies tend to affect prices of procuring materials and overall construction this in turn affects overall productivity and profitability. There is normally a tradeoff of quality for profitability.

The general opinion of the respondents was such that planning was lacking in aspects of goal setting, participatory scheduling of activities, meeting planned deadlines, and competitiveness.

To further establish the relationship between contract planning and quality, simple linear regressions was done and below are the findings.

**Table 4.5 Simple Linear Regression for Contract Planning and Quality of Roads**

Model	Unstandardized Coefficients			Standardized Coefficients	t	Sig.
	B	Std. Error	Beta			
1 (Constant)	3.700	.250			14.788	.000
Contract Planning	.115	.065	.159		2.755	.000

a. Dependent Variable: Quality of Roads

From table 4.5, the strength of the relationship between contract planning and quality can be explained using the t-value. Since the t-value is greater than 2 (2.755) then contract planning was found to be a useful predictor. The relationship was also seen to be significant since the significance level calculated (0.000) was less than the set confidence level of (0.005).

(Quality = $3.7 + 11.5\% \text{ (Planning)}$ ).....(i)

It can be concluded that contract planning as asserted by Bartrol & Martin (1998) is a management function that involves setting goals, defining the resources, policies and deciding how best to achieve them in light of the resources availability and the policy guidelines. It therefore has a significant relationship and strong bearing on the achievement of quality. From the researcher's analysis it can drawn that planning was still lacking in the overall implementation of road works as expressed by the respondents.

#### **4.4 Objective Two: To establish the relationship between contract Control and quality of roads**

The second objective aimed at establishing the relationship between contract control and quality of roads. Below is a summary of the opinions of the respondents.

**Table 4.6 : Descriptive statistics of Contract Controlling and Quality**

ITEM	SA	A	N	D	SD
There is adequate supervision of works	0(0%)	0(0%)	0(0%)	20(16.7%)	100(83.3%)
Supervision contributes to quality	103(85.8%)	17(14.2%)	0(0%)	0(0%)	0(0%)
The Condition of machines	0(0%)	0(0%)	0(0%)	96(80%)	24(20.0%)
Punishment for process controls	0(0%)	0(0%)	0(0%)	34(28.3%)	86(71.4%)
All quality control is verified	0(0%)	0(0%)	0(0%)	14(11.7%)	106(88.3%)
Material are checked quality	0(0%)	0(0%)	0(0%)	43(35.8%)	77(64.2%)
The Government plays a role	0(0%)	0(0%)	0(0%)	34(28.3%)	86(71.7%)
Problem identification	0(0%)	0(0%)	0(0%)	61(50.8%)	59(49.2%)
Problems identified are solved	0(0%)	0(0%)	0(0%)	39(32.5%)	81(67.5%)
regular progress meetings	0(0%)	0(0%)	0(0%)	37(30.8%)	83(69.2%)
Problems identification	69(57.5%)	51(42.5%)	0(0%)	0(0%)	0(0%)

The results show that 98% of the respondents believe that there is lack of adequate supervision on contracts, yet 99% agreed that supervision contributed significantly to quality. The analysis of information from secondary sources revealed that contracts needed to be checked through formal measures such as regular inspections and observations. Reasonable and explicit standards were required Martin & Miller( 2006),but this was not the case according to this study.

Regarding quality controls through material inspection and machinery inspection, 99% of the respondents agreed that were not being done as required and as such resulted into compromising quality of work. Government involvement in controlling contract activities, identification of problems on contracts was believed to be poor.

Government hardly responds to key problems found on contracts as expressed by 98% of the respondents which usually results in poor quality. Further still 99% respondents disagreed that effective regular reviews of contracts were made and that explains the reasons for having poor quality roads.

Progress reviews as discovered in the literature was an important control tool. This study indicated that 99% of the respondents disagreed that regular reporting was done. This explains why the problem of quality was still prevailing. Progress reporting as another aspect of contract control, Martin and Miller,(2006) mentioned that reviews provide a full account of challenges encountered on contracts and progress. By reporting progress, the client is able to determine whether activities are on track or not.

To further understand the relationship between contract control and quality, Pearson's correlation coefficients were done and the findings of which are presented below;

**Table 4.7 Correlation Results for Contract Control and Quality of Roads**

		Contract Control	Quality of Roads
Contract Control	Pearson Correlation	1	.226*
	Sig. (2-tailed)		.013
	N	120	120
Quality of Roads	Pearson Correlation	.226*	1
	Sig. (2-tailed)	.013	
	N	120	120

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

From the table above, the correlation coefficient obtained was 22.6% , This means that there is moderate relationship which is positive. The p-value calculated ( $p=1.3\%$ ) is less than the set 5% value. This shows that the relationship between contract control and quality is statistically highly significant. To further confirm the relationship, a simple linear regression was done and the findings are as presented;

**Table 4.7.1 Simple linear Regression contract Control and Quality of roads**

Model	Coefficients <sup>a</sup>					
	Unstandardized Coefficients		Standardized Coefficients		t	Sig.
	B	Std. Error	Beta			
(Constant)	2.343	.712		3.292	.001	
Contract	.467	.185	.226	2.521	.013	
Control						

a. Dependent Variable: Quality of Roads

The table above, shows that the significance levels obtained are less than the set ( $p= 0.013 < 0.05$ ), also the t-values are greater than 2, which indicates that contract control is a useful predictor in the model. The standardized coefficients (Beta) show that contract control explains for 22.6% of the variation in quality. The regression equation formed from this model can be presented as;

$$\text{Quality} = 2.343 + 46.7 (\text{Controlling}) \dots \dots \dots \text{(ii)}$$

#### **4.5 Objective Three: To establish the relationship between contract Communication and quality of roads**

The third objective aimed at establishing the relationship between contract communication and quality of roads. Below is a summary of the opinions of the respondents.

**Table 4.8: Descriptive Statistics for Contract Communication and Quality of Roads.**

ITEM	SA NO. (%)	A NO. (%)	N NO. (%)	D NO. (%)	SD NO. (%)
Information concerning road works is formalized	95 (79.2%)	20 (16.7%)	0 (0%)	0 (0%)	5 (4.2%)
There is timely flow of information amongst participants	0 (0%)	51 (42.5%)	0 (0%)	36 (30%)	33 (27.5%)
Information received is always accurate	0 (0%)	0 (0%)	0 (0%)	39 (32.5%)	81 (67.5%)
Information flow contributes to the achievement of quality	0(0%)	0 (0%)	0 (0%)	39 (32.5%)	81 (67.5%)
The public is informed about the road works on going on the road	0 (0%)	119 (99.2%)	1 (0.8%)	0 (0%)	0 (0%)
There is a feedback mechanism	0 (0%)	0 (0%)	0 (0%)	14 (11.7%)	106 (88.3%)

From the table above, 95% of the respondents agreed that the information used on contract is formalized. This only means that the contractor is provided a formal document known as a contract which serves a legal bidding agreement between him and the client. contract documents

specifying the nature of work and quality standards are equally formally provided in these documents .However the issue of adherence to what is in the documents is what was seen to be lacking.

Most respondents (99) said that there is no proper feedback mechanism regarding the information required by key project implementers, Also 99% agreed that there is no timely feedback on information required on contract, this lack of timely information causes implementers to compromise to operate in uncertainty. This uncertainty breeds grounds for trading off quality since the contractors only think about profit margins.

Regarding the issue of stakeholder participation and involvement we had 3 respondents remaining neutral on this matter, these were from the NGO category, this result is probably because of their insignificant participation in road works. However, the larger part of the private sector and government sector respondents disagreed that they are involved in road works communication. This only means that interests of some stakeholders are not captured and therefore their contribution in achieving quality is never felt.

Whetten and Cameroon (1974:109) suggest that contract managers must embrace communication on projects so as to proactively manage the contract and achieve the expected quality, cost and schedule. This study revealed that communication was not amply embraced and as such explained why Masaka District was still grappling with the bad state of roads

The study further carried out Pearson's correlations to establish the extent of the relationship between contract communication and quality. The findings of which are presented as below;

**Table 4.9 Correlation Results for Contract Communication and Quality of Roads**

		Pearson's correlation coefficient	
		Contract Communication	Quality of Roads
Contract Communication	Pearson Correlation  Sig. (2-tailed)	1  .000	.420**  120
Quality of Roads	N	120	120
	Pearson Correlation  Sig. (2-tailed)	.420**  .000	1
	N	120	120

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

The table above, , shows a correlation coefficient of .420 (42%), this value is relatively high and shows that contract communication and quality are highly positively related. The relationship is being positive means that the two variables move in the same positive direction. When communication on projects is well managed then the expected quality levels will also be high. further still the p-value that is obtained i.e (0.000 ) is less than the p-value that was set (0.001). This therefore means that the relationship is statistically highly significant.

To further explain the strength and usefulness of the predictor, a simple linear regression was done and the results are presented below;

**Table 4.10 Simple linear regression between contract communication and quality**

Model	Coefficients <sup>a</sup>					
	Unstandardized Coefficients			Standardized Coefficients	t	Sig.
	B	Std. Error	Beta			
(Constant)	2.535	.319			7.945	.000
Contract Communication	.437	.087	.420		5.031	.000

a. Dependent Variable: Quality of Roads

The table above, shows the t-values which were used to explain the usefulness of the predictor (communication). Since the t-value obtained (5.031) is greater than 2, then it implies that contract communication was a useful predictor in explaining variations in quality of road works in Masaka District. The standardized coefficients Beta show that 42% of the changes in quality were explained by communication. The model developed therefore was summarized as below

$$\text{Quality} = 2.535 + 43.7 \text{ (Communication)} \dots \dots \dots \text{(iii)}$$

The questionnaire had questions on the dependant variable (quality) and the opinions of the respondents were captured as presented in the table below.

**Table 4.11: Descriptive Results for quality**

ITEM	SA NO. (%)	A NO. (%)	N NO (%)	D NO. (%)	SD NO. (%)
The Roads constructed are Reliable	10 (0.08%)	0 (0%)	0(0%)	94(78.3%)	16(13.3%)
The Roads meeting your expectations	0 (0%)	0 (0%)	0(0%)	92 (76.7%)	28(23.3%)
Roads repaired are durable	0 (0%)	0 (0%)	0(0%)	35 (29%)	85(70.8%)
Roads constructed serve the purpose	0 (0%)	0 (0%)	0(0%)	27 (22.5%)	93(77.5%)
The roads constructed confirm to standards	0 (0%)	0 (0%)	0(0%)	30 (25%)	90(75%)
The Road features are satisfactory	0 (0%)	0 (0%)	(0%)	37 (30.8%)	83(69.2%)

From the above table, 91% of the respondents said that the roads were not reliable and were not meeting their expectations, 99% also disagreed that the durability of the roads was good. Conformity to standards and road features were not satisfactorily to the public as 99% of the respondents disagreed that they roads were not constructed in conformity with standards. The general view as expressed by the respondents was that the quality of roads in Masaka District was not meeting the expectations of the tax payer.

#### **4.6 Hypothesis testing**

The three models i.e Quality = $3.7 +15.9 \%$ ( Planning).....(i), Quality =  $2.343 +46.7$  (Controlling).....(ii) and Quality = $2.535 +43.7$  (Communication).....(iii) were used to test the hypothesis, The magnitude of the three variables in trying to explain the dependant variable was significant as such the hypothesis was not rejected and it can reliably be concluded that there is positive relationship between contract management and the quality work of road projects supervised by Uganda National Roads Authority in Masaka District.

#### **4.7 Qualitative findings**

Guided interviews were conducted by the researcher face to face. Key informants of the study were reached by telephone contact to make arrangements for the face to face interviews. These included the Engineers for Contractor's Companies, Consultants, Station Engineers, Municipal council Engineers, Procurement staff and road inspectors. Questions were asked on each variable, the responses received were analyzed in content and themes were generated.

##### **4.7.1 Contract Planning and quality**

###### **Participatory planning**

In order to achieve quality, planning was argued to be vital, most respondents said that participatory planning was vital in setting out priority areas, strategies and requirements on any project. The modern trends of contract management required that all key stakeholders should be involved in identifying feasible means of achieving project success in terms of quality ,cost and time.

## **Planning for quality**

It was commonly argued by respondents that quality measures needed to be set at planning level. Quality plans needed to be designed and adhered to throughout the implementation of the project, that way quality would be guaranteed.

### **Change requests in plans**

Any changes in plans needed to be addressed consultatively and empirically after determining the impact of the changes on quality plan among other plans. It was said that changes in plans are not communicated timely and as such cause poor planning in execution of works and lead to compromise in quality.

### **4.7.2 Contract Control and Quality**

Respondents commented that controls were required to ensure that contractors adhere to the set standards of achieving quality works..Several issues were raised from the interviews as to why controls were seen to contribute to poor quality or good quality work. Below are some of the commonly raised issues

#### **Use of subcontractors**

The common practice of subcontracting was identified as major cause of poor quality work. The subcontractors rarely adhere to the set control measures since they were mainly profit oriented. Subcontractors often do shoddy works because of the low rates at which they acquire the works.

## **Corruption**

Corruption was strongly identified as one of the reasons controls were not followed. The supervision teams were said to receive gifts ,money and other privileges to make them bend the controls. An example was given that laboratory technicians are the commonest victims. They are often paid to reflect wrong laboratory tests and as such poor quality work is certified based on wrong results.

## **Unqualified personnel**

Use of insufficient and an inappropriate capacity to implement project works was another factor that caused controls to be ineffectively used. Road technicians were often disguised as engineers on sites and were used to make critical engineering judgment. These unqualified personnel often bend the controls as they are easily connived with.

### **4.7.3 Contract Communication and Quality**

Communication as earlier discussed in literature was the backbone of any contract, it facilitates timely decision making, problem solving among many things. Below are some of the commonest ideas that were received from the interviews;

#### **Delayed feedback on contracts**

Majority of the respondents interviewed mentioned that it was commonly found on contracts that communication was often delayed for unknown reason. This delay often resulted in uncertainty and implementation of project lagging behind schedules.

This therefore means that any changes made when project were at large often lead to compromising of quality standards in a bid to complete the works timely. A case of the construction of Northern by pass was mentioned and the “Chogm” road works were also mentioned to be causalities of delayed communication led to poor quality work

### **Inaccurate information**

If information was ever received on time, many times it was lacking in merit or it was informal. This was emphasized in relation to procurement results, changes in designs, contract interpretations and claims .Many respondents mentioned that the unreliability of information often lead to compromise of quality. A good example that given by one of the respondents was the issue of claims, Implementers often submit claims to clients .These are meant to reimburse the implementers of the projects costs that were incurred beyond the contract sums as result of the clients lack of information or changes in scope of work. If the claims are not assessed timely and paid to the contractors ,the contractor then tend to compromise quality so as to increase on profitability.

## **CHAPTER FIVE**

### **SUMMARY, DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS**

#### **5.0 Introduction**

This chapter presents the summary of the main findings of the study, discussions, Conclusions and recommendations. It also presents proposed areas where further research may be required.

#### **5.1 Summary of main findings**

The findings of the study were derived from a combination of a correlation design and a case study of Masaka District. The study set out to establish whether Contract Management and Quality of Roads Constructed have a relationship. The general Objective of the study was to examine the relationship between Contract Management and the quality of roads. The specific objectives were to find out how Contract planning affects the quality of roads, to establish the relationship between Contract Control and the quality of roads and to find the relationship between Contract Communication and quality. The three variables to the study were conceptualized further to make it easier to analyze. Contract Planning which was conceptualized to mean Contracting methods, Contracting Schedules and Contract price, Contract Control as a measure of Contract Management was conceptualized to mean contract inspection, Problem identification, progress reporting and Contract Communication was conceptualized to mean Contract information flow and timely feedback.

The main findings of the study revealed that Contract management influences the quality of roads. The findings revealed that the three variables of the independent variable significantly influence the quality of roads.

Empirical findings reveal 30.7% of the changes in quality are explained by the combined effect of Contract Planning, Contract Control and Contract Communication. The strength of this relationship was 55.4% which was quite high. This therefore means that as contract management and quality of works move in the same positive direction. The independent effect of the variables was also analyzed and the findings reveal that contract planning had a standardized coefficient (Beta) of 15.9%, contract control had a correlation of 22.6% while contract communication had a correlation of 42%. The study also investigated intervening variables such as political influence and media publicity. Results from Pearson's correlation revealed that 34.7% of the deviations in quality are explained by those factors. These factors have a relatively higher effect on the dependant variable and as such were controlled so that the effective combined effect of contract planning, controlling and communication was exclusive of the intervening variables.

## **5.2 Discussions**

This section presents the discussion of the results objective by objective. Results from the interviews carried out were also incorporated in the discussion.

### **5.2.1 The effect of Contract Planning on Quality**

The first objective of the study was to find out how contract planning affects the quality. Contract planning was explained by a number of indicators which included contracting methods; contract schedules, contract prices. Many respondents (77.5%) strongly agree that the methods used in contracting out road works is inappropriate and has an impact on the quality of roads.

The results obtained from interviews emphasize this findings adding that the contracting methods lack competitiveness and merit.

Regarding schedule management, 99% of the respondents disagreed that the schedules allocated for road works were realistic. Results from the interviews show that certain duration had been proven as not being realistic or sufficient to carry out works. However, allocation of works for the same durations continues to be done. These unrealistic schedules were have been observed to have an impact on quality.

Most respondents (99%) agreed that contract prices do affect the quality of work. The findings of the interviews revealed that the contract were not commensurate with the work and as such affects the quality of work.

Previous studies revealed that the planning phase enables the establishment of roles and responsibilities of public and private agency workers which is key to the success of any project (Marco,2003).This study therefore established that planning required to take a new dimension by involving all stakeholders concern to make contributions that generate a comprehensive plan that will ensure that expected quality of work is achieved. The study also revealed that key planning elements like risk, budget overruns, and procurement are not adequately planned for and on time. Yet these significantly affect the quality of work.

### **5.2.2 The Relationship between Contract Control and Quality of Roads**

The second objective was to establish the relationship between contract control and quality. It was established from this study that there was a relatively high positive and significant relationship between the two variables. This means that the higher the contract control the higher the quality achieved.

Authors like Martin, (200) argued that contract control helps in identifying specific performance indicators which guide the achievement of desired quality. The study findings concur with this assertion and the empirical findings reveal that contract control is indispensable if quality has to be achieved.

Most respondents (99%) agreed that poor supervision, material inspection laxity, machinery supervision were not being done as required. The findings from the interviews concurred with the findings from the survey. Most of the respondents interviewed attributed weak controls to corruption and use of unqualified personnel. These tendencies render the personnel in charge of ensuring controls ineffective and as such poor quality work is done.

The empirical findings on contract control and quality show that 22.6% of the variations in quality can be explained by controls. The regression models generated through analysis also explain the strength and usefulness of the predictor as being significant and useful since the t-values obtained was greater than 2 ( $t = 2.521$ ). The significance level calculated was also less than that which was set during analysis i.e (P-value =  $0.013 < 0.05$ ). This significance level or confidence level shows that the chances of obtaining the same consistent results in a repeated analysis would be high.

### **5.2.3 The relationship between Contract Communication and Quality**

The third object was to establish the relationship between contract communication and quality. The results from the interviews reveal that there was poor information flow, poor feedback mechanisms and inaccurate information was many times provided during implementation of contracts. The opinions of respondents through the survey show that although the contract information is formalized through signed contract documents ( 95% agreed ),the same findings revealed that 99% of respondents disagree that the information received was through formalized channels and accurate. Controversial results were got when responding on timely flow of information 42.5% of respondents agreed that information was timely received, while 57.5% of them disagreed that information received was not timely. A cross tabulation analysis was run using the background characteristics and it revealed that the 35% of those agreeing that information was timely received were all from the NGO sector and private sector where performance oriented contracts were awarded.

The empirical findings on the relationship between contract communication and quality revealed that communication had the highest correlation coefficient.(r=42%) , the correlation is relatively high and positive. The significance value obtained was also compared with the set value during analysis and since the obtained significance was less than the set, this means that there is a significant relationship between contract communication and quality.

Further still, a simple linear regression was done to establish the usefulness of the predictor, the value obtained was greater than 2 i.e ( t=5.031),This therefore means that communication was a useful predictor in explaining variations in quality by (42%).The results therefore mean that a good communication mechanism on any contract would promote good quality results .

The findings of the study concur with earlier writers like (Kast and Rosenzweig, 1985) who argue that Contract Management is primarily concerned with decision making for planning controlling and organizational communication in order to achieve the expected quality. She further says that the management aspect spans the entire contract by relating the resources, objectives, and expected outputs.

### **5.3 Conclusions**

#### **5.3.1 How contract planning affects quality of roads**

From the interviews conducted and the statistics obtained, it can be concluded that contract planning is an indispensable factor in achieving quality outputs. The opinions of the people were very strong on planning, stating that poor planning was one of the major reasons for having poor quality roads in Masaka Districts. Participatory planning, priority identification, and planning for quality are some of the issues that were generated through interviews. Conclusions can be derived from the empirical findings that since the t-value were greater than 2, then it can be concluded that planning is a useful predictor of variations in quality of works in Masaka district.

#### **5.3.2 The relationship between contract Control and Quality of roads**

Controls are very vital in ensuring that what was planned is what was achieved. This study set out to establish whether controls have an impact on the quality of the roads. The empirical findings reveal that contract control and quality were relatively positively significant with quality. This therefore means the two move in the same direction. The higher the controls the higher the quality

achieved. The views of the people revealed that poor supervision, laxity in material and machinery inspection, were some of the reasons affecting the quality roads of roads in Masaka District.

### **5.3.3 The relationship between contract communication and Quality of Roads**

This component of contract management had the highest Pearson's moment values. The relation between contract communication and quality is positive, highly significant and very strong. These findings only echoes the findings of earlier scholars like Cameroon (1974:109) who said that communication was the foundation of success for any project and one of the best problem solving tools .

From the views of the people, it can be concluded that communication needed to be timely, accurate and through clear feedback mechanisms. The empirical results show that there is a relatively high significant relationship between contract communication and quality. The t-values obtained from the regression model showed that communication was a useful predictor for any variation in quality of works on road construction.

## **5.4 Recommendations**

Below are some of the recommendations that were made basing on the findings and conclusions of the study.

### **5.4.1 Contract Planning and Quality**

Modern trends in management advocate for participatory approaches to planning, In countries like New Zealand the planning approach that was taken was to pull together all contributing elements

to increase on the effectiveness of the expected quality. I therefore strongly recommend integrated planning which is more coordinated and geared towards improving the quality of infrastructure. Further still ,panning for quality should be highly considered for road contracts as well as incentives for achieving quality attached to the achievement to encourage the practice of quality works.

#### **5.4.2 Contract Control and Quality**

Based on the findings of this study, the recommendations in this respect are that government of Uganda should improve and enforce standards that are geared towards the achievement of quality. Mechanisms of tracking progress of all infrastrural projects should be put in place to ensure that deviations from expected quality are solved on time. Further still, frequent audit checks should be done to ensure that contract controls are adhered to, failure to comply to the set controls should be used as an assessment for future award of contracts.

#### **5.4.3 Contract Communication and Quality**

Government should introduce management systems to be used as a quicker means of accessing information related to infrastructural development. This will ensure that all information required during project implementation is got on time and shared by all stakeholders.

Electronic communication should be contractually acceptable so that feedback of contract changes or any other relevant information is provided almost instantly to enable smooth implementation of road contracts.

## **5.5 Study limitations**

The major challenge was the loss of the questionnaire, some of the questionnaires issued out were not received back .There was a language barrier problem as many road users could not express themselves in English, I therefore had to hire interpreters to interpret the questions in the local language. this was time consuming in terms the time it took to answer the questionnaire.

## **5.6 Contributions of the study**

This study uncovered quite a lot of interesting facts that can be drawn as key lessons, outstanding among the contributions is the discovery that the procurement based on low bid evaluation can no longer deliver quality concerns as the low bids providers often trade off quality to make some profits

Secondly , supervision of contracts is an area that is lacking and often left to un motivated teams on ground that fall prey to all sorts of bribes and corrupt tendencies, these practices all end up trading off quality.

## **5.7 Proposed areas for further research**

Some of the areas proposed for research include funds management, procurement process management, materials management .There is also need to carry out more research on the sustainability of quality, if at all it was achieved.

## **REFERENCES**

- Amin,M .E(2005),Social Science Research :Conception, Methodology Analysis.Kampala: Makerere University Press.
- Arrowsmith.S & Trybus.M(ED).(2003),Public Procurement.Hague:Kluwer Law International
- Ahmad.Anuar .Othman, (2006),Factors Influencing the Construction tine of Civil Engineering Projects in Malaysia,Journal of Engineering,Construction,&Architectual Management Vol 13pp481-501
- Aberdeen Group, (2006),The Contract Management Benchmark Report: Procurement Contracts. Retrieved January 2010 from <http://www.arerdeen.com/summary/report>
- Artto,K,et al(2008),What is project strategy? International Journal of Project Management, Vol 26.pp4-12
- Bareebe,G,(2009,March6),Salini faces Inquiry Over Northern Bypass Crack. Retrieved March 10,2010,from Http:// <WWW.the> dailymonitor.co.ug
- Burati,J.L (1991) , Quality management in Construction industry,ASCE,117(2),341-359
- Balunywa,Wasswa.J, (2003) ,A Book on Business Management Fifth Edition
- Binstock,(1999) , Managing Progress through Contract Control
- Chandan.S.J.,(1997),Management Concepts and Strategies. New Delhi,Vikas publishing House
- David Garvin,(1984), Dimensions of quality and quality management.
- Davis, R, (2004), Setting up and managing outsourcing Contracts to Deliver value and

Accommodate change ,journal of Corporate Real Estate,Vol 6.pp310-307

Demming,W.E(1986),Quality,Productivity and Competitive Position.

Docker,(1991);Walter (1992),The Need for Achieving Quality of a Finished Product in Construction Industry

Friedman, M;1997. A guide to developing and using performance measures in results- based budgeting. Retrieved December 18, 2009 from the Finance Project web site:

<http://www.financeproject.org/Publications/measures.htm>

Gunter Zietlow, (2004), Implementation Performance –based Road Management &Maintenance

Contracts in Developing Countries. Retrieved December 6, 2009, from  
<http://www.Zietlow.com>

Holt,R&Rowe,(2000),"Total Quality,Public Management and Critical Leadershipin Construction Projects.International Journal of Quality&Reliability Management,Vol 17 pp541-553

Kerzner,H,(2009) ,Project Management; A systems Approach to Planning ,Schedilling and Controlling Tenth Edition published in NewJersey.

Karen.Manley (2008), Implementation of Innovation by Manufacturing Sub-Contracting to Construction Projects. Journal of Engineering, Construction & Architectural Management,Vol 15 pp230-245

Low Sui Pheng &Willie .C.K .Tan,(1996),The Influence of Workload Instability in the Construction Industry, International Journal Of Quality& Reliability Mangement,Vol 13,pp42-56

Mugenda &Mugenda (2003), Research Methods Quantitative and Qualitative Approach .

Mullin,( 2008),Contract management Environment

Mary.Ansell,Rees.Evans, Mike .Holmes ,(2008) ,An Application of the Construction Management Framework in Highways major Maintenance. Journal on Engineering, Construction &Architectural Management Vol 16, pp162-174

Patrick Barber., Andrew Graves, Mark Hill &Cyril TomKins,(2000),Quality Failure Costs in Civil Engineering Projects, International Journal Of Quality& Reliability Management

Vol 17, pp479-492

Perry, W., & Devinney, S. ;1997 Achieving Quality Outsourcing. Information Systems Management, 14( 2), 23-26.

PMI, (2008).A Guide to the Project Management Body of Knowledge (PMBOK-GUIDE),Fourth Edition

Ross, (1987), A central Approach to a Theory of Managerial Behavior,"The Agency Theory"

Sekaran.U, (2003), Research Methods for Business, A Skill Buildings Approach to Research

Suruma,E.,(FY 2006/2007/2008/2009), The National Financial Year Budget Speech.

Stephen.Brushnett, (2001); An Assessment of selected Road funds in Africa(Road Management Initiative ,World Bank)

Write up on the District Road Sector Performance in the last Four Years, (2002), Retrieved January 5,2010,from <http://www.masaka.go.ug/works>

Wong,T,(2009),Contract Law.Retrieved January 2010,from <http://www.lg.org>

## **APPENDICES**

## **APPENDIX 1:QUESTIONNAIRE FOR ROAD USERS**

### **QUESTIONNAIRE NUMBER.....**

This Questionnaire has been designed by the Researcher to assist in obtaining key information in the area of Contract Management and Quality .You have been uniquely selected because your expertise and Honesty in providing information. The information provided shall be treated as confidential and for research purposes only. You are therefore requested to tick the answer that suits you.

Thank you very much.

<b>Section A : Background information</b>		
1.	Sex	<input type="checkbox"/> 1. Male <input type="checkbox"/> 2. Female
2.	Age range	<input type="checkbox"/> 1. Below 13 years <input type="checkbox"/> 2. 13 – 25 years <input type="checkbox"/> 3. 26 – 45 years <input type="checkbox"/> 4. 46 – 65 years <input type="checkbox"/> 5. Above 65 years
3.	Level of education	<input type="checkbox"/> 1. Secondary <input type="checkbox"/> 2. Tertiary <input type="checkbox"/> 3. Under graduate <input type="checkbox"/> 4. Masters <input type="checkbox"/> 5. Other

		(specify).....
4.	Category of occupation	<input type="checkbox"/> 1. Student <input type="checkbox"/> 2. Government employed <input type="checkbox"/> 3. Privately employed <input type="checkbox"/> 4. NGO employed <input type="checkbox"/> 5. Other  (Specify).....
5.	Years in Road Construction	<input type="checkbox"/> below 2 year <input type="checkbox"/> above 2 year – 5 years <input type="checkbox"/> above 6 years – 10years <input type="checkbox"/> Above 10 years

Use the scale below to indicate (by ticking) the best option that reflects your view and opinion on each statement, accordingly.

**1. Strongly Agree      2. Agree      3. Neutral      4. Disagree**

**5. Strongly Disagree**

<b>Section B.1 : Contract Management</b>						
<b>B. Contract Planning : Contracting Methods</b>		1	2	3	4	5
B.1.1	Contracting Out Roads is an appropriate Methods					
2.	Contracting out Road works to NonUgandans is appropriate					
3.	Roads are contracted out based on performance					
4.	The methods of contracting are competitive					
5.	The Contracting methods are conservative					
<b>B.1.2 Contract Scheduling</b>		1	2	3	4	5
1	Road Construction schedules are realistic					
2	Contractors participate in					

	developing the road works schedules					
3	Road construction schedules are met					
4	There is a road construction schedule management plan					
5	Contractors are reprimanded if schedules are not met					
B.1.3	<b>Contract Pricing</b>					
1	Contract Price match the works					
2	Is the contract price paid as planned					
3	Prices are subject to changes in inflation					
4	The Contract price contributes to the quality of work on the road					
5	The Contract price is in local currency					
<b>B.2 Contract Controlling</b>		1	2	3	4	5

B.2.1		Contract inspection					
1		There is adequate supervision of works on the road					
2		Supervision of road works contributes to quality performance					
3		The Condition of machines is checked regularly					
4		You are reprimanded for not doing process controls					
5		All quality control requirements are verified					
		Material on site are checked for appropriate quality					
B.2.2		Problem identification	1	2	3	4	5
1		The Government plays a key role in identifying problems on roads					
2.		Problem identification is a priority in road construction					
3		Problems identified are dealt					
4		Problems identification					

	contributes to quality performance on the road					
5	Procedures are taken while testing materials					
B.2.3	Progress Reporting	1	2	3	4	5
1	There are progress site meetings regularly					
2	Progress reporting contributes to achieving quality work on the road					
3	Progress reporting involves all stakeholders of the road project					

<b>B.3 Contract Communication :</b>		1	2	3	4	5
B.3.1	Information Flow					
1	Information concerning road works is formalized					
2.	There is timely flow of information amongst road construction participants					
3.	Information received is always accurate					
4.	Information flow contributes to the achievement of quality on road projects					
5	The public is informed about the road works on going on the road					
B.3.2	Feedback	1	2	3	4	5
1	There is a feedback mechanism on road projects					
2	Feedback often affects the quality					
3	Government gives timely feedback on road projects					

<b>Section C. Quality Of Roads :</b>		1	2	3	4	5
1	The Roads constructed are Reliable					
2	The Roads meeting your expectations					
3.	Roads repaired are durable					
4.	Roads constructed serve the purpose					
5.	The roads constructed confirm to standards					
6.	The Road features are satisfactory					
D.1	Section D: Political influence	1	2	3	4	5
1	Political influence affects the management of Road projects					
2	Political influence contributes to the quality of roads in Uganda					
3	Political influence determines how projects are awarded					

4	Political influence affects the costs of road works					
D.2	Media publicity	1	2	3	4	5
1	Publicity on the quality of roads in media contributes to quality performance of road construction works					
2	Publicity helps in identifying which roads are poor quality					
3	Publicity undermines the role of Government					
4	Publicity helps in checking on how contracts are awarded					

## **APPENDIX 2: INTERVIEW GUIDE FOR KEY RESPONDENTS**

I want to thank you for taking the time to meet with me today. My name is

\_\_\_\_\_ and I would like to talk to you

about your unique and vast experience in Contract Management and how it's likely to impact on the quality of Roads supervised by UNRA. The interview should take less than 10 minutes.

All responses will be kept confidential. This means that your interview

responses will only be used in my report will not identify you as the respondent.

### **1. Evaluation of Contracting Managerial Personnel**

- a) Is adequate planning done to permit effective contracting?
- b) Do you identify the needs before you solicit for contractors?
- c) Do you plan for quality expectations before we contact out services?
- d) Do you stick to project schedules?
- e) Do you reprimand poor quality work, if yes how
- f) Do you involve quality in the design phase or instead we supervise quality
- g) Do you have people allocated for supervision of Quality?
- h) Do you follow up Contracts after they are awarded?
- i) Does Government policy contribute to the achievement of quality work in the road sector?

## **Contract Management**

---

### **Procedures**

1. Are all procedures uniform and have automated procedures been put in effect to the extent reasonably possible?
2. Are procedures locally generated on forms well which are simple to understand?
3. Do adequate procedures exist for receiving, storing, and distributing goods to requesting activities?
4. What methods and systems are in place to interface with warehouse and other activities for repetitive buys to serve customers more efficiently?
5. What reports are submitted to purchasing management to facilitate managerial control in the area of vendor performance and purchasing responsiveness?
6. How frequently are such reports submitted?
7. What reports are submitted to the General Manager/Commander?

1. **(Questions for Purchasing Agents, Procurement Analysts, and Contracting Officers and Specialists)** Is a well-developed Standard Operating Procedure (SOP) in use? \_\_\_\_\_ If not, explain.
2. Do requesting activities provide contracting with properly filled-out purchase requests (DA Form 4065-R) with clear purchase description, authenticated signatures, reasonable delivery date, certification of funds, etc.?
3. Do you have the opportunity to visit the activities you support to gain a better understanding of their operations?

Are you able to offer suggestions to the requesting activities on better ways to purchase items, new vendors and/or catalogs which provide the supplies and services they use most often, proper procedures for completing the purchase request, and lead times for making timely purchases for their activities? Explain.

1. Do you assist the requesting activities in planning their requirements? \_\_\_\_ If so, explain.
2. Do you keep the requesting activities informed regarding delays, estimated delivery dates, etc., for supplies/services they have requested?
3. Do you occasionally take a supplier's representative to the requesting activities to discuss Quality- proposals?
4. Explain how you work with suppliers to develop new methods and ideas that will help in achieving quality
5. Do you change the specifications or requirements from requesting activities? If so, why?
6. Do you review and discuss specifications or requirements on requesting activities' purchase requests? Do you provide appropriate feedback, when necessary?