PROCUREMENT MANAGEMENT AND ROAD CONSTRUCTION PROJECT PERFOMANCE IN UGANDA NATIONAL ROADS AUTHORITY

By

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DECLARATION

I, Nakonde Zaituni declare that this dissertation is original and in entirety and independent study and to the best of my knowledge has not been published and or submitted for any other degree award to any University before. Acknowledgements have been made where this research has referred to the work of others.

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DEDICATION

I dedicate this work to my children; Shirrat, Alvin, Alisha and Alma

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I am thankful to the Almighty God to Whom I account all I have achieved in my life. He has been so faithful to me and has always blessed me with all the luck to accomplish whatever I set out to do.

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LIST OF ABBREVIATIONS

EU	European Union
GDP	Gross Domestic Product
OECD	Organisation for Economic Co-operation and Development
PMBOK	Project Management Body of Knowledge
UG Shs	Uganda Shillings
UNRA	Uganda National Roads Authority
US$	United States Dollar

ABSTRACT

This study was focused on examining the effect of procurement management on road construction projects perfomance in Uganda National Roads Authority. The study was premised on the assumption that the prevalent poor performance of the road construction projects in Uganda National Roads Authority could be explained by three dimensions of procurement management namely: procurement planning, procurement organization and procurement control. The study adopted a cross sectional case study design, data was collected from 71 people of the following categories; UNRA Directors, Project Managers, Project/Station Engineers, Procurement Officers, Contracts Committee Members, Senior staff of Supervising Consultants and Senior Staff of the Contractors. Data was collected using questionnaires, interview guides and Documentary checklist and were analyzed using descriptive statistics and inferential statistics. The study empirically revealed that procurement management explain a total variance of 22.4% in the performance of road construction projects in Uganda National Roads Authority, with procurement planning explaining only 2.2 %, procurement organization explaining 9% and procurement control explaining 11.2 %. The study then concludes that procurement organization and control have a significant effect on the performance of the road construction projects in Uganda National Roads Authority. Although the study revealed that there was a very small effect of procurement planning on road construction project performance, it is recommended that improvement in some aspects of the procurement planning is necessary. Under procurement organisation and project performance, it is recommended that UNRA should endeavour to improve the aspects of role and obligation definition and ensure that all the players in the project implementation abide by their roles and obligations. Lastly it is recommended that that UNRA through its departments should ensure adequate designs and specifications, close supervision and monitoring as well as limiting the scope changes and adhering to contracts.

CHAPTER ONE

INTRODUCTION

1.0 Introduction

Road construction projects are important for economic development of developing Countries. In this line, the Government of Uganda takes roads construction as a priority in its development goals by allocating huge amount of money to the road sector. Unfortunately, not all road construction projects achieve their objectives in terms of cost, quality and time. Most projects in Uganda National Roads Authority (UNRA) overshoot the budgeted cost and time and at times not to the satisfactory quality (Auditor General's report, 2010). In accordance, this study investigated the relationship between procurement management and the road construction project performance in Uganda National Roads Authority. Procurement management was conceived as the independent variable while road construction project performance in UNRA as the dependent variable.

This chapter presents the background to the study, statement of the problem, purpose of the study, objectives of the study, research questions, hypotheses of the study, conceptual framework, significance of the study, justification of the study, scope of the study and operational definitions.

1.1 Background to the Study

1.1.1 Historical Background

Globally, procurement management is increasingly gaining importance due to the significant role it plays in economic development. According to the Organisation for Economic Co-operation and Development (OECD) Report (2002), the value of Government procurement

market was estimated to be two thousand billion American dollars (USD 2,000 Billion) which was equivalent to 7% of World Gross product (GDP) and 30% of World merchandise trade in 1998. The European Union public procurement (Water, Energy, Transport and Telecommunications) was also estimated at 13.9 % to 14.6 % (OECD Report, 2002). Similarly, Wittig (1999) estimated the procurement market place in Sub-Saharan Africa to be between US $ 30 to US $43 billion. On his part, Trionfetti (2000) as quoted by Odhiambo and Kamau (2003) estimates the size of public procurement to be varying between 5 and 8 per cent of GDP in most industrialized countries. Odhiambo and Kamau (2003) too contend that the estimates of the central government procurement in Kenya and Tanzania was on average about 8 percent of GDP for the years 1999/2000 and 2000/2001 and Uganda, the average was about 30 percent. These figures indicate that public procurement is important in the economies of both developed and developing countries.

According to Gwilliam, Foster and Archondo (2008), spending on roads in Sub-Saharan Africa averages just below 2 percent of GDP, with substantial variances across countries. This compares with the 1 percent of GDP that is typical in industrialized countries, and the 2–3 percent of GDP found in fast-growing emerging economies. The report continues to highlight Uganda's expenditure on roads to be 2.8 % of GDP. In the same line the National Budget Framework Paper (financial year 2010/11) shows a budget of approximately UG Shs 900 billion (13%) for National Roads Maintenance and Construction. It also highlights that 70 % of the expenditure will be in procurement. Anvuu (2002) observes that, around the world, public service needs are outpacing the resources for providing them and as a result, socio economic realities have intensified the search for more innovative ways of delivering public projects and the need to achieve value for money. However, a number of studies in the South and East Africa

have shown that many of construction projects are poorly performing. The problems affecting perfomance of these projects have been identified as follows:

- Poor quality of constructed work and low levels of productivity (Lema and Price ,1998),
- Use of incomplete designs in preparing tender documents , poor workmanship , late nomination of subcontractors , delay in payment of contractors and Project managers who do not have appropriate management structures to balance cost, quality, schedule and utility requirements [Rwelamila, Talukhaba and Ngowi (1999)];
- Project documents are quite often late to arrive on site, they are incomplete and contain large sections of irrelevant material and lack of skilled labour and poor site supervision [Rwelamila (1996)];

The studies show that the persistance of the problems highlighed above threatens to derails efforts aimed at delivering value for money.

The same problems are faced in Uganda's construction sector, many road construction projects have underperformed in terms of quality, cost and time. A provisonal acceptance report by BCEOM Engineering Consultants on rehabilitation of Bugiri-Jinja Road (November 2009) indicates that the project delayed by ten calendar months and the cost exceded the budget by 25%. The same report continues to point out that the wearing course of the pavement had defects like rutting and cracks for a total of 5 kilometers out of the 72 Kilometers. The increase in time and cost could probably be as a result of poor procurement management and inefficiency of the contracting firm. This appears to be the same trend for most of the road construction projects.

1.1.2 Theoretical Background

This study will be guided by the theory of project management and agency theory. The project management theory conceptualizes the project as a transformation of inputs into outputs.

This theory embraces both the project theory (product oriented theory) and the theory of management (project management processes)(The PMBOK Guide, 1999). The PMBOK Guide states that projects are composed of two kinds of processes: project management processes and product-oriented processes (which specify and create the project product). The core project management processes are planning, execution and controlling. These three are managed in order to meet the project objectives of scope, time, cost and quality. In the same line, procurement is one of the activities executed in the project management cycle. The critical management processes of planning, execution/organizing and controlling are applicable to procurement. The theory of project management helped to identify the critical processes of procurement management which are procurement planning, procurement control and procurement organization.

According to Turner (1993), the project management is about managing work and the work can be managed by decomposing the total work into smaller chunks of work, which are called activities and tasks in the project management body of knowledge guide. A further review of the project management body of knowledge guide reveals that activities and tasks are a unit of analysis in the core process of project management. This theory explains the processes required to translate the inputs (resources) into out puts (projects). Kendall (1912) illustrated that the theory of proper execution of work is that it should be planned completely before a single move is made, that a route sheet which shows the names and order of all operations which are to be performed should be made clear and instruction cards should be clearly written for each operation. Kendall further observed that lack of planning at the start, of complete instructions of coordinating departments and routing of work throughout each operation results in a congestion of unfinished work at many points.

On the other hand, Agency theory is a kind of relationship that "is a contract in which one or more persons (the principals) engage another person (the agent) to take actions on behalf of the principals that involve the delegation of some decision-making authority to the agent" (Jensen , 2003 pp137-138,) With its basic assumptions of asymmetric information and goal conflict (Caers, Boi and Jegers, 2006) , it is reasonable to believe that the agent will not always act in the best interests of the principal, and thus strategic behavior might emerge. Further, the agency theory aided to venture into the identified processes to establish the required incentives and restraints by the principals (Uganda National Roads Authority) to the ensure that the agents (service providers/contractors) deliver the project as required in terms of cost, quality and time .

Laffont and Tirole (1998) defined two types of strategic behaviour in government procurement projects; adverse selection and moral hazard. Adverse selection arises when the private enterprises possess more *exogenous* information than government such as their technological possibilities and project's actual costs, which enables them to extract a rent from its interaction with governments even if their bargaining power is poor. In government procurement projects, adverse selection is an *ex ante-contractual* strategic behavior which usually takes place in the tendering process and leads the governments to select a contractor that is not optimal. Moral hazard is a kind of *ex post-contractual* strategic behavior referring to the *endogenous* variables of the private actors which cannot be observed by government. Private enterprises take discretionary actions such as reducing efforts which may influence project cost and quality. In government procurement projects, moral hazard usually happens during the process of project implementation, and thus adequate incentives and necessary control such as monitoring by the government need to be enhanced, although this would incur additional costs.

Agency theory explains how to best organize relationships in which one party (the principal) determines the work, which another party (the agent) undertakes. A principal chooses to contract with an agent for reasons of cost and expertise. The principal and the agent then agree on the contractual terms including the inputs, processes, outcomes, quality and satisfaction parameters, monitoring, performance requirements, and compensation mechanism.

In relation to this study, the agents may find it in their interest to delay the projects which may result in increase in project costs (strategic behavior). In this regard,the agency theory concentrated on the output (projects) produced by the Agent (contractors/service providers) with the principle taking all the necessary precautions to limit the self-interest of the agent and the project management theory will concentrate on the required processes to turn the inputs into out puts. The project management processes highlighted by this theory among others include, procurement management, which was conceptualized in terms of planning, organising and control like any other project management process.

1.1.3 Conceptual Background

In this study, there are two main concepts; procurement management and project performance. Procurement is a critical business function for virtually every organization and a vital in-put in the construction processes of projects. Evennet (2004) defines public procurement as a process of the acquisition, usually by means of contractual arrangement after public competition of goods, services, works, and other supplies by the public service. In order to manage procurements, public organizations have to put in place processes to control the purchasing of products (or works/services) and their verifications to satisfy the requirements of clause 7.4 of ISO 9001:2000 (Procurement news, April 2009). This is referred to as procurement management.

PMBoK Guide (2000) defines procurement management as the processes required to acquire goods and services from outside the performing organization. Hakiiza, (2008) identified the procurement management processes as procurement planning, organization and control. When planning is properly conceived and implemented, it can serve as an important mechanism for extracting, distributing and allocating resources (James, 2004). In order to activate the procurement plans, the organization function comes into play as it creates and maintains relationships between all organizational resources by indicating which resources are to be used for specified activities and when, where, and how they are to be used. According to Henri Fayol (1841-1925), in order to implement the plan, control is necessary as it oversees that everything is being carried out in accordance and the orders, which have been given, and the principles, which have been laid down. Controlling is about setting measures to ensure that the project objectives are achieved. In the context of this study, controlling was concerned with selection criteria, setting of specifications, preparation of bidding documents, evaluation of bids, selection of seller and contract administration.

PMBoK GUIDE (2000) also defines a project as a temporary endeavor undertaken to create a unique product or service. In this study, a project referred to a road construction project.

Project performance is defined as the degree of achievement of a certain effort or undertaking which relates to the prescribed goals or objectives that form the project perfomance parameters. There are many elements that determine project success, but the focus of this study was on project performance parameters like time, quality and cost as highlighted by Chan and Chan (2004) in their study about the key perfomance indicators for measuring construction success.

1.1.4 Contextual Background

According to Jones (2004), organizations exist to create valuable goods and service that people or organizational stakeholders desire. Within the context of Public Entities in Uganda, Uganda National Roads Authority (UNRA) was established by an Act of Parliament; the Uganda National Authority Act, No. 15 of 2006. UNRA became operational on 1st July 2008 with a mandate of developing and maintaining the national roads network, advising the Government on the general roads policy and contributing to address the transport concerns among others. The Authority came into operation at the time when the National Roads Network was on a downhill spiral, potholes in the roads were increasing at a very fast rate, most of the projects were behind schedule and the public was generally unhappy about what was happening in the road sector. The public expected UNRA to reverse all this within the shortest period possible.(Procurement News, July 2009). After three years of operation, little have changed, most projects are still behind schedule, there is an increasing unit cost of road construction, the poor state of road maintenance and repairs and the quality and scope of on going development projects is still wanting. Despite all this, huge amounts of money are returned to the national treasury without being used each year.

The likely causes of the current state of affairs were inadequate procurement management, supervision, and poor contract administration, lack of good contractors and consultants, and undertaking of ad-hoc (un-programmed) works. UNRA has tried to overcome some of the challenges by following the PPDA act and guidelines. However, there was still a need to examine how the processes of procurement within the entity are managed and how in turn they affect their road construction projects performance in terms of cost, quality, time and scope.

1.2 Statement of the Problem

The Government and Donors have played their part by increasing the road sector funding near to one trillion Uganda shillings for each of last three financial years (2008-2011) for providing and maintaining the road infrastructure required for economic development (Ministerial Policy Statement , 2009). However, the current trend of road performance makes it doubtable whether that objective can be achieved. For instance, Uganda National Roads Authority projects have continued to perform outside planned time, budget, and quality. Basing on UNRA's report to Parliamentary Infrastructure Committee,(August, 2011) and Projects Perfomance Review 2010-2011 Report, (July 2011), several projects are perfoming poorly, among these are; Kampala-Masaka-Mbarara whose cost have oversoot the original cost (79.9 Million Euros) by 14% which is expected to change to more than 50% by the end of the project. The original planned time (36 months) for this project has been exceeded by 15%, and expected to rise to 58% by the end of the project. Both reports highlights some longitudinal cracks observed at embarkments in the completed sections of the road. Projects like Busega- Mityana, Kampala-Gayaza-Zirobwe and others also follow the same trend. In the same line, the Kampala Northern By-Pass report (February 2009) indicates that the Northern by pass road project delayed by over 28 months with its cost overshooting by ten billion Uganda shillings. The Auditor General's Report (2010) as well indicates that the delays in projects completion contributed to an increase in overall cost of the projects which was approximated at more than one hundred fifty billion Uganda shillings and that some particular works on these projects failed the quality tests. All these were attributed to inadequate procurement processes, although the report did not specifically name them. It was therefore from that background that the researcher developed interest to examine the effect of procurement management on performance of road construction projects in UNRA.

1.3 Purpose of the study

The purpose of this study was to examine the effect of procurement management on road construction project perfomance in Uganda National Roads Authority.

1.4 Objectives of the Study

1. To find out how Procurement planning affects the road construction project performance in Uganda National Roads Authority
2. To examine the effect of Procurement organization on the road construction project performance in Uganda National Roads Authority
3. To determine how the Procurement Control affects the road construction project performance in Uganda National Roads Authority.

1.5 Research Questions

1. How does procurement planning affect the road construction project performance?
2. To what extent does procurement organization affect the road construction project performance?
3. How does procurement control affect the road construction project performance?

1.6 Hypotheses of the Study

1. Procurement Planning affects the road construction project performance
2. Procurement Organization has an effect on the road construction project performance
3. Procurement Control affects the road construction project performance

1.7 Conceptual Framework

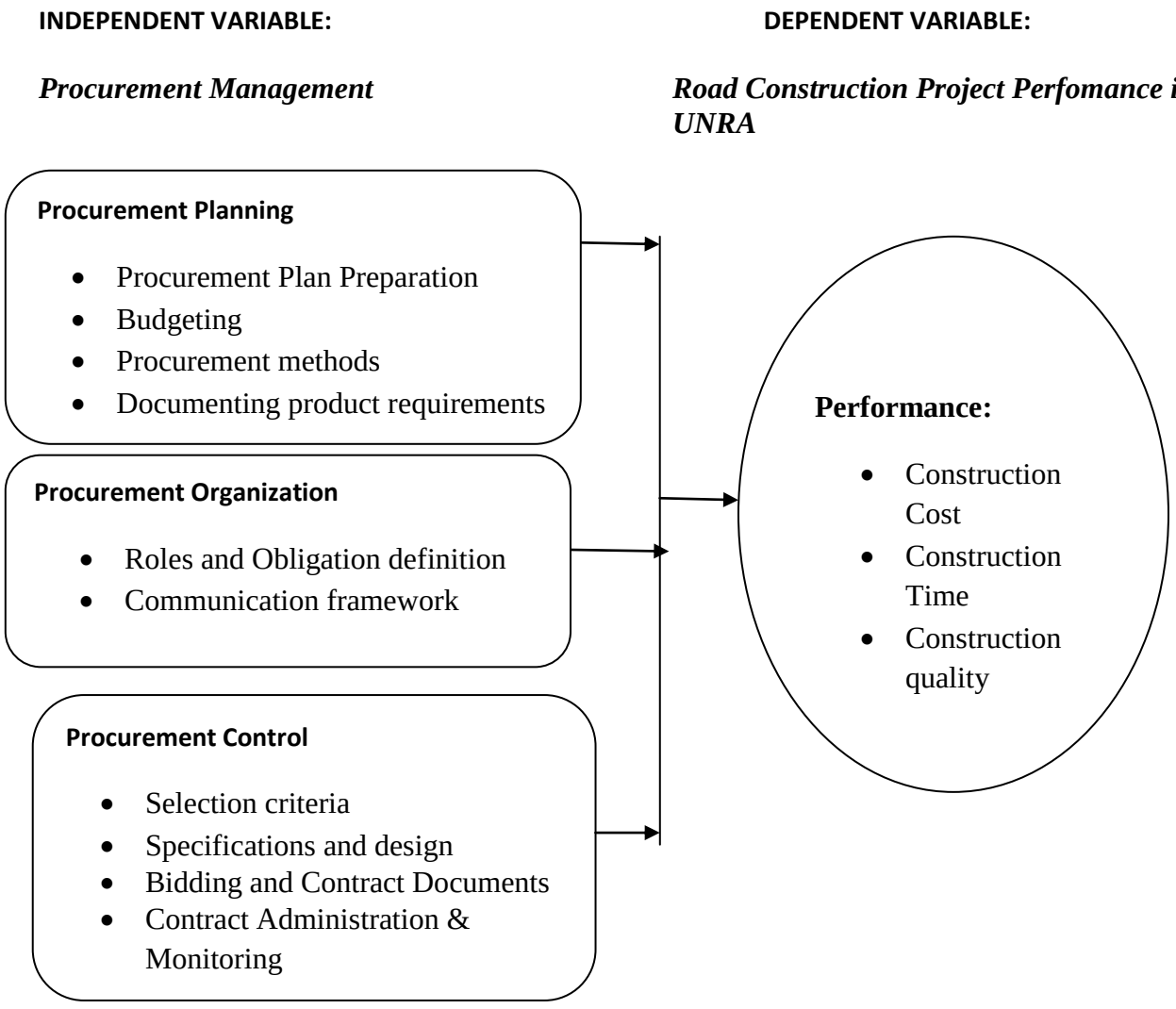

Figure 1: Conceptual Framework of Procurement Management and Road Construction Project Performance in UNRA

Source: Adapted from Hakiiza, (2009), Chan & Chan, (2004) and modified by the Researcher.

A conceptual framework will link the three dimensions of procurement management (planning, organizing and control) with project performance in Uganda National Roads Authority to guide the data collection, analysis and reporting processes of this study. The three dimensions

(procurement planning, control and organization) were adapted from Hakiiza (2008) study about procurement management and organizational conflicts in urban local governement systems in Uganda. The researcher has modified these dimensions by using different attributes due to the fact that, the research is about road construction perfomance not organizational conflicts. Procurement planning involves the answering what, where, how and when, while organising involves ascertaining responsibility centers and communication framework and control involves all what is necessary to ensure the right product is achieved at the right time by the right party within the right budget.

Chan and Chan (2004) in their study about key performance indicators for measuring construction success defined project perfomance as time perfomance, quality perfomance and cost perfomance. The researcher has also decided to use the same aspects since the road construction projects fall under the construction industry which Chan and Chan (2004) were investigating.

1.8 Significance of the Study

It is hoped that the findings of this study will highlight the effect of procurement management to the road construction project perfomance in Uganda National Roads Authority and will recommend the mitigation measures against the unsatisfactory performance of projects by other public organizations.

The study was also intended to benefit Uganda National Roads Authority in managing its procurement for better project performance. The research findings are hoped to be of use to different organs, stakeholders, donors and policy makers concerned with public procurement streamlining.

1.9 Justification of the Study

This study was aimed at finding the possible causes of the claimed poor road construction project performance in order to come up with mitigation measures in bid to enhance effectiveness and efficiency in terms of cost, quality and time. The timing of the study was also appropriate because of the increased priotization of the road sector as a critical link to sustainable economic development.

1.10 Scope of the Study

1.10.1 Geographical scope

The study was conducted on road projects in Uganda National Roads Authority. UNRA is responsible for developing and maintaining an efficient national roads infrastructure linking rural and urban areas, islands to the main lands and ensuring the safety of road users.

1.10.2 Time Scope

This study covered projects procured after July 2008 to date. It is during this period that Uganda National Roads Authority has been functioning/operating.

1.10.3 Content Scope

The procurement management was looked at in terms of procurement planning, organizing and control. The project performance was considered in terms of cost, time and quality of projects.

1.11 Operational Definitions

1.11.1 Procurement

According to Wikepedia (2008), procurement is the acquisition of goods and/or services at the best possible total cost of ownership, in the right quantity and quality, and the right time, in the right place and from the right source for the direct benefit or use of corporations or individuals, generally via a contract.

1.11.2 Project

A project is a temporary endeavor, having a defined beginning and end (usually constrained by date, but can be by funding or deliverables undertaken to meet unique goals and objectives usually to bring about beneficial change or added value. In the context of this study, the project will be taken as road construction.

1.11.3 Project Procurement management

According to the Project Management Institute (2000), Project Procurement Management is the process of acquiring goods and services to attain the project scope outside the performing Organization.

1.11.4 Procurement planning

The procurement planning is the determination of what, how, when and how much to procure.

1.11.5 Solicitation

This is the process of obtaining information in form of quotations, bids, offers or proposals from prospective contractors, suppliers or consultants.

1.11.6 Contract Administration

This is the process of ensuring that the contractor, supplier or a consultant meets the contractual requirements.

1.11.7 Project Performance

In the context of this study, project performance is defined as the degree of achievement of the project objectives. The focus of this study will be the degree of achievement in terms cost, time, and quality, (Chan & Chan, 2004).

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter presents a review of related literature to highlight the gaps in the existing body of knowledge that relate to the procurement management processes and the project performance. The literature is organized mainly along four themes; Procurement planning and project performance, procurement organization and project performance, procurement control and project performance and procurement legal framework, procurement management and project performance. In this study, procurement management was used to refer to procurement planning, organization and control.

2.1 Procurement Planning and Project Performance

Procurement planning (formerly known as plan procurements, and plan purchases and acquisition) is one of the first tasks that need to be performed on a project. This is the stage to decide which goods and services will be done internally and which goods and services will be carried out by suppliers and contractors. Planning is the foundation for all management fields including project procurement. It is a function that forms the foundation for the rest of the management functions. When planning is properly conceived and implemented, it can serve as an important mechanism for extracting, distributing and allocating resources (James, 2004).

Generally, planning enhances the gathering, evaluating and interpreting of foundation data and information in order to generate knowledge for good policy making in the government. Procurement planning is the key function that sets the stage for procurement process. It is seen to be very important especially in large and complex project that involve multi-million dollar

requirements. As a key project activity, the need for planning emerges to be underemphasised at the initial stages of procurement projects but the lack of it is highlighted at projects' end. According to PMBoK (2004), plan procurement involves determining whether to acquire outside support, if so what to acquire, how to acquire it, how much is needed, and when to acquire it. This process also includes consideration of potential sellers, mainly if the buyer wishes to implement some measure of influence or control over acquisition decisions. Whatever decisions made in plan procurement, can also influence the project schedule and are integrated with developing the schedules in the future. Plan procurement calls for early involvement of the purchasing office so that options and alternatives can be explored with the requesting user. Issues such as purchase estimates, product specifications, make or buy decisions, and outsourcing opportunities may be very well being on the agenda (Mathews, 2005).

Mullins (2003) argue that procurement planning is a process of determining the procurement needs of an entity and the timing of their acquisition and their funding such that the entities operations are met as required in an efficient way. However if this stage is not properly managed, it will be difficult to meet all the requirements and objective of project procurement. Thus, this could cause high risk to the project completion.

Hassim, Kajewski, Stephen and Bambang (2011) argues that good project procurement planning diverts public sectors expenditure away from activities that could provide an opportunity for illegal activities and delays. In Uganda, the relevancy of procurement planning is supported and encouraged by the Public Procurement and Disposal of Public Assets (PPDA) Regulation (2003), section 96 which gives mandate to public entities to prepare their own annual procurement plans based on the approved budgets. According to Basheka (2008), a procurement plan for the procuring and disposing entity includes details of activities of works, services or supplies to be procured; a schedule of procurement requirements in order of priority; a statement of required

resources supported by a schedule of the projected funding; a plan of the likely method of procurement for each requirement and the likely time required for each stage in the procurement cycle. Basheka states that procurement planning is the primary function that sets the stage for subsequent procurement activities. That a mistake in procurement planning therefore has wide implications for public entities measured from the two indicators of accountability and participation. Basheka continues to argue that the procurement objective is to provide quality goods and services through open and fair competition in the exact quantity and proper quality as specified; and has to be delivered at the time and place where needed. Therefore, to secure such goods and services at competitive prices requires accurate planning and involvement of a number of stakeholders.

In summary, although the above previous studies and regulatory frameworks emphasize the importance of procurement planning, they don't explain how it affects the project performance in terms of quality, cost and time. Therefore this study will contribute to fill that gap.

2.2 Procurement Organization and project Performance

Organizing is the process of establishing orderly uses for all resources within the management system. Here, orderly signifies the emphasis on the attainment of procurement management system objectives and assist managers not only in making objectives apparent but in clarifying which resources will be used to attain them. The organizing function is extremely important to the procurement management system because it is the primary mechanism managers use to activate procurement plans. Organizing creates and maintains relationships between all organizational resources by indicating which resources are to be used for specified projects and when, where, and how they are to be used.

A thorough organizing effort helps managers to minimize costly weaknesses, such as duplication of effort and idle organizational resources. Henri Fayol developed 16 general guidelines for organizing resources: Judiciously prepare and execute the operating plan, organize the human and material facets so that they are consistent with objectives, resources and requirements of the concern, establish a single component, energetic guiding authority i.e. a formal management structure, co-ordinate all activities and efforts, formulate clear, distinct and precise decisions, arrange for efficient selection so that each department is headed by a component, energetic manager and all employees are placed where they can render the greatest service, define duties, encourage initiative and responsibility, offer fair and suitable rewards for services rendered, make use of sanctions against faults and errors, maintain discipline, ensure that individual interests are consistent with the general interests of the organization, recognize the unity of command, promote both material and human coordination, institute and effect controls and avoid regulations, red tape and (excessive) paper work. According to Fayol, when you satisfy all the above, project success in terms of quality, time and cost is assured. However Fayol did not put into consideration the fact that some projects are executed by agents (contractors) where the client cannot exercise some of the guidelines.

According to Laufer et al (1996) as cited by Nguyen, Ogunlana and Xhuan Lan (2004), communication framework as part of organizing has been gaining increasing importance in leading and integrating people and taking decisions to create a successful project. It is argued that there is need to establish an effective information system for construction projects so that every right and concerned person can access and share ideas. More broadly speaking, "shared project vision" is impossible when there is poor communication among project stakeholders. As people become better informed and more aware of what is happening in their project, they will

become more involved and committed to project's progress, and as a consequence, become better motivated (Clarke, 1999). Regardless of research scope and context, cooperation is consistently ascribed to be a vital determinant of construction project success (Phua and Rowlinson, 2004). Frequent progress meetings are, therefore, inevitable. "What is going on" is communicated to the parties. Then, corrective and preventive actions are timely applied to ensure good project performance. Proper project monitoring and control system is impossible without effective progress meetings. A project has a chance to be completed successfully when the project plans are updated regularly. Most of the previous studies highlight the importance of organization in construction projects, however they fail to point out the importance of procurement organization in the success of the project. Accordingly this study will determine the relationship and contribution of procurement organization on the project performance or success.

2.3 Procurement control and project performance

Procurement control is a procurement function aimed at achieving defined goals within an established timetable, and usually understood to have three components: (1) setting standards, (2) measuring actual performance, and (3) taking corrective action. According to Cole (2004) controlling ensures that travellers know how well they are progressing along the route, how correct their map is and what deviations if any, they need to make to stay on course. Using that perception, procurement control ensures that the project performance is on course.

Alinaitwe (2007) linked the poor performance of construction projects in Uganda to poor contract administration. The author further points out that lack of regular meetings of client with contractors implies that the client do not always keep track of project developments, contributes highly in sub standard projects and variation of prices. He also attributed the delays of projects to

delays in interim payments to contractor by the client. When contractors are paid beyond the time stipulated in the conditions of contract, they loose morale and also delay in project activities due to knock-on effect.

Mansfield, Ugwu and Doran (1994) also confounded that the problem of financing of and payment of completed works, poor contract administration, change in site conditions and shortages of materials are the four most important causes of delays and cost overruns in public highway and building projects in Nigeria. The above two scholars, allocates blame of poor construction projects perfomance to the clients, however other scholars like Ogunlana et al. (1996) study in Thailand and Kaming et al. (1997) study in Indonesia found that the blame for most project delays were laid on the contractors. Majid and McCaffer (1998) conducted a literature survey on causes of project delay where they claimed that 50 percent of the delays can be categorized as non-excusable delays for which the contractors were responsible. A study by Kumaraswamy and Chan (1998) indicated that six common significant factors for both building works and civil engineering projects were poor site management and supervision, low speed of decision making involving all project teams, client initiated variations, necessary variations of works and inadequate contractor experience.

2.4 Summary of chapter

There is empirical evidence that procurement planning, organizing and control are very important for project success. A number of scholars have identified that good project procurement planning prevents illegal activities and project delays (Hassim, Kajewski, Stephen and Bambang, 2011), communication framework as a major factor in project success (Laufer et al (1996) as cited by Nguyen, Ogunlana and Xhuan Lan, 2004), Henry Fayols' guidelines in

organising resources promotes project success and procurement control in terms of contract administration (Alinaitwe, 2007) as a major factor in determining the perfomance of a project.

However from the available literature seemingly, little is being done to establish the impact of the identified procurement management aspects on the perfomance of construction projects especially road projects and generating possible solutions. The researcher intended to make headway in this direction with a focus on road construction projects in Uganda.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter presents the methodology used in the study. The study was about procurement management and road construction project performance in Uganda National Roads Authority. The chapter presents the research design, study population, sample size and selection, sampling techniques and procedure, data collection methods, data collection instruments, validity and reliability, procedures which were used in data collection, how the data is analyzed and how the variables were measured.

3.1 Research Design

The researcher employed a case study design. A case study was a useful mode of investigation into the casual relationships of complex social phenomena (Amin, 2005). It enabled the researcher to make an intensive investigation on the true and comprehensive picture of procurement management and road construction project performance in Uganda National Roads Authority (UNRA). The case study design was intended to obtain a greater understanding of the factors and processes responsible for under performance of road construction projects in UNRA. In this study both qualitative and quantitative approaches were used in data collection. The research focused mainly on quantitative approach but some qualitative data was collected and analyzed to provide enhanced information and understanding of the case.

The qualitative aspect helped in promoting a deeper understanding about the current trend of procurement processes and road construction industry as emphasized by Amin's observation, (2005). The quantitative aspect was aimed at achieving generalization of the findings to the entire public sector projects. Quantitative data were used to investigate the relation ship between

the independent and dependent variable. Using a mixed –method approach (triangulation) the consistency of findings obtained through different instruments were tested as noted by Sekaran (2003). Both qualitative and quantitative researches provided different perspectives and complemented each other.

3.2 Study Population and Sampling

3.2.1 Target/Accessible Population

The accessible population comprised of 72 people of different categories knowledgeable and involved in procurement management and road construction projects in Uganda National Roads Authority. The study concentrated on the following categories of people: Project Managers, Project Engineers, Procurement Officers, senior staff of the Contractors of development and maintenance projects, senior staff of the Supervising Consultants of both development and maintenance projects, Directors of Engineering Departments in UNRA (see table 1). The study population was deemed to include all the people involved in project procurement and implementation at UNRA.

3.2.2 Sample size and Selection

The sample consisted of 49 numbers of staff from UNRA, 22 numbers of senior staff from contractors and supervising consultants. The respondents were of different categories depending on their role and positions. The categories included directors, project managers, project engineers, procurement officers, contract committee members, senior consulting engineers responsible for project supervision, senior engineers from the contractors. The numbers of each category is detailed in Table 1 below. The sample size was determined using Krejcie and Morgan (1970) table as presented in Sekaran (2003). Hence the sample size was 71 as detailed in Table 1 below.

Table 1: Study Population and sample size as determined using Krejcie and Morgan table (1970) as presented in Uma Sekaran (2003)

Category of respondents	**Study population**	**Sample size**	**Sampling Technique used**
Project Managers/Regional Managers (UNRA)	12	12	census
Project Engineers/Station Engineers (UNRA)	25	24	purposive sampling
Procurement Officers (UNRA)	4	4	census
Contracts Committee Members	5	5	census
Senior staff of Supervising Consultants involved in road construction in UNRA	12	12	census
Senior staff of Main Contractors involved in road construction in UNRA	10	10	census
Directors – Engineering Directorates (UNRA)	4	4	census
	72	**71**	

Source: UNRA Project Profiles and Staff Register

3.2.3 Sampling Techniques and Procedure

This study employed a census and purposive sampling techniques to select the sample. The purposive sampling technique was used to select project engineers, the senior consulting engineers responsible for project supervision and senior engineers from the contractors.

Purposive sampling was used because of its ability to ensure selection of useful cases; people with information and knowledge. The census technique was used to select project managers, directors, procurement officers and contract committee members and team leaders on behalf of supervising consultants. It was used because of the small number of the targeted groups and information was required from all.

3.3 Data Collection Methods

The following methods were used to collect the data; questionnaire surveys, face to face interview and documentary review.

3.3.1 Questionnaire Surveys

Questionnaire surveys are large-scale surveys involving well educated people (Peil, 1995). This was considered a good method since the targeted respondents were well educated and preferred privacy and anonymity. The questionnaire survey method was used to collect data from all UNRA staff except the Directors, Consultants and the Contractors.

3.3.2 Interviwing

Interviewing is the person-to-person interaction between two or more people with a specific purpose (Kumar, 2005). Interviewing method was used because of its ability to give opportunity for clarifying questions and also to explore more into some issues. This method was used to collect data from UNRA Directors.

3.3.3 Documentary Review

Documentary review method involves extracting data from documents. It was used to obtain supplementary data for the research. The documents reviewed included annual procurement palns, contract documents, minutes of contract management meetings, design review reports and project monthly progress reports.

3.4 Data Collection Instruments

Questionnaires, interview guides and document analysis were used as the main tools for collecting data. The selection of these tools was guided by the nature of data to be collected, the

time available as well as by objectives of the study. The overall aim of this study was to examine the effect of procurement management on road construction project performance in Uganda National Roads Authority. The Researcher was mainly concerned with views, opinions, perceptions, feelings and attitudes of respondents. According to Bell (1993); Toliatus and Compton (1998) as cited by Oso and Onen (2009) such information could be best collected through the use of questionnaire and interview techniques. Document analysis technique was used to obtain the facts on the project performance such as the overall cost, time and quality of projects completed or those under construction.

3.4.1 Questionnaire

The researcher used a comprehensive closed ended questionnaire covering all the aspects of the study variables on UNRA Staff, senior staff of the supervising consultants and senior staff of the Contractors. Likert scales with five categories response continum were used i.e. strongly agree, agree, undecided, disagree and strongly disagree (Amin, 2005) and very good, good, undecided, poor and very poor. At the end of the questionnaire the respondents were requested to add any other factor not mentioned but might contribute to project performance. The copy of the questionnaire used is attached as Appendix A

3.4.2 Interview guide

The researcher used an interview guide to conduct interviews with individuals who were believed to have important and crucial information for in depth understanding of the subject but did not have the time for the questionnaire filling. The interview guide contained open ended questions. The researcher had face to face interviews with the UNRA Directors of the Technical Departments and recorded their responses to the questions in the guide. The interview guide used is attached as Appendix B

3.4.3 Document Checklist

The document review involved analysing contents of the documentary material at UNRA headquarters, Project camp sites and UNRA stations to obtain facts on project completion time, costs and quality. The Documents reviewed included; Design review reports, minutes of contracts management meetings and contract documents. The Document Check list used is attached as Appendix C

3.5 Research Procedure

The researcher developed a proposal over a period of about 3 months under the guidance of the supervisors. Once the proposal was ready; the researcher obtained an introduction letter from Uganda Management Institute (attached as Appendix G) which was used to seek permission from Uganda National Roads Authority to proceed with the study (Authorization letter attached as Appendix H). Once the permission was granted, the researcher pilot tested the instruments and proceeded to collect data. The researcher distributed the questionnaires through emailing and hand delivery, conducted the face to face interviews and reviewed the documents. The data collected was assembled, cleaned up and analyzed using appropriate data analysis methods and presented using tables, figures and verbatim.

3.6 Data Collection Quality Control

3.6.1 Validity

Validity is the extent to which research results can be accurately interpreted and generalized to other populations. It is the extent to which research instruments measure what they are intended to measure (Oso & Onen, 2008). To ensure validity, the instruments were given to two experts (judges) to evaluate the relevance of each item in the instrument to the objectives and rate each item on the scale of very relevant (2) and not relevant (1). Validity was determined using

Content Validity Index (CVI). CVI – Items rated 2 by both judges divided by the total number of items in the questionnaire. The average of items rated very relevant by both judges was 37 compared to the total number of items which was 43. Using CVI= n/N where n is the average of questions rated very relevant and N is the total number of items, the CVI obtained was 0.86. Amin (2004), considers an instrument to be valid when its CVI is greater than 0.7, accordingly the researcher concluded that the instrument was valid and could be used to collect valid data.

3.6.2 Reliability

The instruments were pre-tested in other public entities with road construction projects which were not to be included in the study (Lyantonde and Sembabule Districts) to determine their reliability. Reliability of an Instrument is the ability of the instrument to collect the same data consistently under similar conditions (Amin, 2004). Internal consistency method was used to determine the reliability of the instruments. The instrument was pilot tested on 10 respondents. The scores of the responses from the pilot test were correlated using Chronbach's alpha coefficient (α) because the options for answers were more than three (likert scale of 5 continuums). See Appendix D for the details of the results of correlations. The summarized results are shown in Table 2 below;

Table 2: Reliability Indices of Variables in the Questionnaire

Variable	Reliability Index	No. of Items
Procurement Planning	0.96	6
Procurement Organizing	0.95	7
Procurement Control	0.81	14
Road Construction Project Performance	0.72	12
Overall Reliability Index	**0.86**	

Source: primary data

Amin (2004), considers an instrument to be reliable (items correlate highly among themselves) when its reliability coefficient is greater than 0.7, accordingly the researcher concluded that the instrument was reliable as its overall reliability index was 0.86.

3.7 Data Analysis

The quantitative data was collected, edited and coded using the statistical package for the social sciences (SPSS) 10. Two types of analyses were computed; descriptive statistics (frequencies, percentages, mean, and standard deviation) and inferential statistics (correlational and regression analysis). The frequencies, percentages, means and standard deviation were used to determine the respondents' views on each of the study variable. The Pearson's correlation technique was used to determine the relationship and dependence between the variables. The regression analysis technique was used to measure the magnitude of the effect. The results of findings were summarised and presented in tables for easy analysis and intepretation. The detailed quantitative data results are appended in Appendix E.

In qualitative analysis, content analyis was used to edit the data and organised into meaningful shorter sentences. This was then presented to supplement the quantitative data in order to have a clear intepretation of results. The detailed qualitative data is attached as Appendix F.

3.8 Measurement of Variables

The researcher used nominal scale of measurement which applies to some common set of characteristics such as age, level of education, category of respondent. A number was assigned to each category for identification only. The likert scale was used to collect opinion data and used to measure the respondents beliefs on the contribution of procurement management to road construction project performance using 5 scales; 5=strongly agree, 4=agree, 3=undecided, 2= disgree, 1 =strongly disagree (Amin, 2005 pp 265) and 5= very good, 4=good, 3=undecided, 2= poor, 1 =very poor.

CHAPTER FOUR

PRESENTATION, ANALYSIS AND INTERPRETATION OF FINDINGS

4.0 Introduction

The researcher sought to examine the effect of procurement management on road construction projects in Uganda National Roads Authority and specifically to find out how procurement planning affects the road construction project performance in Uganda National Roads Authority , to examine the effect of procurement organization on the road construction project performance in Uganda National Roads Authority and to determine how the procurement control affects the road construction project performance in Uganda National Roads Authority.

This chapter contains a detailed description of results, the analyses and interpretations of the research data obtained. The chapter is divided into the four parts; part 1, the researcher presents the response rate, part 2, background information of the respondents, part 3, descriptive statistics of the variables and part 4, test of the hypotheses.

4.1 Response Rate

The researcher set out to collect data from 71 respondents drawn from directors, project managers, project engineers, procurement officers, contracts committee members of UNRA and senior managers for consultants and contractors. The summary of the response rate of respondents is shown in Table 3 below.

Table 3: Response Rate

Category of respondents	Study population	Sample size	Actual response	Response Rate
Project Managers/Regional Managers (UNRA)	12	12	12	100%
Project Engineers/Station Engineers (UNRA)	25	24	24	100%
Procurement Officers (UNRA)	4	4	4	100%
Contracts Committee Members	5	5	5	100%
Senior staff of Supervising Consultants involved in road construction in UNRA	12	12	8	67%
Senior staff of Main Contractors involved in road construction in UNRA	10	10	5	50%
Directors – Engineering Directorates(UNRA)	4	4	3	75%
Overall Response rate				**85%**

Source: Primary data

Table 3 indicates that the targeted number of` project managers, project engineers, procurement officers, contracts committee members, was achieved (100% response rate). This was due to the fact that the target number was not big and researcher had easy access to UNRA staff. However, the response rates for senior staff of Supervising Consultants, senior staff of Contractors and UNRA directors was 67 %, 50 % and 75 % respectively. These categories comprise of very busy people with lots of responsibilities who failed to get some time to fill the questionnaires and to be interviewed. The overall response rate was 85%.

According to Amin (2004), if the response rate is more than 70 %, then the study can yield valid results, there fore this study's over all response rate of 85% was found to be good enough.

4.2 Back ground information

The researcher obtained information on the background characteristic of respondents. This was aimed at obtaining authenticity of respondents. The following were the key background variables; sex, age group, level of education and job position.

Table 4 Distribution of Respondents by Background Characteristics

Background	**Attributes**	**Frequency**	**percentage**
Sex	Male	53	91.4
	Female	5	8.6
	Total	**58**	**100.0**
Age Group	20-30 years	2	3.4
	31-40 years	20	34.5
	41-50 years	29	50.0
	Over 50 years	7	12.1
	Total	**58**	**100.0**
Highest level of Education	Diploma	0	0
	Bachelors degree	20	34.5
	Masters Degree	35	60.3
	PHD	1	1.8
	Post Graduate Diploma	2	3.4
	Total	**58**	**100.0**
Job Position	Project Managers/Regional Managers (UNRA)	12	20.7
	Project Engineers/Station Engineers (UNRA)	24	41.4
	Procurement Officers (UNRA)	4	6.9
	Contracts Committee Members	5	8.6
	Senior staff of Supervising Consultants involved in road construction in UNRA	8	13.8
	Senior staff of Main Contractors involved in road construction in UNRA	5	8.6
	Total	**58**	**100.0**

Source: Primary data

From Table 4 above, the majority of the respondents were male (91.4%) and female were few (8.6 %). This could mean that few women are involved in road construction projects in UNRA which contradicts the purpose of gender mainstreaming policy in all projects and at all levels. The researcher was interested in knowing the sex of the respondent for statistical purposes only.

The majority of the respondents were in the age groups of 31-40 years (34.5%) and 41-50 years (50%). The categories targeted were of senior people (managers) who most of the times are beyond 31 years of age. It was important for the researcher to know the age of the respondents in

order to ascertain reliability and prudence of information obtained from them. Some one to be older implies more exposure, experience and knowledge in the field one is practising.

The respondents with Masters degree as their highest level of education were 60.3 % and those with bachelors degree only were 34.5 %, those with post graduate diplomas were 3.4 % and 1.8% for PHD holders. There was none holding only a diploma. This can be explained by the fact that the requirements for the positions in the categories targeted are always a bachelor's degree and above. It is not surprising that there is no one with a diploma. The education level of a respondent signifies his knowledge in a specified field.

The positions of the targeted respondents were project managers, project engineers/station engineer, procurement officers , contract committee members, senior staff of supervising consultants, senior staff of main contractors and their responses were 20.7%, 41.4 %, 6.9%,8.6%, 13.8 and 8.6% respectively. The target numbers for project managers, project engineers/station engineer, procurement officers, contract committee members were obtained since these are the real population of the categories of personnel in UNRA. However the target number for senior staff of consultants and contractors was not obtained as required due to the fact that some were involved in projects which were far away and the researcher could not reach them.

The researcher required to know the job posistions of the respondents in order to have some conclusions about their views on some aspects of the research.

4.3 Descriptive statistics on the Independent Variables and Dependent

4.3.1 Procurement Planning

The researcher considered various aspects of procurement planning which included preparation of the procurement plan, budgeting, and procurement methods and documenting the product requirements.

The researcher wanted to know whether the procurement plan is prepared annually by the Organization (UNRA). This was intended to find out whether the project procurements are planned. The researcher also sought to find out if all project costs are reflected in the procurement plan. Further, the researcher sought the respondents' opinions on whether the construction projects are budgeted for adequately. In addition it was important for the researcher to find out whether the cost estimate for each project was determined after considering all technical and field requirements of the project. The researcher considered the procurement methods used in each procurement important and sought respondents opinion if they are based on complexity of the projects. Lastly the researcher inquired on whether the specifications and terms of reference for each project are well elaborated to enable bidders to determine the project performance parameters.

The summary of descriptive statistics on respondents' views about the above aspects is given in Table 5 below.

Table 5: Summary of descriptive statistics on Respondents views about Procurement Planning

Questionnaire Item	Response Category- Strongly Agree (SA), Agree(A), Undeceided (U), Disagree (D), Strongly Disagree (SD)					Mean	Standard Deviation
Procurement Planning	SA (5)	A (4)	U (3)	D (2)	SD (1)		
1. The procurement plans are prepared annually with all projects	12	24	10	7	5	3.53	1.20
2. The project costs are reflected in the procurement plan	12	34	9	3	0	3.95	0.76
3. The construction projects in the procurement plan are budgeted for adequately	16	22	3	16	1	3.62	1.21
4. The cost estimate for each project is obtained by considering all technical and field requirements of the project.	41	5	1	11	0	4.31	1.19
5. The procurement method in the procurement plan for the construction projects is determined according to the complexity of the project	28	28	1	1	0	4.43	0.62
6. The specifications and terms of reference are prepared thoroughly to guide the bidders on all requirements	13	26	6	6	8	3.53	1.31

of the project in order to determine the time, cost and technical methodologies to be used on the project							

Source: Primary data

From table 5 above, the mean response on preparation of procurement plans annually was 3.53 and the standard deviation was 1.20. These results imply that the majority agreed that the procurement plans are prepared annually and there were fewer divergent opinions.

This was supported by the documentary check list by the researcher where four annual procurement plans (2008/2009, 2009/2010, 2010/2011 and 2011/12) were seen in UNRA's registry. And since UNRA has been in existence for four years, it was interpreted that each year a procurement plan is prepared.

The mean response on whether the project costs are reflected in the procurement plan was 3.95 and the standard deviation was 0.76. Most of the respondents agreed that the project cost estimates are reflected in the procurement plan.

From the documentary checklist, it was also established that all projects had their cost estimates reflected in the procurement plan.

The mean response for adequate budgeting for construction projects was 3.62 and standard deviation 1.21. It implies that the majority agreed that the projects are budgeted for adequately and fewer people disagreed.

However the documentary check list for the three selected projects showed that the budgeted cost estimates were less that than the actual original contract amounts for the projects. One of UNRA Directors when asked about the adequancy of the project budgets had this to say, "*The project*

cost in the Procurement Plan and Budget is just an estimate which at times is not adequate for the project".

Both findings contradict the quantitative results. This can be intepreted that although some of the respondents thought that budget for the projects were adequate, in real sense it was inadequate.

The mean response on whether the cost estimate for each project is obtained by considering all technical and field requirements of the project was 4.31 and the standard deviation was 1.19. It implies that the majority of the respondents agreed that all technical and field requirements of a project are considered when determining the cost estimate of the project. There were a few individuals whose opinion diverged.

The interview findings were in contrast to the findings in questionnaire. For example when the key informants were asked how the cost estimates for each project in the procurement plan determined, they said "The *cost estimates are determined using historical data, in most cases, we are required to indicate the project in the procurement plan before the designs are complete due to political pressure, in such cases, the only information available are the records of past similar projects"* .

The mean response on whether the procurement method in the procurement plan for the construction projects is determined according to the complexity of the project was 4.43 and the standard deviation was 0.62. This means that only a few individuals had a divergent opinion, the majority agreed that the complexity of a project determines the procurement method used.

The mean response on whether the specifications and terms of reference are prepared thoroughly to guide the bidders on all requirements of the project in order to determine the time, cost and technical methodologies to be used on the project was 3.53 and the standard deviation was 1.31.

it implies that the majority were of the opinion that specifications and terms of reference are prepared thoroughly to guide the bidders on all requirements of the project in order to determine the time, cost and technical methodologies of the projects. However a significant number of respondents had divergent views. The divergent views were from the providers who felt that the specifications and terms of reference are not elaborate enough to guide the bidders. When the researcher inquired from one them to clarify, he said "*the specifications and designs are sometimes so sketchy than the real work expected out of us; this leads us to underestimate in terms of cost and time of some activities"*

4.3.2 Procurement Organization

The researcher considered various aspects of procurement organization which included roles, obligation definition and communication framework. Under these, the researcher sought out the respondents opinions on whether the roles of the client, contractor and supervising consultants are clearly defined, whether each of the above plays his roles and fulfils the obligations adequately and whether the communication framework within the organization make all projects for procurement open to competent firms. The summary of descriptive statistics on respondents' views about the above aspects is given in Table 6 below.

Table 6 Summary of descriptive statistics on Respondents views about Procurement Organizing

Questionnaire Item	Response Category- Strongly Agree (SA), Agree(A), Undeceided (U), Disagree (D), Strongly Disagree (SD)					Mean	Standard Deviation
Procurement Organization	SA (5)	A (4)	U (3)	D (2)	SD (1)		
1. The role of the client on the project is clearly specified in the contract documents	26	22	4	4	2	4.14	1.05
2. The client plays his role adequately not to affect the project	20	20	4	12	2	3.76	1.23
3. The roles and obligations of the contractor are clearly specified	14	36	5	3	0	4.05	0.74
4. The Contractor always fulfill his roles and obligations	7	15	2	22	12	2.71	1.38
5. The roles and obligations of the supervising consultants are clearly specified	21	24	6	5	2	3.98	1.07
6. The supervising Consultants always fulfill their obligations	14	39	2	3	0	4.10	0.69
7. The communication framework within the organization make all projects for procurement open to competent firms	7	45	6	0	0	4.02	0.48

Source: Primary data

From table 6 above, the mean response on whether the role and obligations of client are clearly defined in the contract documents was 4.14 and the standard deviation was 1.05. It implies that

the majority were of the opinion that the role of the client is clearly stated in all contracts; however a few individuals had divergent views.

The majority opinion was supported by the documentary analysis; the researcher checked the contract documents for both consultants and contractors and found that there was a section clearly specifying the roles and obligations of the client.

The mean response on whether the client plays his roles adequately was 3.76 and the standard deviation was 1.23. This means many individuals were of the view that the client plays his roles adequately, However a significant number implied that the client does not execute his roles as expected. From the interview the researcher had with the directors of UNRA, one of the directors had this to say, "As UNRA we try as much as possible to fulfill our obligations and play our roles per contract, but at times, other factors beyond our control limits us in fulfilling our obligations and roles. An example, it is our obligation and role to acquire land for the road project before the its commencement , but at times we fail to secure some sections in time due to the owners of the land demanding an exorbitant amount for a just a small section. Due to this, the contractor is given incomplete section of the project which becomes an encumbrance when he is carrying out the works. However we have come up with mitigation measures to minimize the occurrence of this in future". From the statements, it can be interpreted that although UNRA (client) plays its roles and obligations during contract executions, at times it fails.

The mean response on whether the role and obligations of contractor are clearly defined in the contract documents was 4.05 and the standard deviation was 0.74. It implies that the majority were of the opinion that the role and obligations of the contractor are clearly stated in all contracts; however a few individuals had divergent views. From documentary analysis, the

researcher checked the contract documents for works contracts and found that there was a section clearly specifying the roles and obligations of the Contractor.

The mean response on whether the contractor plays his roles and fulfills his obligations was 2.71 and the standard deviation was 1.38. It implies that that the majority was of the opinion that contractors don't play their roles adequately and they don't fulfill their obligations as required.
This is supported by the interview responses from UNRA Directors who expressed that "*Providers usually don't fulfill their obligations and roles due to a number of reasons. The reasons are at times the providers' making and sometimes due to the us, the client. The Providers' shortcomings include unsatisfactory site management, inappropriate sequensing of activities, lack of enough equipment and personnel and client's shortcomings include among others, failure to give possession of site to the provider in time".*

The mean response on whether the supervising consultants' roles are clearly specified in the contract documents was 3.98 and the standard deviation was 1.07. This can be interpreted as that the majority was in agreement and some few individuals had divergent views.
The majority opinion was also supported by the consultancy contract document documents which showed that the supervising consultants' roles are clearly specified.

The mean response on whether the communication framework within the organization makes all projects for procurement open to competent firms was 4.02 and the standard deviation was 0.48.
It implies that most of the respondents agreed that the communication framework in UNRA makes all projects open to competent firms. Since the list of respondents included the providers and this issue concerned them, it was interpreted that the communication framework is adequate.

4.3.3 Procurement Control

The researcher considered several aspects of procurement control and these included; selection criteria, specifications and designs, bidding and contract documents, contract administration and monitoring. On each of the aspects above, the researcher sought to find out the respondents' opinions. The Table 7 below summarizes the different aspects on which the researcher sought opinions, and the descriptive statistics of the responses.

Table 7 Summary of descriptive statistics on Respondents views about Procurement Control

Questionnaire Item	Response Category- Strongly Agree (SA), Agree(A), Undeceided (U), Disagree (D), Strongly Disagree (SD)					Mean	Standard Deviation
Procurement Control	SA	A	U	D	SD		
1. The selection criteria is set according to the project cost, time and quality requirements	21	30	5	2	0	4.21	0.74
2. The selection of the providers is based on their past performance in terms of quality, cost and time spent on similar projects	16	28	6	7	1	3.88	1.01
3. The specifications and designs are prepared after thorough field investigations	11	26	10	11	0	3.64	1.00
4. The specifications and designs plus scope determines the time, cost and quality of the construction project	10	23	16	8	1	3.57	0.99
5. The client, contractors and supervising consultants adhere to original specifications, designs and scope during implementation	24	19	4	8	3	3.91	1.23
6. The bidding documents used during tendering provides all required information to the contractor in order to determine cost, time and quality required	17	25	6	9	1	3.83	1.08
7. The Contract documents are prepared and contract signed in order to ensure that the project is implemented in time , cost and quality	18	28	7	4	1	4.0	0.94
8. The Contracts are adhered to throughout the project implementation period	17	27	4	10	0	3.88	1.03
9. All projects are supervised and monitored by experienced and knowledgeable personnel during implementation	7	29	9	13	0	3.52	0.98
10. The client has adequate skilled and experienced personnel to monitor and supervise the projects during implementation	3	29	10	16	0	3.33	0.94
11. The project management teams always prepare reports which highlight the potential risks to the project performance	23	25	6	4	0	4.16	0.87
12. The potential risks to the project performance are mitigated early enough	14	27	5	8	4	3.67	1.19
13. The poor performing providers are penalized accordingly	11	29	6	8	4	3.60	1.15
14. The payments to providers is done promptly in order not to affect project performance	20	31	2	4	1	4.12	0.9

Source: Primary Data

From table 7 above, the mean response whether the selection criteria is set according to the project cost, time and quality requirements was 4.21 and the standard deviation was 0.74. It implies that there was minimum divergent views as most of the respondents agreed that the selection procedure of would be providers is set according to estimated project cost, time and quality requirements of the end product.

The majority response was supported by the interview findings where the researcher asked key informants on the how the selection criterai is determine and they had the following to say, " *The criteria for selction of providers is determined according to the requirements of the project, the complexity determines the number of years of experience required and others. Some times the selection criteria is guided by the funder's requirements like the origin of the providers"*

The mean response on whether the selection of the providers is based on their past performance in terms of quality, cost and time spent on similar projects was 3.88 and the standard deviation was 1.01. Although the majority had an opinion that the selection of providers is based on their past performance in terms of time, quality and cost, a significant number of respondents had different opinions.

The interview of directors revealed that sometimes, the selection of providers is dictated by the funder's requirements which at times may not be about past performance but rather their origin. This may explain the divergent opinions which were found significant.

The mean response on whether the specifications and designs are prepared after thorough field investigations was 3.64 and the standard deviation was 1.00. It implies that most respondents were of the view that field investigations are carried out thoroughly before they come up with specifications and designs. However there were significant numbers of divergent views. The divergent views were in line with some interview responses which showed that the design

consultants don't do thorough work which later on affect the overall project performance. This can be explained by the quotation from of the Contractor's staff who had this to say "*the specifications and designs are sometimes so sketchy than the real work expected out of us; this leads us to underestimate in terms of cost and time of some activities"*

The mean response on whether the specifications and designs plus scope determines the time, cost and quality of a project was 3.57 and the standard deviation was 0.99. It implies that the majority agreed with the statement and a few respondents had divergent views. The interview responses also revealed that the real time, cost and quality of the road project depends on its designs and specifications.

The mean response on whether the client, contractors and supervising consultants adhere to original specifications, designs and scope during implementation was 3.91 and the standard deviation was 1.23. It can be interpreted that, the majority had similar opinions and were agreeing to the assertation but a significant number had different views.

The documentary analysis of design review reports showed that the original designs, specifications and scope were not adhered to as there were many changes during the implementation of the road construction projects. This may explain the significant number of respondents with divergent views.

The mean response on whether the bidding documents used during tendering provides all required information to the contractor in order to determine cost, time and quality required was 3.83 and the standard deviation was 1.08. It can be interpreted that the majority of the respondents agreed with the statement, however a few had different opinions. The divergent interview responses showed that the design consultants don't do thorough work leading to the

designs and specifications not being adequate and since they are part of the bidding documents it implies that all information is not provided to the provider to determine the right time and cost for the activities.

The mean response rate on the statement "the Contract documents are prepared and contract signed in order to ensure that the project is implemented in time, cost and quality" was 4.0 and standard deviation 0.94. This implies most of the individuals who responded had similar opinions in support of the statement and there were few divergent views.

The marjority opinions were supported by the interview findings where one of UNRA directors when asked about contract documents and their roles, had this to say "*The Contract Agreements are meant to control cost, time and quality of the projects, they have to be adhered to, but at times they have to be amended when the need arises"*.

The mean response rate on whether the Contracts are adhered to throughout the project implementation period was 3.88 and the standard deviation was 1.03. It implies that the contracts are adhered to. But from the quote above, it is noted that some times contracts are changed. This supports the divergent views of some respondents who feel that the contract agreements are not adhered to.

The mean response rate on whether all projects are supervised and monitored by experienced and knowledgeable personnel during implementation was 3.52 and the standard deviation was 0.98. It means that there are adequate knowledgeable personnel who supervises and monitor the road construction projects during implementation.

The majority response was supported by the interview findings where it was asserted that " *UNRA has adequate trained and experienced personnel*" . However in the same interview, it was

expressed that "supervising *consultants sometimes engage inexperienced personnel on the projects*". This may explain the divergent views of respondents on this issue.

The mean response rate on whether the client has adequate skilled and experienced personnel to monitor and supervise the projects during implementation was 3.33 and the standard deviation was 0.94. It implies that UNRA has adequate skilled and experienced personnel who supervise and monitor the road construction projects during implementation. This was supported by the interview response where it was asserted that UNRA has adequate trained and experienced personnel as quotted above.

The mean response for the statement "The project management team always prepares reports which highlight the potential risks to the project performance" was 4.16 and the standard deviation was 0.87. It means that indeed reports with potential risks to project performance are prepared.

This was evidenced in the documentary analysis of project progress reports where it was noted that potential risks are identified and listed with their mitigation measures.

The mean response on whether the potential risks to the project performance are mitigated early enough was 3.67 and the standard deviation was 1.19. It implies the majority were of the view that the potential risks are mitigated early enough, however a significant number of respondents had different opinions.

The documentary analysis of project progress revealed that although risks were highlighted, they were not mitigated early enough to avoid their effect on the project performance. An example; untimely land acquisition for sections on Kampala-Gayaza-Zirobwe project was one of the risks identified but it was not mitigated early enough, at the time of the study, there were sections not

yet acquired and were delaying the project and increasing the project cost in terms of extension of time to the contractor with compensations. This may explain the big number of respondents who felt that the risks are not mitigated early enough.

The mean response on the statement "The poor performing providers are penalized accordingly" was 3.60 and the standard deviation was 1.15. It means that most respondents felt that the poor performing providers are penalized accordingly, however there were a significant number of respondents whose opinions was divergent, to them, the poor performing contractors are not penalized adequately.

The above response was supported by the interview findings where the UNRA Directors revealed that " *at times the poor performing Contractors are penalized through liquidated damages in case of delays and deductions from the payment certificates for unsatisfactory works, , there were times when it became difficult to penalize a poor performing contractor, when the Client had some weaknesses, like removal of encumbrances from the roadways (untimely land acquisitions*" . This may explain the responses as they were.

The mean response on whether the payments to providers are done promptly in order not to affect project performance was 4.12 and the standard deviation was 0.9. It means that most respondents agreed that the payments are done in time. A small number of respondents did not agree with this statement.

4.3.4 Road Construction Project Performance

The researcher sought to find out the respondents opinions on the road construction project performance in UNRA by considering the cost, time and quality aspects and reasons for divergence. The details of the considered aspects and the respondents' views are given in Table 8 below.

Table 8 Summary of descriptive statistics on Respondents views about Road Construction Project Performance

Questionnaire Item	Response Category Very Good (VG), Good (G), Undecided (U),Poor (P), Very Poor (VP) Strongly Agree (SA), Agree(A), Undeceided (U), Disagree (D), Strongly Disagree (SD)					Mean	Standard Deviation
Project Performance	**VG**	**G**	**U**	**P**	**VP**		
1. How do you rate the budget performance of road construction projects in UNRA	29	16	9	25	6	2.71	1.09
2. How do you rate the overall timely execution of road construction projects in UNRA	1	16	12	27	1	2.78	0.96
3. How do you rate the quality of road construction projects at UNRA	16	38	3	1	0	4.18	0.61
	SA	**A**	**U**	**D**	**SD**		
4. The changes on specifications and designs during construction accounts for some of the project cost overruns in UNRA	14	22	12	10	0	3.69	1.03
5. The changes on specifications and designs during construction are responsible for the project time delays in UNRA	12	30	8	7	1	3.78	0.97
6. The changes on specifications and designs during construction are responsible for the poor quality of road construction projects in UNRA	7	25	12	13	1	3.41	1.03
7. Underestimation of quantities for the project activities during procurement accounts for the project cost overruns during implementation	3	18	17	18	2	3.03	0.99
8. Underestimation of quantities for the project activities during procurement are responsible for the project time delays during implementation	1	13	9	24	11	2.43	1.10
9. Underestimation of quantities for the project activities during procurement are responsible for the poor quality of project during implementation	2	15	11	22	8	2.67	1.11
10. The laxity in supervision and monitoring of road projects accounts for the project cost overruns during implementation	1	11	9	32	5	2.50	0.96
11. The laxity in supervision and monitoring of road projects is responsible for the project time delays during implementation	6	31	13	2	6	3.50	1.08
12. The laxity in supervision and monitoring of road projects is responsible for the poor quality of project during implementation	11	32	5	4	6	3.66	1.18

Source: Primary Data

From table 8 above, the mean response on the rating of the budget performance of the road construction projects was 2.71 and the standard deviation was 1.03. It implies that the majority of the respondents rated the budget performance as poor. However some significant number of respondents had divergent views. The respondents were of different categories including the providers themselves, to them, may be the budget performance was good.

The interview findings supported the majority respondents' views where the key informants said that "Most *projects are completed at a higher cost".*

The documentary analysis of the contract documents and procurement plans revealed that most projects were completed/ or expected to be completed at a higher cost compared to the budgeted cost, there fore poorly performing.

The mean response on the rating of the time performance of the road construction projects was 2.78 and the standard deviation was 0.96. It can be interpreted that the majority rated the time performance as poor, however a few individuals had a divergent opinions, to them the performance was good.

All the Directors interviewed had this to say "*The time perfomance of most of our projects is poor"*. This is in agreement with results from majority of the respondents.

The documentary analysis of the contract documents , management meetings minutes and progress reports showed that most projects were completed/ or expected to be completed at a very later date than the original planned dates, there fore poorly performing poor.

The mean response on the rating of the quality of the road construction projects was 4.18 and the standard deviation was 0.61. It implies that the majority of the respondents' believed that the projects being constructed or those completed are of a good quality.

All the respondents interviewed had this to say "*The quality perfomance of most of our projects is good, as it meets the Ministry of Works general specifications of road works. There are aspects which may not be satisafory but the over all rating is good"*. This implies that quality of road construction projects is generally satisfactory.

The mean response on the statement "The changes on specifications and designs during construction accounts for some of the project cost overruns in UNRA" was 3.69 and the standard deviation was 1.03. It implies that the standard the majority of respondents agreed with the statement. However a significant number had different opinion, they disagreed with the statement.

The interview responses confirmed the statement that the specifications and designs during construction also contribute to the project cost overruns in UNRA. When asked what cost variations and their causes, the Directors said that, " *sometimes gaps exist in designs such as safety spects like parking lanes, climbing lanes and others, which must be incorporated during the construction stage, innovative approaches where the Consultants and Contractors brings about new approaches which may improve the final product; all these increases the costs*"

The documentary analysis of contract documents, management meetings minutes, progress reports and design review reports revealed that changes in designs and specifications increases the project costs.

The mean response on the statement "The changes on specifications and designs during construction are responsible for the project time delays in UNRA" was 3.78 and the standard deviation was 0.97. It implies that the majority agreed that the changes in designs and specifications during construction contribute to project delays.

The marjority response was supported by the interview findings, where when one of the Directors was asked about the project delays and their causes, had the following to say, " *the time variation ia ttributed to changes in designs and specifications during project construction, changes in scope, changes in cosntruction methodology and poor site activity management.*"

The documentary analysis of contract documents, management meetings minutes, progress reports and design review reports also revealed that changes in designs and specifications increases the project completion time.

The mean response on the statement "The changes on specifications and designs during construction are responsible for the poor quality of road construction projects in UNRA" was 3.41 and the standard deviation was 1.03. It may be interpreted that the majority respondents agreed with the statement. However a significant number of respondents believed that changes on specifications and designs did not contribute to poor quality of road projects.

The mean response on the statement "Underestimation of quantities for the project activities during procurement accounts for the project cost overruns during implementation" was 3.03 and the standard deviation was 0.99. It implies that the majority agreed that indeed underestimation of quantities contribute to project cost increases.

The majority response was supported by the interview responses where the Director of Projects when asked about the cost overuns of the projects and their causes had this to say *"Underestimation of quantities during the design stage is one of the factors responsible for cost and time increases".*

The documentary analysis of contract documents, management meetings minutes, progress reports and design review reports also showed that underestimation of quantities contribute to project cost overruns.

The mean response on the statement "Underestimation of quantities for the project activities during procurement are responsible for the project time delays during implementation" was 2.43 and the standard deviation was 1.10. It implies most respondents disagreed with the statement, to them underestimation of quantities is not responsible for project delays. However a significant number of respondents had divergent views, they believed that underestimation of quantities accounts for some of the project delays.

The divergent views are supported by the interview responses which had underestimation of quantities as one of the factors responsible for project delays.

The documentary analysis of contract documents, management meetings minutes, progress reports and design review reports also revealed that underestimation of quantities contribute to project delays.

The mean response on the statement "Underestimation of quantities for the project activities during procurement are responsible for the poor quality of project during implementation" was 2. 67 and the standard deviation was 1.11. It implies that most respondents disagreed with the statement. However a significant number of respondents had divergent views, to them underestimation of quantities contributed to poor quality of projects.

The mean response on the statement that "The laxity in supervision and monitoring of road projects accounts for the project cost overruns during implementation" was 2.50 and the standard deviation was 0.96. It implies that most respondents disagreed with the statement. A few individuals believed that laxity in supervision and monitoring of road projects is responsible for project cost overruns.

The interview responses showed that there was no laxity in supervision and monitoring, as much effort was put in this. This implies that the cost overruns cannot be attributed to laxiy in supervision and monitoring.

The mean response on the statement was "The laxity in supervision and monitoring of road projects is responsible for the project time delays during implementation" was 3.50 and the standard deviation was 1.08. It implies that most respondents agreed with the statement. However a significant number of respondents believed that laxity in supervision and monitoring of road projects was not responsible for the project time delays during implementation.

The interview responses showed that there was no laxity in supervision and monitoring, as much effort was put in this. When the key informants were asked about the quality mechanism in place, they said, "Supervison *consultants are engaged from day one of the project to the end to ensure day to day supervison and monitoring and technically offer advice*." This implies that the time delays cannot be attributed to laxity in supervision and monitoring.

The mean response on the statement "The laxity in supervision and monitoring of road projects is responsible for the poor quality of project during implementation" was 3.66 and the standard deviation was 1.18. it implies that the majority of the respondents agreed with the statement. However a significant number of respondents had divergent views, to them, laxity in supervision and monitoring was not responsible for the poor quality of projects.

4.4 Test of the hypotheses

In order to verify the above hypotheses, the null hypotheses were derived as follows;

1. Procurement planning does not affect road construction project performance in Uganda National Roads Authority.
2. Procurement Organization does not have an effect on the road construction project performance in Uganda National Roads Authority.
3. Procurement Control does not affect the road construction project performance in Uganda National Roads Authority.

To test the null hypotheses, the researcher measured the variables by generating indices called procurement planning, procurement organization, and procurement control and project performance by obtaining mean responses. The data was analyzed using Pearson correlation and regression analysis techniques. The Pearson correlation technique was used to determine the relation ship between the variables where as the regression analysis was used to determine the effect one variable has on another. Table 9 below shows the summary of the correlations between the variables and the amounts of effects on the variables.

Table 9 Correlations between Variables and Perfomance

Variables	**Correlations (r)**	**Regression (R^2)**	**Significance**	**Confidence level**
Procurement Planning and Road Construction Project Performance	0.148	0.022	0.266	0.05
Procurement Organization and Road Construction Project Performance	0.300	0.09	0.022	0.05
Procurement Control and Road Construction Project Performance	0.335	0.112	0.010	0.05

Source: Primary Data

From table 9, the correlation between procurement planning and road construction project performance is positive (r = 0.148) but insignificant as the P value obtained (P_o=o.266) which is more than the P critical (P_c=0.05). This implies that there is no significant relationship between procurement planning and road construction project perfomance. However the regression analysis reveals that procurement planning affects to a small extent (R^2= 0.022) the road construction project perfomance. Therefore the researcher rejects the null hypothesis that that procurement planning does not affect road construction project performance in Uganda National Roads Authority and upholds the research hypothesis.

The correlation between procurement organization and road construction project performance is positive (r = 0.300) but significant as the P value obtained (P_o=o.022) which is less than the P critical (P_c=0.05). This implies that there is a positive significant relationship between procurement organization and road cosntruction project perfomance. As procurement organization is improved, it results into an improvement in the perfomance of the road construction projects.

The regression analyis revealed that procurement organization affects the road construction project performance in Uganda National Roads Authority by 9% (R2=0.09). It implies that when you improve procurement organization, it will result into a 9% improvement in road construction project perfomance.

From this, the researcher rejects the null hypothesis that states that Procurement Organization does not have an effect on the road construction project performance in Uganda National Roads Authority and therefore uphold the research hypothesis that Procurement Organization has an effect on the road construction project performance in Uganda National Roads Authority.

The correlation between procurement control and road construction project performance is positive (r = 0.335) but significant as the P value obtained (P_o=o.010) which is less than the P critical (P_c=0.05). This implies that there is a positive and significant relationship between procurement control and road cosntruction project perfomance in Uganda National Roads Authority. The regression analysis revealed that procurement control affects road construction projects perfomance in Uganda national Roads Authority by 11.2 %(R^2=0.112). It implies that a change in procurement control results into a change in road construction project perfomance by the magnitude of 11.2 %. From this, the researcher rejects the null hypothesis that states that Procurement control does not affect on the road construction project performance in Uganda National Roads Authority and therefore uphold the research hypothesis that Procurement Control affects the road construction project performance in Uganda National Roads Authority.

CHAPTER FIVE

SUMMARY, DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter presents the summary of the study, discussions of the key findings, conclusions, recommendations, and contributions of the study, limitations and areas for further research. The summaries, discussions, conclusions and resulting recommendations are presented according to the objectives of the study.

5.1 Summary of the study

The results of the study were as follows;

5.1.1 Procurement Planning and Project Performance

The correlation between procurement planning and road construction project performance was positive (r = 0.148) but insignificant as the P value obtained (P_o=0.266) which was more than the P critical (P_c=0.05) thus a positive but insignificant relationship/effect.

The amount by which a change in procurement planning brings a change in road construction project performance was 0.02 (R^2= 0.02). It implied that procurement organization affects road construction project performance only by 2%.

The qualitative results indicated inadequate field investigations of soils and materials before the designs and underestimation of quantities of works during the procurement planning stage as the causes of poor road construction project perfomance in UNRA.

5.1.2 Procurement Organization and Project Perfomance

The correlation between procurement organization and road construction project performance was positive (r = 0.300) and significant as the P value obtained (P_o=o.022) which was less than the P critical (P_c=0.05) thus a positive and significant relation ship/effect.

The amount by which a change in procurement organization brings a change in road construction project performance was 0.09 (R^2= 0.09). It implied that procurement organization affects road construction project performance by 9%.

The qualitative results revealed that in road projects where there was clear communication framework and the key players had fulfilled their obligations and played their roles adequately, the project performance was better. Similarly where the parties managed to fulfil their obligations during the project implementation affected positively on the road construction project perfomance.

5.1.3 Procurement Control and Project Perfomance

The correlation between procurement control and road construction project performance was positive (r = 0.335) but significant as the P value obtained (P_o=0.010) which was less than the P critical (P_c=0.05) thus a positive and significant relationship/effect.

The amount by which a change in procurement control brings a change in road construction project performance is 0.112 (R^2= 0.112). It implies that procurement control explains 11.2 % of the road construction project performance.

The qualitative data indicated introduction of new activities during the project implementation, changes in specifications and design and poor road construction project management.

5.2 Discussion of findings

5.2.1 Procurement Planning and Project Performance

The first objective of the study sought to investigate the effect of procurement planning on the performance of road construction projects in Uganda National Roads Authority.

The findings of the study established that there was a positive but insignificant relationship between procurement planning and road construction projects perfomance in Uganda National Roads authority. The findings established that procurement planning only explained 2.2% the road construction perfomance in Uganda National Roads Authority. This implies that the remaining 97.8% is explained by other factors. This effect is small and its likelihood to have had an impact on road construction projects performance was minimal.

The qualitative results indicated that there were inadequate field investigations of soils and materials before the designs and underestimation of quantities of works during the procurement planning stage. These may explain the percentage of effect which was established as explained above.

Basheka (2008) ascertain that procurement planning plays a significant role in efficiency and effectiveness of any service delivery process. According to him, if procurement planning is not done properly, the effeciency and effectiveness any service delivery activity is foregone.

Further Mullin (2003) emphasizes that planning procurement is necessary if an entity is to achieve its projects requirements efficiently. That if the procurement planning stage is not managed properly, it becomes difficult to achieve the project requirements in terms of time, cost and quality. Both scholars looked at the overall perfomance of an entity and did not concentrate on particular projects of these entities. This study was localised on the perfomance of road construction project perfomance and this could be the source of contradiction.

5.2.2 Procurement Organization and Project Performance

The second objective was to investigate the effect of procurement organization on the road construction project performance in Uganda National Roads Authority.

The findings of the study on the road construction in Uganda National Roads Authority revealed that procurement organization had a positive significant effect on the projects performance. This implies that proper organization of all key players in road construction have a positive impact on the performance of road construction projects.

The qualitative results revealed that in road projects where there was clear communication framework and the key players had fulfilled their obligations and played their roles adequately, the project performance was better. Similarly where the parties managed to fulfil their obligations during the project implementation affected positively on the road construction project perfomance. All this reinforce the observation that procurement organization had a significant effect on road construction project performance in UNRA.

According to Fayol (1841-1925), the organizing function is extremely important to the management system because it is the primary mechanism managers use to activate plans. Organizing creates and maintains relationships between all organizational resources thus enhancing project success. Laufer et al (1996) as cited by Nguyen, Ogunlana and Xhuan Lan (2004), also emphasizes the increasing importance of organization in leading and integrating people and taking decisions to create a successful project. Fayol's emphasis auger well with the findings stated above.

5.2.3 Procurement Control and Project Performance

The third objective sought to investigate how procurement control affects the road construction project performance in Uganda National Roads Authority.

The study findings of road construction projects in UNRA revealed that there was a significant positive effect of procurement control on the projects performance. This means that good procurement control affects positively the project performance.

The qualitative results revealed that some of the procurement control factors responsible for poor project performance were poor site management by the contractor, poor supervision and monitoring, changes in scope, underestimation of quantities by the client, poor work methods by the contractor.

These results are in agreement with Kumaraswamy and Chan (1998) findings. A study by Kumaraswamy and Chan (1998) indicated that six common significant factors for both building works and civil engineering projects were poor site management and supervision, low speed of decision making involving all project teams, client initiated variations, necessary variations of works and inadequate contractor experience which are all components of procurement control.

Arinaitwe (2007) findings also revealed that poor procurement control in terms of poor contract administration contributes highly to the poor performance of construction projects in terms of poor quality, variation in prices and time.

However only Kumaraswamy and Chan (1998) allocated the blame on both the client and the Contractor, Arinaitwe (2007) concluded that the poor construction project performance was solely due to the client. This study has revealed that both the client and Contractor are responsible for the poor project perfomance as a result the poor procurement control.

5.3 Conclusions

5.3.1 Procurement Planning and Project Performance

There was no substantial empirical evidence to prove that there was a relationship between procurement planning and road construction project performance. It can therefore be concluded

that all the required aspects of procurement planning looked at during this study are appropriately addressed and therefore further attention to them would not result into significant improvement in the road construction project performance in UNRA.

5.3.2 Procurement Organization and Project Performance

It can be concluded that further attention to improve the procurement organization will result into improved road construction project performance.

5.3.3 Procurement Control and Project Performance

It can be concluded that when procurement is handled appropriately, it results into better road construction project performance.

5.4 Recommendations

The findings of this study may provide Project Managers and Directors of UNRA with an insight into how to improve the road construction project performance.

5.4.1 Procurement Planning and Project Performance

The results revealed that there was no significant relation ship between procurement planning and road construction project perfomance. However it was noted that there was a small effect of procurement planning on road construction perfomance. This cannot be ignored. There is a need to improve the budgeting and documentation of product requirements where weakness of under budgeting, underestimating of quantities and sketchy specifications and designs were identified. UNRA should forecast project budgets basing on the project requirements to guard against cost variations. The entity should endeavor to ensure that the specifications and designs are thorough to cover all aspects the project requirement during the process of procurement planning. Independent technical audits of the designs, drawings and material specifications must be carried

out before the procurement process is started. The audits will help to check out the inconsistencies and gaps. Mechanisms of penalizing incompetent design consultants must be put in place.

5.4.2 Procurement Organization and Project Performance

The study identified that procurement organization affects the road construction project performance. UNRA should endeavor to improve the aspects of role and obligation definition and ensure that all the players in the project implementation abide by their roles and obligations. The study revealed weaknesses on both the side of Contractor and Client in playing their roles and fulfilling their obligations. It is recommended that UNRA as a client should ensure that it fulfils its obligations to the providers, for example, before the contractor is given commencement and possession of site notifications, all encumbrances must be cleared as these have been discovered to contribute to delays and cost overruns. The penalties in place for the providers who fails to play their roles and fulfil their obligations must be enforced as this will force them to perform better.

5.4.3 Procurement Control and Project Performance

Under the third objective it was established that increased procurement control had a positive effect on road construction project performance. It therefore recommended that UNRA through its project management teams, design departments, procurement unit ensure adequate designs and specifications. Close supervision and monitoring is also recommended as well as limiting the scope changes. It is further recommended that the contract agreements should be adhered to as much as possible. Lastly its recommended that UNRA should endeavour to ensure that the selection criteria eliminates all the incompetent firms and only the competent ones are involved in the road construction and risk registers are in place and continuously updated to avert any risk to the projects performance.

5.5 Areas for Further Research

This study has established that procurement management explains only 22 % of the road construction project performance; the 78 % is explained by other factors. A need to determine and explore these other factors will be very beneficial to the road construction sector and Uganda National Roads Authority in particular.

This study only concentrated on paved National roads but there are gravel roads/ feeder roads which are constructed by local contractors, who face different challenges. Further research into the performance of feeder roads will enrich the road construction sector

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APPENDICES

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Appendix A QUESTIONNAIRE

Dear Respondent, I am interested in carrying out a study on the procurement management and project perfomance in Uganda National Roads Authority. The study aims at determining the effect of procurement management on project perfomance in public agencies. The study is mainly driven by academic ambitions, however it hoped that the findings of the study will provide a deeper understanding of the impact of procurement management on the project perfomance and contribute in developing mitigation measures to the percieved poor project perfomance. It is against this brief background that I kindly request you to spare part of your valuable time to contribute to the cause. The researcher intends to treat all information provided with utmost confidentiality and shall not implicate any respondent in any way. After completing the questionnaire please kindly pass it on to the researcher,

Nakonde Zaituni

SECTION A: BACKGROUND INFORMATION

(*Please encircle or tick your correct option*)

1. Sex (1) Male (2) Female

2. Age bracket of respondents

(1) 20- 30 years

(2) 30-40 years

(3) 41-50 years

(4) Over 50 years

3. Your highest level of education

(1) Diploma

(2) Bachelors Degree

(3) Masters Degree

(4) PHD

(5) Other (specify)…….

4. Current Position

(1) Project Manager

(2) Project Engineer /Station Engineer

(3) Procurement Officer

(4) Contracts Committe Member

(5) Senior staff of Supervising Consultant

(6) Senior staff of Contractor

In sections B,C & D answer the questionnaire using the following scale to indicate the best option that reflects your opinion on each statement for example, if you strongly agree circle or tick No. 5 against that statement.

[5= strongly agree, 4= agree, 3= undecided, 2= disagree, 1= strongly disagree]

SECTION B:

	Question	**Response Options**				
	PROCUREMENT PLANNING					
	I) Procurement plan Preparation					
1	The procurement plans are prepared annually with all projects	**5**	**4**	**3**	**2**	**1**
2	The project costs are reflected in the procurement plan	**5**	**4**	**3**	**2**	**1**
	II) Budgeting					
3	The construction projects in the procurement plan are budgeted for adequately	**5**	**4**	**3**	**2**	**1**
4	The cost estimate for each project is obtained by considering all technical and field requirements of the project is obtained by considering all technical and field requirements of the p	**5**	**4**	**3**	**2**	**1**
	III) Procurement Methods					
5	The procurement method in the procurement plan for the constriction project s is determined according to the complexity of the project	**5**	**4**	**3**	**2**	**1**
	IV)Documenting Product Requirements					
6	The specifications and terms of reference are prepared thoroughly to guide the bidders on all requirements of the project in order to determine the time, cost and technical methodologies to be used on the project	**5**	**4**	**3**	**2**	**1**

SECTION C:

	PROCUREMENT ORGANIZATION					
	I) Roles and Obligation definition					
1	The role of the client on the project is clearly specified	**5**	**4**	**3**	**2**	**1**
2	The client plays his role adequately not to affect the project performance	**5**	**4**	**3**	**2**	**1**
3	The roles and obligations of the contractor are clearly specified	**5**	**4**	**3**	**2**	**1**
4	The Contractor always fulfill his roles and obligations	**5**	**4**	**3**	**2**	**1**
5	The roles and obligations of the supervising consultants are clearly specified	**5**	**4**	**3**	**2**	**1**
6	The supervising Consultants always fulfill their obligations	**5**	**4**	**3**	**2**	**1**
	II) Communication Framework					
7	The communication framework within the organization make all projects for procurement open to competent firms	**5**	**4**	**3**	**2**	**1**

SECTION D:

	PROCUREMENT CONTROL					
	(I) Selection criteria					
1	The selection criteria is set according to the project cost, time and quality requirements	**5**	**4**	**3**	**2**	**1**
2	The selection of the providers is based on their past performance in terms of quality, cost an time spent on similar projects	**5**	**4**	**3**	**2**	**1**
	(II)Specifications and designs					

3	The specifications and designs are prepared after thorough field investigations	**5**	**4**	**3**	**2**	**1**
4	The specifications and designs plus scope determines the time, cost and quality of the construction project	**5**	**4**	**3**	**2**	**1**
5	The client, contractors and supervising consultants adhere to original specifications, designs and scope during implementation	**5**	**4**	**3**	**2**	**1**
	(III) Bidding and Contract Documents					
6	The bidding documents used during tendering provides all required information to the contractor in order to determine cost, time and quality required	**5**	**4**	**3**	**2**	**1**
7	The Contract documents are prepared and contract signed in order to ensure that the project is implemented in time , cost and quality	**5**	**4**	**3**	**2**	**1**
8	The Contracts are adhered to throughout the project implementation period					
	(IV) Contract Administration and Monitoring					
9	All projects are supervised and monitored by experienced and knowledgeable personnel during implementation.	**5**	**4**	**3**	**2**	**1**
10	The client has adequate skilled and experienced personnel to monitor and supervise the projects during implementation	**5**	**4**	**3**	**2**	**1**
11	The project management teams always prepare reports which highlight the potential risks to the project performance	**5**	**4**	**3**	**2**	**1**
12	The potential risks to the project performance are mitigated early enough	**5**	**4**	**3**	**2**	**1**
13	The poor performing providers are penalized accordingly	**5**	**4**	**3**	**2**	**1**
14	The payments to providers is done promptly in order not to affect project performance	**5**	**4**	**3**	**2**	**1**

SECTION E: PROJECT PERFOMANCE

Section E-1 answer the questionnaire using the following scale to indicate the best option that reflects your opinion on each statement for example, if your rating is very good circle or tick No. 5 against that statement. **[5= very good, 4= good, 3= undecided, 2= poor, 1= very poor]**						
1	How do you rate the budget performance of road construction projects in UNRA	**5**	**4**	**3**	**2**	**1**
2	How do you rate the overall timely execution of road construction projects in UNRA	**5**	**4**	**3**	**2**	**1**
3	How do you rate the quality of road construction projects at UNRA	**5**	**4**	**3**	**2**	**1**
Section E-2 answer the questionnaire using the following scale to indicate the best option that reflects your opinion on each statement for example, if you strongly agree circle or tick No. 5 against that statement. **[5= strongly agree, 4= agree, 3= undecided, 2= disagree, 1= strongly disagree]**						
4	The changes on specifications and designs during construction accounts for the project cost overruns in UNRA	**5**	**4**	**3**	**2**	**1**
5	The changes on specifications and designs during construction are responsible for the project time delays in UNRA	**5**	**4**	**3**	**2**	**1**
6	The changes on specifications and designs during construction are responsible for the poor quality of road construction projects in UNRA	**5**	**4**	**3**	**2**	**1**
7	Underestimation of quantities for the project activities during procurement accounts for the project cost overruns during implementation	**5**	**4**	**3**	**2**	**1**
8	Underestimation of quantities for the project activities during procurement are responsible for the project time delays during implementation	**5**	**4**	**3**	**2**	**1**
9	Underestimation of quantities for the project activities during procurement are responsible for the poor quality of project	**5**	**4**	**3**	**2**	**1**

	during implementation					
10	The laxity in supervision and monitoring of road projects accounts for the project cost overruns during implementation	**5**	**4**	**3**	**2**	**1**
11	The laxity in supervision and monitoring of road projects is responsible for the project time delays during implementation	**5**	**4**	**3**	**2**	**1**
12	The laxity in supervision and monitoring of road projects is responsible for the poor quality of project during implementation	**5**	**4**	**3**	**2**	**1**

Please list down any other factors which might affect the road construction performance and not included in the questions above

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Thank You.

Appendix B INTERVIEW GUIDE

BACKGROUND INFORMATION

1. Sex of the Respondent:……..
2. Age bracket of respondents:……
3. Highest level of education of the Respondent:……
4. Current Position:…….

PROCUREMENT PLANNING

1. Are all projects identified with their estimated costs incorporated in the procurement plan each year?
2. Is the budget always adequate for each project in the procurement plan
3. How are cost estimates for each project in the procurement plan determined?

PROCUREMENT ORGANIZATION

1. What are the role and obligations of UNRA during procurement and implementation of road construction projects?
2. In your opinion do the Contractors fulfill their roles and obligations?
3. In your opinion do the Supervising Consultants fulfill their roles and obligations?

PROCUREMENT CONTROL

1. What is the basis of the selection criteria for Contractors of road construction projects in UNRA?
2. Who prepares the specifications used in road construction projects in UNRA?
3. Does the client, contractors and supervising consultants adhere to original specifications, designs and scope during implementation? If not why?

PROJECT PERFOMANCE

Construction Costs

1. Are the projects always completed within the initial contracts amount?
2. What causes the variations in costs?

Construction Time

1. Are projects always completed within the planned time?
2. What normally brings about time variations?

Construction Quality

1. What quality assurance mechanism is in place for road construction projects?
2. How do you rate the quality performance of road construction projects in UNRA
3. What factors contribute to unsatisfactory quality aspects of some projects?

General

Do you know any other factor affecting the road construction project perfomance in UNRA?

Appendix C

DOCUMENT CHECK LIST

<table>
<tr><th>Document</th><th>Particulars of Theme</th><th>Findings</th></tr>
<tr><td>Annual Procurement Plan</td><td>(i) How many annual procurement plans in existence since UNRA inception?

(ii) Are project costs reflected in procurement plans

(iii) Comparison of 3 selected projects in procurement plan, their cost estimate and the tendered costs.</td><td>Four (4) annual procurement plans (Fy 2008/09, 2009/10, 2010/11 and 2011/12)

All projects have their cost reflected in the procurement plan

<table>
<tr><td>Project</td><td>Budgeted cost</td><td>Contract cost</td></tr>
<tr><td>Masaka-Mbarara</td><td>Eur 75,000,000</td><td>Eur 79,014,151</td></tr>
<tr><td>Kampala-Gayaza-Zirobwe</td><td>UGX 65,000,000,000</td><td>UGX 69,499,914,926</td></tr>
<tr><td>Kabale-Kisoro-Bunagana</td><td>UGX 140,000,000,000</td><td>UGX 147,067,121,956</td></tr>
</table>
</td></tr>
</table>

Contract Documents

(i) Original and revised Contract Amounts (3 selected projects)

Project	Original Contract Amount	Revised Contract Amount
Masaka-Mbarara	Eur 79,014,151	Eur 113,000,000
Kampala-Gayaza-Zirobwe	UGX 69,499,914,926	UGX 96,054,618,534
Kabale-Kisoro-Bunagana	UGX 147,067,121,956	UGX 195,000,000,000

(ii) Original and revised Completion dates

Project	Original Completion date	Revised Completion date
Masaka-Mbarara	6 Jan 2011 (36months	30 June 2012 (54 month)
Kampala-Gayaza-Zirobwe	30 Nov 2009 (20months);	21 July 2011 (39.75 months)
Kabale-Kisoro-Bunagana	21 March 2010 (36mth)	31 Dec 2011 (58 Months)

	(iii) Are there sections in the contract documents for both supervising consultancy and civil works specifying roles and obligations of all parties	All contracts documents contain a section specifying the roles and obligations of the following (i) Client (UNRA) (ii) The contractor (iii) The Supervising Consultant
Minutes of Contract Management meetings	(i) What are the stated factors contributing to increased project costs and time	- Increased/changes in scope of works during implementation - Design reviews done during the implementation stages leading to changes in the designs and specifications - Lack of specified materials in the project area leading to changes in materials used - Lack of adequate competent key personnel for the Contractor - Adverse weather conditions - Delayed acquisition of some portions of land for the projects - Delayed relocation of utilities (telephone lines, water and electricity) from the road way - Increased quantities of materials resulting from poor/ hurriedly prepared designs and specifications - Under estimation of required time during the design of the project.

		- Poor ground conditions (Additional Geotechnical investigations) - Contractor's poor site management Poor ground conditions (Additional Geotechnical investigations) - Additional climbing lanes and realignment of curves - Encumbered site
Design Review Reports (a selected project was Masaka-Mbarara Road Project)	(i) List of some of the Changes in design/specification/scope	- Additional climbing lanes and realignment of curves - Additional driving lanes (from single carriageway to double carriageway in some sections of the road project - Change from use of stabilized gravel material to crushed rock stone as a sub base and base - Additional length of road works - Use of geo-grid for stabilization of swamps - Introduction of bus bays and parking lanes - Increase in the thickness of the pavement layers
Project Monthly Progress Report (2 consecutive monthly reports of Kampala-Gayaza-Zirobwe project)	(i) Are potential risks identified and mentioned (ii) Are mitigation measures listed?	- There is a section in the reports for identification of potential risks to the project performance. - The proposed mitigation measures were also high lighted - It was noted that although risks were highlighted, they were

	(iii) Are the highlighted risks mitigated early enough to avoid their effect on the project performance?	not mitigated early enough to avoid their effect on the project performance. An example; untimely land acquisition for sections on the project was one of the risks identified but it was not mitigated early enough, at the time of the study, there were sections not yet acquired and were delaying the project and increasing the project cost in terms of extension of time to the contractor with compensations.

Appendix D Instrument Reliability Analysis and Testing

Reliability

Procurement Planning

Reliability Coefficients

N of Cases = 10.0 N of Items = 6

Alpha = .9606

Procurement Organization

Reliability Coefficients

N of Cases = 10.0 N of Items = 7

Alpha = .9509

Procurement Control

Reliability Coefficients

N of Cases = 10.0 N of Items = 14

Alpha = .8134

Road Construction Project Performance

Reliability Coefficients

N of Cases = 10.0 N of Items = 12

Alpha = .7265

Appendix E Detailed Study Statistical Analysis Results

Appendix F Summary of Qualitative data results

UNRA DIRECTORS' RESPONSES

Procurement Planning

1. Projects are identified through needs assessment, feasibility assessment and funding availability
2. Only those projects with ascertained funding are incorporated in a procurement plan
3. The budget is just an approximate as it is prepared before the designs are complete; the designs determine the project cost. So at times the budget is not adequate for the project. One of the Directors when asked about the adequancy of the project budgets had this to say, "*The project cost in the Procurement Plan and Budget is just an estimate which at times is not adequate for the project".*

4. We normally use historical data, comparing the unit cost of previous similar projects.

   "The *cost estimates are determined using historical data, in most cases, we are required to indicate the project in the procurement plan before the designs are complete due to political pressure, in such cases, the only information available are the records of past similar projects"* .

Procurement Organization

1. The role of UNRA on each project is to ensure the following:
   a. The right provider with right cost is procured
   b. The project is delivered at right time, cost and quality
   c. Ensure that specifications and designs are adhered to
   d. Ensure that the Providers are paid within the specified periods.
2. Most times, the Providers fail to meet their obligations and` roles. This is due to the following:
   a. Unsatisfactory site management
   b. Inappropriate sequencing of activities
   c. Failure by the client to fulfill his obligations like- giving possession of site to the contractor in time
   d. Lack of enough equipment and personnel

e. Intended prolonging of completion of tasks in order to gain financially

3. UNRA has professionally trained and experienced personnel. With the reform in the public sector, where the designs, construction and supervision must be outsources, the staff are not given chance to exercise all they know.

4. Most of the supervising consultants fulfill their obligations and roles but there are others who do not represent the client satisfactory, they do not protect the client's interest as required.

Procurement Control

1. The criteria for selection of suppliers/contractors/service providers is determined according to the requirements of the project/product. The complexity determined the number of years of experience required and other factors. Some times the selection criteria is guided by the funder's requirements.
2. The consultants who prepare the designs and drawings also prepare the special specifications but the general specifications which apply to all projects are prepared by Ministry of Works, Transport and Communications. These are updated from time to time depending on the traffic growth, road requirements etc.
3. The specifications are adhered to but the designs some times changes due to emerging safety and quality requirements, this also applies to the scope. There are many factors which affects the scope examples, political factors, safety, environmental , quality, etc

One of UNRA directors had this to say "The Contract Agreements are meant to control cost, time and quality of the projects, they have to be adhered to, but at times they have to be amended when the need arises."

The poor performing Contractors are at times penalized through liquidated damages in case of delays and deductions from the payment certificates for unsatisfactory works. However , there are times when it becomes difficult to penalize a poor performing contractor, when us the client also have weaknesses, like removal of encumbrances from the roadways (untimely land acquisitions.

Project Performance

4. Most projects are completed at a higher cost.
5. The variations are caused by many factors and these include;
   - Design aspects; sometimes gaps/deficiencies exist in designs such as safety aspects, like parking lanes, climbing lane etc. These must be incorporated when construction is ongoing thus increase in project costs
   - Inadequate materials surveys during designs; long haulage distances or change in materials cost more

- Additional needs; some times due to politics, more works are added on the project like extra Km, etc thus increase in costs.
- Innovative approaches, sometimes the supervision consultants brings about a new approach which may improve the final product, it can be in terms of methodology, all these increase the costs
- The design consultants are given limited time and do not carry out extensive ground investigations thereby by leaving gaps in the final design.
- The time lag between when the projects are designed and the implementation, so many changes in the site conditions, there by increasing the quantities, methodologies, etc thus cost increase.

6. The procedure of effecting a cost variation is as follows:
   - A variation order is prepared under which the scope, cost and quantities and specifications are evaluated.
   - The increase to the original cost is clearly specified.
   - There are limits fir approval stages.
   - Then UNRA has to approve to a certain threshold (15%), beyond which the financier has to approve. The percentage of variation determines which PPDA guideline to use.
   -

Construction Time

1. Some projects are completed on time but most projects are completed outside the allocated time. Among all projects implemented in the last three years, only two have been completed on time.
2. The time variation is attributed to the following:
   - Changes in designs and specifications during the project construction
   - Changes in scope of work
   - Changes in construction methodology
   - Adverse weather changes
   - Poor site activity management by contractors

Construction Quality

1. What quality assurance mechanism is in place for road construction projects

- The audit of designs have been introduced to check the designs before procurement of a contractor is started
- Supervision consultants are engaged to do day today supervision and technical advising
- UNRA Contract Management team in place for each project

2. How do you rate the quality of the road construction projects in UNRA

- The quality of completed projects or those under construction is generally good. There are some aspects which may not be satisfactory on some projects but the overall rating is good.

3. The factors contributing to unsatisfactory quality aspects of some projects are as follows:

- Inappropriate methodologies used by contractors
- Inappropriate sequencing of tasks/activities and their timing
- Workmanship on site also affects the quality
- Implementation speed
- Poor /inadequate supervision by the supervising consultants
- The inappropriate specifications also contribute to the poor quality
- The relationship between the contractor and supervisor's staff also determines the resulting quality of works.

Other factors which may affect project performance include

- inadequate funding to cater for appropriate designs
- thefty of construction materials
- high levels of corruption in the procurement process during bidding
- submission of false information by bidders as they aim to win tenders
- under quotation by bidders as they aim to be the lowest evaluation bidders
- project budgets/costs tailored to the availability of funds intead of technical requirements/specifications
- inadequate consultation/involvement of all key stakeholders during the planning/procurement phase
- bureaucratic procurement process and over delay in decision making
- political interference in all project stages

- there is lack of interaction between the implementation team and design team
- the quality management requires procedures which are written and followed but this is not the case with UNRA
- There is a very big workload by UNRA staff which do not leave them adequate time to do thorough monitoring and supervision of construction.
- Untimely payments affects the contractor's cashflows
- The long period which elapse from the when the project is initiated to the implementation, this always calls for design reviews which in most cases increase the project cost and time
- Use of less professional staff by supervising consultants- all these are always replacements when the original staff in the tender documents have left
- High labour turnovers for the consultants and contractors
- Disputes and disagreements
- Procurement of supervising consultants when the contractors have already commenced
- Knowledge gap for specialized assignments
- Lack of problem solving skills by UNRA Project management teams
- Lack of historical information at the investigation stage leading to inadequate designs
- Overloading contractors with too many projects makes them inefficient

General opinions of Providers on Project Performance

1. The variations in costs are caused by the following
   - Insufficient time provided to contractors to digest all relevant drawings, designs, specifications applicable to the project
   - Increase in quantities / scope of works while construction is ongoing
   - Additional works
   - Changes in materials being used like replacing gravel with rock fill
   - Inadequate designs which is always reviewed as construction is ongoing
   - Increased quantities
   - Poor/inadequate designs which we have to improve while construction is ongoing
   - Natural causes such as weather like rains
   - Delays in approvals
   - Time extensions
   - Fluctuations of the local currency against the international currencies.

- Increase in cost of materials and fuel (both local and foreign)
- Poor contract administration such as fear to take critical administrative decisions by the supervisor (UNRA).

2. The reasons for project delays are the following
   - Abnormal rain falls during contract execution
   - Delayed instructions by the supervising engineer to the contractor
   - Increase in quantities leads to more construction time
   - The increased scope of works also leads to extra time required
   - The force marjoure-political instability factors like the civil unrest in Kenya made us loose some 2 to 3 months on one of construction projects as we couldn't import in the construction materials like lime
   - Rampant public holidays
   - Lack of skilled and experienced personnel for contractor to engage during execution
   - No ready availability of construction materials like fuel and cement
   - The client some times takes long to handover some sections of the site to us due to land acquisition /compensation problems
   - Design review snags
   - The initial project time estimates are usually very unrealistic or not well calculated
   - Poor contract administration by contractors
   - Poor weather conditions
   - Delayed payments hindering the contractor's cash flows and therefore progress
   - Procurement of incompetent contractors
   - Variations in scope of works
   - Increased quantities
   - Delays in relocation of utilities(water, electric lines and telephone lines) from the road way
   - Delays in land compensation to the affected people along the road project(6)
   - The initial poor designs I(inadequate) which also need time for review and improving.
   - Delayed procurement of materials obtainable from foreign countries like bitumen, paints, road signs etc
3. The factors affecting quality include;
   - The civic unrest like demonstrations within the population affect the quality of our work an example, recently people blocked sections on the road we were constructing and burned objects on top of it which affected the wearing course.
   - Lack of integrity in people handling the projects/corruption
   - Poor quality control procedures
   - Inadequate and inexperienced staffing by contractors.
   - Use of unskilled workers
   - Inadequate supervision
   - Unmotivated contractor's personnel

- Poor/old equipment and materials for construction works
- Socio economic factors in project areas like thefts
- Interference of politicians in the implementation of projects
- Incompetent contractors
- Inexperienced Contractors
- Money hungry contractors who put money before quality
- Not good investigations on the materials
- Use of unskilled and inexperienced workers by contractors
- Inappropriate/unrealistic standards/specifications
- Defects due to poor/bad usage of completed facility
- Poor and inadequate designs
- Under quotation by contractors in order to secure the contract
- Use of inferior materials
- Lack of equipment/ use of old equipment also affects the quality of work
- Lack of close supervision of the Construction works by both UNRA and Supervising Consultants
- Unclear specifications

Direct Quotations:

"the specifications and designs are sometimes so sketchy than the real work expected out of us; this leads us to underestimate in terms of cost and time of some activities"

Appendix G Introduction letter

Appendix H Research Authorization letter